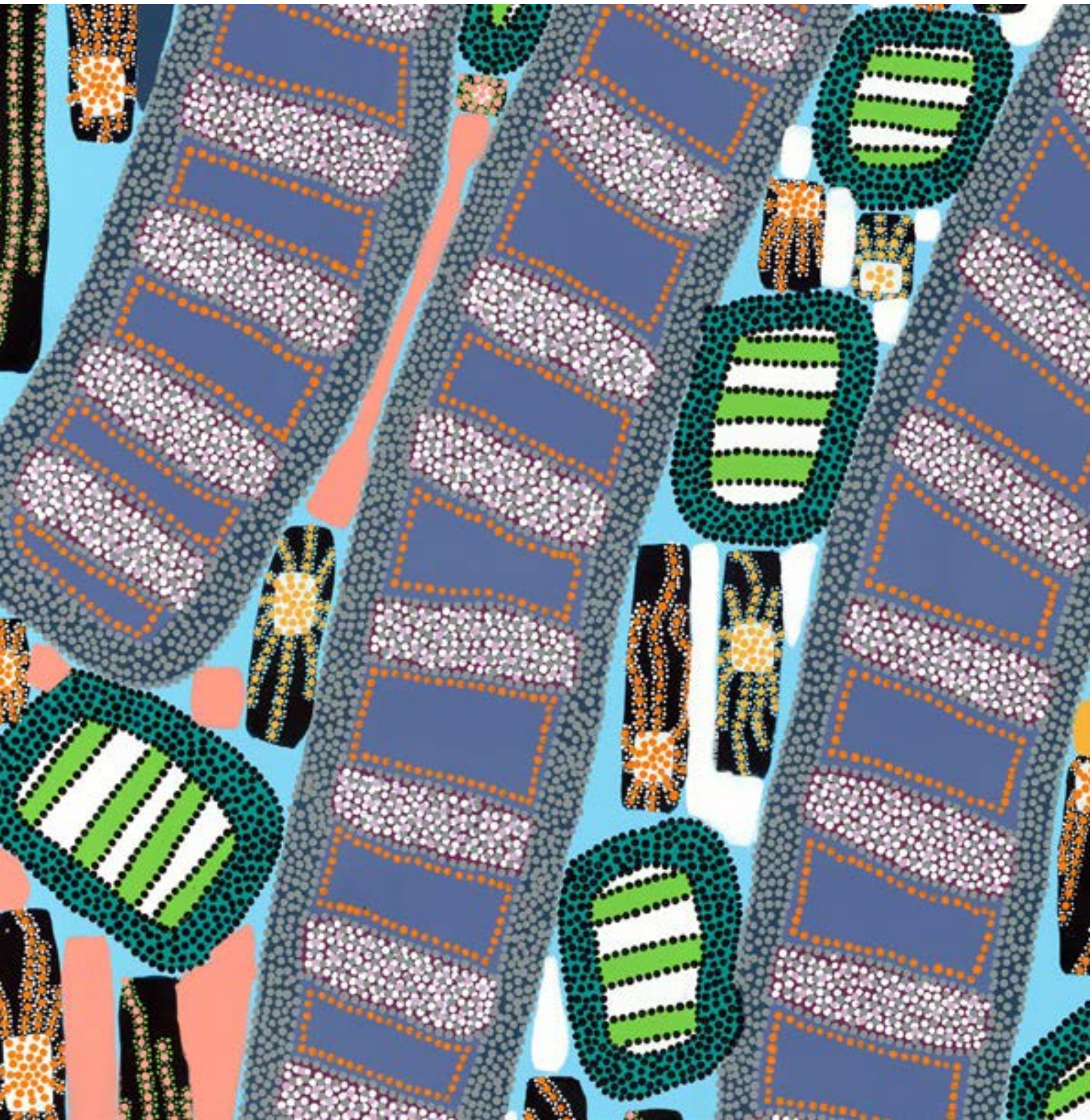


Productivity Commission White Paper 2021

Rebooting
the economy

Acknowledgement of Country



The NSW Productivity Commission acknowledges that Aboriginal and Torres Strait Islander peoples are the First Peoples and Traditional Custodians of Australia, and the oldest continuing culture in human history.

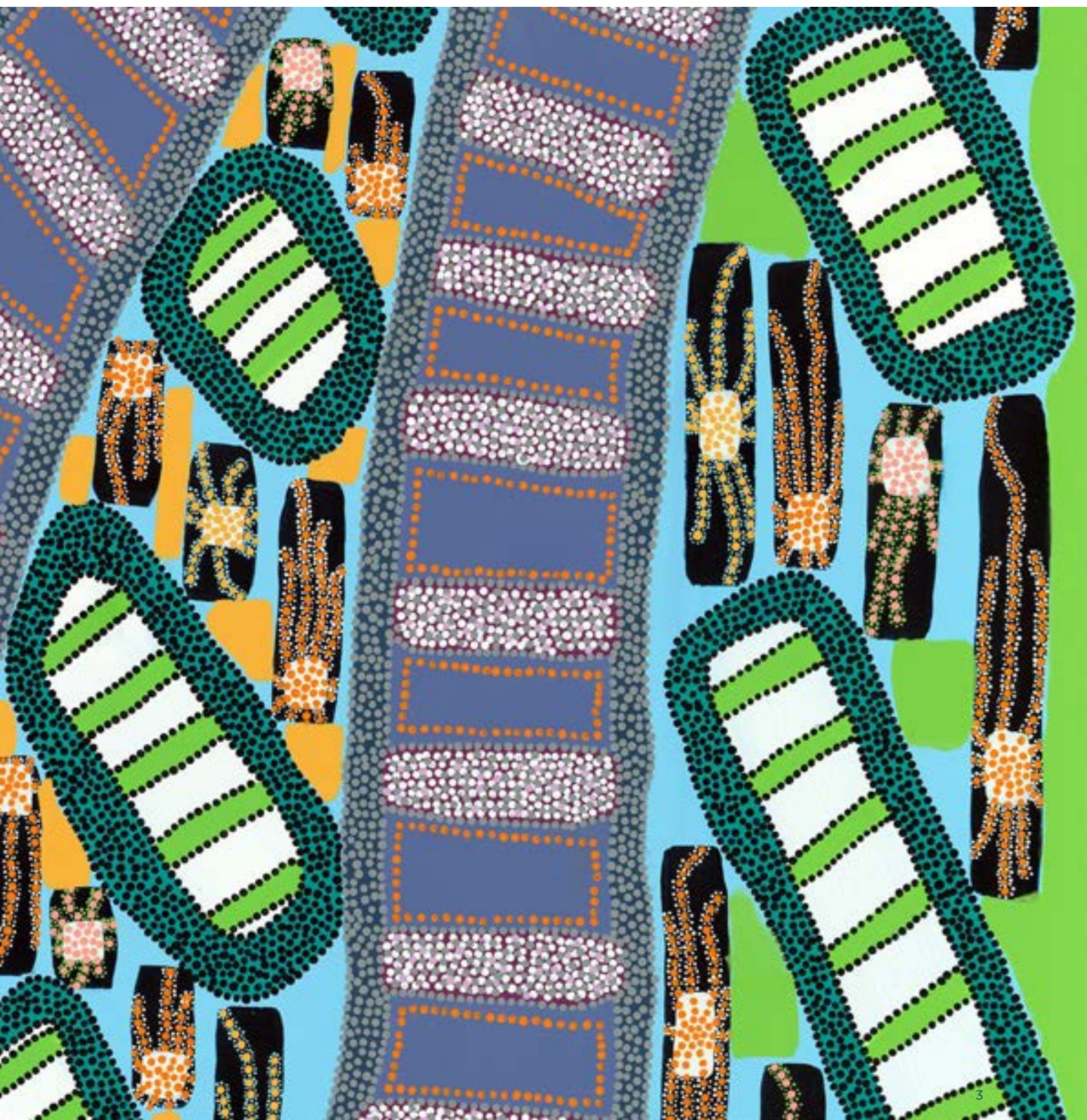
We pay respect to Elders past and present and commit to respecting the lands we walk on, and the communities we walk with.

We celebrate the deep and enduring connection of Aboriginal and Torres Strait Islander peoples to Country and acknowledge their continuing custodianship of the land, seas, and sky.

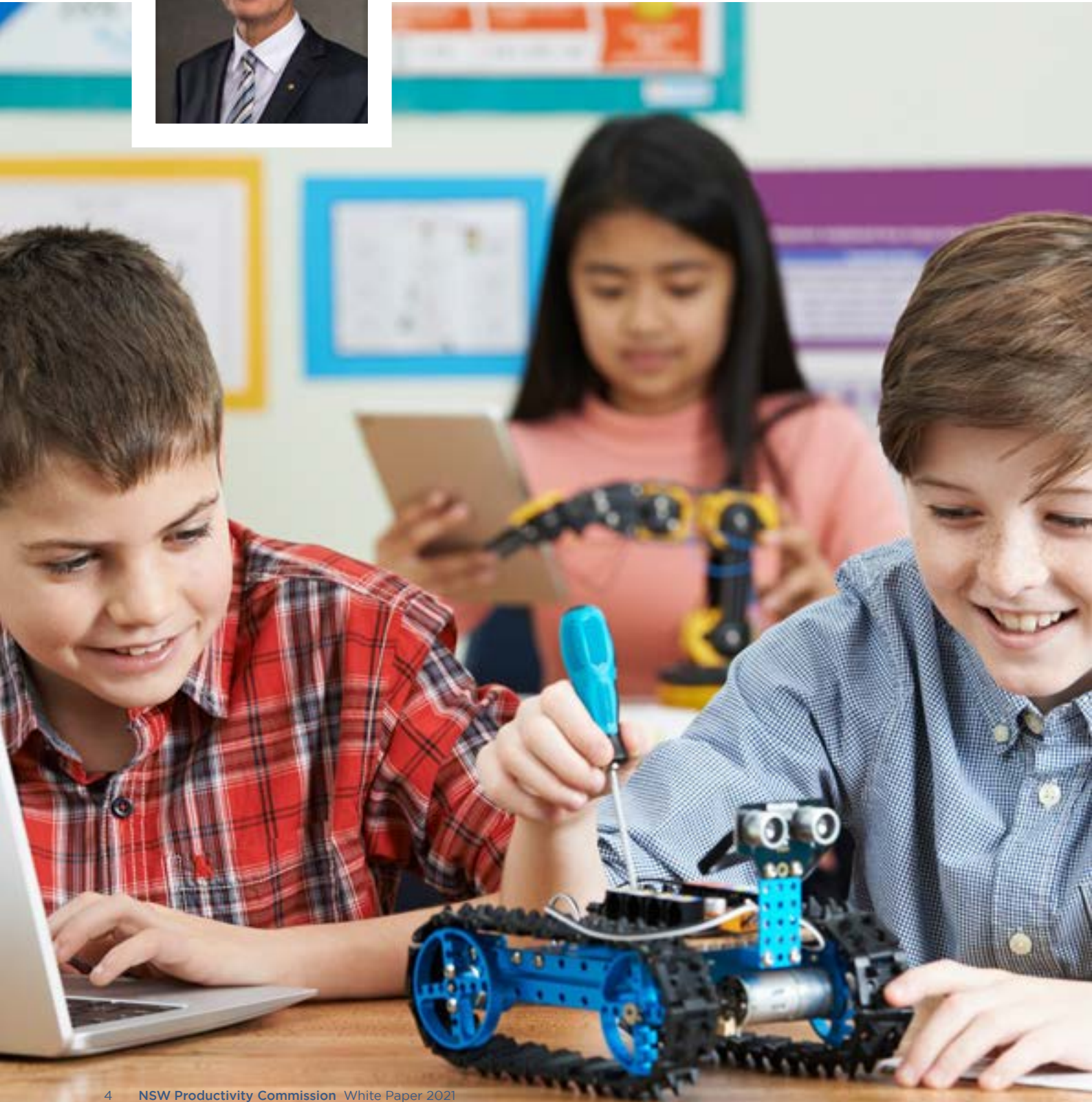
We acknowledge the ongoing stewardship of Aboriginal and Torres Strait Islander peoples, and the important contribution they make to our communities and economies.

We reflect on the continuing impact of government policies and practices, and recognise our responsibility to work together with and for Aboriginal and Torres Strait Islander peoples, families and communities, towards improved economic, social, and cultural outcomes.

Artwork: 'Regeneration' by Josie Rose 2020



Commissioner's Preface



Productivity growth offers the people of New South Wales important benefits: higher wages and output, greater business investment and employment, and a better quality of life. It makes our State a more attractive place to live, work, do business, and raise a family.

The NSW Productivity Commission released its first Discussion Paper, *Kickstarting the Productivity Conversation*, in October 2019. That opened a dialogue with the community on how New South Wales can address our declining productivity growth.

In the months since its release, the State has been buffeted by three successive natural disasters: the 2019-20 summer bushfires, the onset of the COVID-19 pandemic, and most recently, devastating floods. The pandemic, in particular, required swift and ongoing action to contain its spread. International border closures, restricted internal movement, and lockdown of much of our thriving services sector have made this a tough time for many.

But the work of the Productivity Commission has gone on. More than 100 people and organisations made submissions to the Discussion Paper. I listened to around 100 stakeholders on issues we raised, covering schools, skills, regulation, water, energy, taxation, planning, and infrastructure.

The recession induced by the pandemic, and the fiscal response required to manage it, have only made clearer the need for reform. In August 2020, we published draft recommendations for reform in our Green Paper, *Continuing the Productivity Conversation*. Over 100 submissions were received providing feedback on these draft recommendations. In the months since, the NSW Government has adopted recommendations covering education, skills, zoning restrictions, and infrastructure contributions. Many of these are already being implemented.

In response to COVID-19, the NSW Government has had to fund stimulus packages to keep the economy moving, and meet increased service demand, particularly in health. That has required heavy borrowings. Better productivity growth will ease the task of repaying that debt, reduce the need to raise taxes or reduce services, and leave a more manageable debt burden for future generations. As we embark on our jobs-focused economic recovery, we must consider new opportunities to embed productivity improvements in the way we do things. These include investing in our human capital by upskilling and retraining our workforce to fill these jobs, and making it easier to do business.

Consultation is central to the Commission's work. I would like to express my gratitude to all who have provided feedback through public submissions, roundtable discussions, and targeted meetings. Your input has helped us to define a vision for the future prosperity of our State's people.

This White Paper completes that vision by identifying 60 opportunities to reboot productivity growth in New South Wales, while also spurring action by other reform-ambitious Australian governments.

The benefits of reform are significant. Economic modelling of selected reforms could boost gross state product (GSP) by 2 per cent per annum by 2041; an increase of \$19.4 billion in today's dollars. To put this into perspective, this means lifting GSP per capita by 1.7 per cent and is equivalent to each NSW citizen over the age of 15 receiving an additional \$2,000 per year by 2041.

This series of papers on economy-wide productivity will be the foundation for future advice from the NSW Productivity Commission on enhancing the welfare of our State. Much like painting the Harbour Bridge, this work is never complete. And as in this paper, so in our future work will we benefit from the ideas and arguments of the entire NSW community.



PETER ACHTERSTRAAT AM
NSW Productivity Commissioner

Secretary's Foreword



It is with great pleasure that I receive the NSW Productivity Commissioner's White Paper 2021, *Rebooting the economy*. The recommendations offer a vision for a more resilient, sustainable, and prosperous economy that will serve the people of New South Wales for decades to come.

The Commissioner's productivity investigation has been conducted in unprecedented times. Bushfires, floods, and a deadly global pandemic have tested our resilience. The unusual but essential actions by Australian governments to balance the health response while keeping the economy afloat have been led by New South Wales.

In leading this response, we have embraced change. The pandemic made us reassess existing ways of doing things, paving way for the development of innovative solutions. For NSW Treasury, it meant adapting quickly to remote working arrangements as we supported the Government and frontline agencies in addressing the crises facing our State. With vaccines now being administered and restrictions lifted, I reflect with great pride on Treasury's contribution to navigating New South Wales' economy through this period.

Moreover, I am very proud of the work of the NSW Productivity Commission under Peter Achterstraat. Since its inauguration in 2018, the Commission has delivered a series of high-quality reports and outcomes, including deep-dive reviews of the Independent Planning Commission and infrastructure contributions system. And now comes this third and final paper in the Commission's economy-wide productivity series.

Submission of this reform agenda is timely. Spending during this crisis has added debt to our pre-existing pressures from growth, ageing, and community expectations for improved service delivery. We can only address this accentuated challenge by further embracing change.

The paper contains bold proposals that while not NSW Government policy, provide a reform strategy for the Government to consider. I am pleased to see the Government has already accepted some of the recommendations in last year's Green Paper and these are now in the early stages of implementation. Taxation reform—put off for too long—is now also gathering momentum. I am determined the lessons learned during the pandemic will guide our thinking as we reshape the way we live and work while future-proofing ourselves against future shocks.

This White Paper is part of a broader reform agenda being led by NSW Treasury as the Government navigates the State out of this difficult period. It joins the *NSW 2040 Economic Blueprint*, *NSW Federal Financial Relations Review*, *Global NSW Strategy*, the upcoming *2021 Intergenerational Report*, and a reform-focused 2021-22 Budget in setting up New South Wales for continued prosperity in the years ahead.

I would like to congratulate the Commissioner on his work over the past three years and thank those who have supported him in delivering it. I am excited about the future of the NSW Productivity Commission in providing objective, high-quality advice to Government. This approach to economic reform will help provide the foundations for a more prosperous future for the people of New South Wales. This is what the job of world-class Treasuries is about.



MICHAEL PRATT AM
SECRETARY, NSW TREASURY

Contents

> COMMISSIONER'S PREFACE	4
> SECRETARY'S FOREWORD	6
> ABBREVIATIONS	10
> EXECUTIVE SUMMARY	14
> Rebooting the economy	15
> Best-practice teaching will lift school results	17
> A modern VET system to deliver the skills we need	18
> Forward-looking regulation supports innovation and competition	21
> Meet the challenge of sustainable, well-priced water and energy	22
> A better mix of state and local taxes can encourage growth	24
> Plan for the housing we want and the jobs we need	26
> Smarter infrastructure will support jobs and communities	27

01 > PRODUCTIVITY DRIVES OUR PROSPERITY	28
1.1 > In the long run, productivity is almost everything	29
1.2 > Productivity growth has grown more urgent	30
1.3 > The pandemic shows us we can change faster	34
1.4 > A productivity growth reboot: the Commission's recommendations	38
1.5 > The economic dividend from productivity reform	41
1.6 > Implementing the reform agenda	43
1.7 > Report outline	43

02 > BEST-PRACTICE TEACHING TO LIFT SCHOOL RESULTS	44
2.1 > Our best bet for school improvement: teaching quality	48
2.2 > Focus on high-quality candidates rather the length of training	57
2.3 > Strive for best-practice teaching in every classroom	63
2.4 > Use meaningful feedback to support continuous improvement	70
2.5 > Drive cultural change through a Centre for Teaching Excellence	78
2.6 > Keep the best teachers in the classroom	80

03 > A MODERN VET SYSTEM TO DELIVER THE SKILLS WE NEED	84
3.1 > VET builds human capital	86
3.2 > Maintain momentum with an 'earn or learn' strategy	94
3.3 > Complement apprenticeships with new pathways to the trades	96
3.4 > Ensure the VET system delivers quality training that targets the economy's needs	106

04 > FORWARD-LOOKING REGULATION SUPPORTS COMPETITION AND INNOVATION	116
4.1 > Improved regulation is a major productivity lever	120
4.2 > Improve flexibility to support our COVID-19 recovery	122
4.3 > Modernise regulation	126
4.4 > Other specific regulatory reforms	139
4.5 > Build a higher-performance regulatory framework	175

05 > MEET THE CHALLENGE OF RELIABLE, WELL-PRICED WATER AND ENERGY	180
5.1 > Water and energy are essential to a productive economy	184
5.2 > Population and climate are challenging the water sector	185
5.3 > Improve water governance and planning	187
5.4 > Unlock efficiencies and opportunities through coordination and collaboration	194
5.5 > Address barriers to using new water sources	196
5.6 > Improve the performance of local water utilities in the regions	203
5.7 > Keep improving efficiency in our day-to-day water usage	208
5.8 > The energy sector must be cost-effective	214
5.9 > Firming renewables through peaking, storage, and small-scale baseload	226
5.10 > Demand management can reduce costs	229
5.11 > Ensuring New South Wales has strategic gas supplies	230
5.12 > Improving NSW energy governance	237
5.13 > Better target energy rebates	238

06 > A BETTER MIX OF STATE AND LOCAL TAXES WILL ENCOURAGE GROWTH	240
6.1 > The right tax mix will raise productivity growth	242
6.2 > New South Wales relies on high-cost taxes	244
6.3 > We can have a lower-cost tax mix	246
6.4 > The transition is the biggest obstacle to tax reform	250
6.5 > Local government funding deters growth	256

07 > PLANNING FOR THE HOUSING WE WANT AND THE JOBS WE NEED	260
7.1 > The role of planning in productivity growth	264
7.2 > Reforms to let us build more housing	267
7.3 > The impact of building regulations on housing supply	280
7.4 > Closing the assessment gap	288
7.5 > Unlock the potential of our employment and industrial zones	295
7.6 > Make the most of our open space and green infrastructure	304
7.7 > Implementing infrastructure contributions reform	306

08 > SMARTER INFRASTRUCTURE WILL SUPPORT JOBS AND COMMUNITIES	310
8.1 > Infrastructure underpins productive economies	312
8.2 > Better integrating land use and infrastructure	315
8.3 > Delivering infrastructure to maximise value for money	318
8.4 > Smarter use of existing infrastructure can ease congestion on roads and crowding on public transport	326

> APPENDIX 1	340
> APPENDIX 2	342
> APPENDIX 3	344
> APPENDIX 4	346
> REFERENCES	350

Abbreviations



ACRONYM	DEFINITION
ABS	Australian Bureau of Statistics
ACCC	Australian Competition and Consumer Commission
ACER	Australian Council for Educational Research
ADG	Apartment Design Guide
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AEN	Apprentice Employment Network
AER	Australian Energy Regulator
AERO	Australian Education Research Organisation
AIEO	Aboriginal and Islander Education Officer
AISC	Australian Industry and Skills Committee
AMR	Automatic mutual recognition
API	Application programming interface
AQF	Australian Qualifications Framework
ARTC	Australian Rail Track Corporation
ASQA	Australian Skills Quality Authority
ATAR	Australian Tertiary Admission Rank
BAC	Boosting Apprenticeships Commencements
BASIX	Building Sustainability Index

ACRONYM	DEFINITION
BCR	Benefit cost ratio
CASA	Civil Aviation Safety Authority
CBA	Cost benefit analysis
CBD	Central Business District
CESE	Centre of Education Statistics and Evaluation
CGE	Computable general equilibrium
CIE	Centre for International Economics
CN	Competitive neutrality
COAG	Council of Australian Governments
CoPS	Centre of Policy Studies
CPD	Continuing professional development
CPI	Consumer Price Index
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSG	Coal Seam Gas
CSO	Community Service Obligation
CTE	Centre for Teaching Excellence
DA	Development Application
DDL	Digital Drivers Licence
DPI	Department of Primary Industries

ACRONYM	DEFINITION	ACRONYM	DEFINITION
DPIE	Department of Planning, Industry and Environment	IGA	Intergovernmental Agreement
DRSP	Demand Response Service Provider	IPART	Independent Pricing and Regulatory Tribunal
ECT	Early childhood teacher	ITE	Initial Teacher Education
ELN	Electronic Lodgement Network	LCOE	Levelised cost of energy
ELWC	Economic Level of Water Conservation	LEP	Local Environment Plan
EP&A	Environmental Planning and Assessment	LGA	Local government area
EPA	Environment Protection Authority	LGCI	Local Government Cost Index
ESB	Energy Security Board	LNG	Liquefied natural gas
EV	Electric vehicle	LRMC	Long run marginal cost
FFR	Federal Financial Relations	LPP	Local Planning Panel
GDP	Gross Domestic Product	LWU	Local water utilities
GISERA	Gas Industry Social and Environmental Research Alliance	MLUF	Multiple Land Use Framework
GM	Genetically modified	NAPLAN	National Assessment Program in Literacy and Numeracy
GNP	Gross National Product	NASWD	National Agreement for Skills and Workforce Development
GP	General practitioner	NCC	National Competition Council
GPOP	Greater Parramatta and the Olympic Peninsula	NCP	National Competition Policy
GSP	Gross State Product	NCVER	National Centre for Vocational Education Research
GST	Goods and Services Tax	NEM	National Electricity Market
HELP	Higher Education Loan Program	NEL	National Electricity Law
HPPP	Health Professionals Prescribing Pathway project	NESA	NSW Education Standards Authority
HSC	Higher School Certificate	NQF	National Quality Framework
ICT	Information Communications & Technology	NSC	National Skills Commission
IEA	International Energy Agency	OECD	Organisation for Economic Co-operation and Development

ACRONYM	DEFINITION	ACRONYM	DEFINITION
OGTR	Office of the Gene Technology Regulator	STEM	Science, technology, engineering, and mathematics
OTC	Over-the-counter	TAFE	Technical and Further Education
PBS	Pharmaceutical Benefits Scheme	TDM	Travel Demand Management
PDF	Performance and Development Framework	TDMI	Travel Demand Management Implementation
PDP	Performance and Development Plan	TfA	Teach For Australia
PISA	Programme for International Student Assessment	TGA	Therapeutic Goods Administration
PMD	Personal mobility device	TIMSS	Trends in International Mathematics and Science Study
PV	Photovoltaic	TSPC	Trades Skills Pathways Centre
QTR	Quality Teaching Rounds	TVAAS	Tennessee Value-Added Assessment System
RACCA	Refrigeration and Air-Conditioning Contractors Association	UDIA	Urban Development Institute of Australia
RACGP	Royal Australian College of General Practitioners	US	United States of America
REZ	Renewable Energy Zones	VET	Vocational education and training
RIS	Regulatory Impact Statement	VPA	Voluntary Planning Agreement
RMIT	Royal Melbourne Institute of Technology	VU	Victoria University
RPL	Recognition of prior learning	VURM	Victoria University Regional Model
RPP	Regional Planning Panel	WELS	Water Efficiency Labelling Scheme
RTO	Registered training organisation	WPC	Western Parkland City
RUC	Road user charge	WPCA	Western Parkland City Authority
SEPP	State Environmental Planning Policy	WSAA	Water Services Association of Australia
SIC	Special infrastructure contributions		
SIS	State Infrastructure Strategy		
SRLUP	Strategic Regional Land Use Policy		
SMART	Specific, measurable, attainable, relevant, time-based		

Executive Summary

Productivity is the most powerful tool we have for improving our economic welfare. It measures how much labour, capital, and technology we use to produce the things we need and want. It is not about how *much* we work, but how *smart* we work.

Our productivity grows as we learn how to produce more and better goods and services, using less effort and other resources. From antibiotics to the smartphone, we enjoy goods and services today that the wealthiest people of a century ago could not imagine, let alone buy. This progress flows from rising productivity.

Productivity growth however should not be taken for granted. History suggests it comes in cycles. In Australia, the 1990s witnessed strong productivity growth, averaging 1.8 per cent per year. But the 21st century coincided with a productivity growth slowdown to an annual average of 1.1 per cent in the decade following. Labour productivity growth—measured as the change in what we produce each hour that we work—has slumped in recent years and, without action, our disappointing performance will worsen.

The consequences of weak productivity growth are serious. As the 2016 NSW Intergenerational Report showed, if slower productivity growth continues into the future, we can expect it to translate into slower growth in our living standards and increasing gaps between budget revenues and expenditures, as our population ages (NSW Treasury, 2016).

To put productivity back on the right track, we need to embrace opportunities for structural reform. Developments in this space are underway with several draft recommendations from the NSW Productivity Commission's 2020 Green Paper in their early stages of implementation.

Recent challenges such as the COVID-19 pandemic have tested our resilience, but have also demonstrated the State's ability to change in the face of crisis. We must act quickly to take advantage of the current window of opportunity to sustain the momentum for reform. This is the moment to reboot our economy and set ourselves up for lasting prosperity.

PRODUCTIVITY GROWTH CAN REBOOT OUR PROSPERITY

In shaping the State's new productivity reform agenda, the NSW Productivity Commission (Commission) considered public feedback to the draft recommendations of the Green Paper. The Commission would like to thank all stakeholders who provided feedback to both the Discussion Paper and Green Paper. This feedback has been invaluable in shaping a strong productivity reform agenda that can deliver the greatest economic benefits for NSW citizens over time.

This White Paper identifies **60 opportunities** that can help to reboot productivity growth. These stand on four foundations: talent; investment and innovation; housing; and infrastructure and natural resources.

These reforms could offer significant net benefits to the economy. At a macroeconomic level, the reforms could boost gross state product (GSP) by 2 per cent per annum by 2041, an increase of \$19.4 billion in today's dollars.¹ This translates to lifting GSP per capita by 1.7 per cent and is equivalent to each NSW citizen over the age of 15 receiving an additional \$2,000 in today's dollars. These estimates are conservative as they do not include all reforms areas and recommendations, and additional benefits will be realised where reforms lead to an increase in the pace of innovation.

¹ This is *additional* to the expected growth in the economy by 2041.

Rebooting the economy



TALENT

Supporting a skilled and high-performing workforce

Invest to improve workforce flexibility and resilience, and re-orient training and education priorities to meet employment and skill demand in the NSW economy.

PRIORITY RECOMMENDATIONS

RECOMMENDATION 2.2

Broadening the supply of quality teachers.

RECOMMENDATION 2.3

Supporting best-practice teaching.

RECOMMENDATION 3.2

Building new pathways into the trades.

RECOMMENDATION 3.3

Targeting VET subsidies better and encouraging higher quality training.

RECOMMENDATION 4.2

Improving occupational labour mobility.



INNOVATION

Enabling new technologies and ways of doing things

Ensure NSW regulation protects our citizens while allowing innovation, technology, and new ways of doing things to flourish.

PRIORITY RECOMMENDATIONS

RECOMMENDATION 4.1

Evaluate the success of COVID-19 regulatory changes.

RECOMMENDATION 4.3

Promoting more flexible rules for use of drones.

RECOMMENDATION 4.4

Regulating to let personal mobility devices and e-bikes fulfil their potential.

RECOMMENDATION 5.12

Lifting the ban on nuclear electricity generation for small modular reactors.

RECOMMENDATIONS 7.4 & 7.5

Consolidating and increasing flexibility of employment and industrial zones to accommodate new businesses.



HOUSING

Improving housing choice and affordability

Pursue policies and regulation to increase the supply of the right types of housing, in the right places, at the right times.

PRIORITY RECOMMENDATIONS

RECOMMENDATION 6.1

Switching our tax mix to more efficient taxes, starting with the replacement of transfer duty with a broad-based land tax.

RECOMMENDATION 7.1

Reforming housing supply policy to deliver the housing we need in the places we want to live.

RECOMMENDATIONS 7.2 & 7.3

Taking a more informed approach to building design regulation and approval process.

RECOMMENDATION 7.7

Increasing the efficiency and transparency of infrastructure contributions to deliver the infrastructure necessary to support growth.



INFRASTRUCTURE

Smarter use of infrastructure and natural resources

Establish 21st century infrastructure that makes our work more effective, and helps businesses get more from their investments.

PRIORITY RECOMMENDATIONS

RECOMMENDATION 5.1

Developing a long-term vision for the water sector and prioritise approaches to meeting the economy's water needs.

RECOMMENDATION 5.4

Engaging on water recycling to showcase and build trust in new water supply options.

RECOMMENDATION 5.8

Supporting a cost-effective energy transition through the National Electricity Market.

RECOMMENDATION 8.1

Expanding higher density development within transport hubs.

RECOMMENDATION 8.4

Developing a portfolio of travel demand choices and measures to reduce congestion on roads and public transport.

Together, the NSW Productivity Commission's recommendations will deliver a better NSW economy



Making housing more affordable



Lowering the cost of living



Making it easier to do business



Making it easier to move to NSW



Best-practice teaching will lift school results

Despite higher funding and recent reforms, NSW student outcomes are getting worse or stagnating. Throwing money at the problem has not worked. The best available evidence suggests that turning things around will require a strong focus on improving teaching quality.

KEY FINDINGS

Despite significant investment in our schools, student outcomes have been falling or stagnating for decades. While this is a complex area, the evidence suggests **teaching quality** is the most important in-school factor governments can influence to turn things around.

Unfortunately, efforts to raise teaching quality through funding and longer teacher training have had little impact. Policy should instead focus on embedding best-practice teaching in every classroom. This means giving every teacher the feedback and support they need to continuously improve.

Lifting teaching quality will also require measures to attract, develop, and support people with the potential to be highly effective teachers. Fast-tracking high-achieving entrants into teaching clearly works, especially in shortage areas like maths.

New South Wales needs new career paths that reward our best teachers and keep them in the classroom, teaching students and training teachers.

SUMMARY OF RECOMMENDATIONS

RECOMMENDATIONS 2.1 & 2.2

Meet the teacher supply challenge with a strategy that includes evidence-based measures and innovative pilot programs. Broaden the supply of quality teachers by reviewing the requirement for a two-year Masters and piloting employment-based pathways.

RECOMMENDATIONS 2.3 & 2.4

Make schools accountable for implementing best-practice teaching. Reform performance evaluation to give teachers meaningful feedback.

RECOMMENDATION 2.5

Create a Centre for Teaching Excellence to lead and support improved teaching quality across the system.

RECOMMENDATION 2.6

Develop an 'instructional lead' career pathway that keeps highly effective teachers in the classroom, as an alternative to an administrative career.



A modern VET system to deliver the skills we need

The State's vocational education and training (VET) system must reform to deliver the skills we need in a post-COVID economy. Chronic skills shortages show the system is unresponsive to industry and unattractive to students. Reform should focus on modernising training pathways and addressing poorly aligned incentives.

KEY FINDINGS

The NSW Government controls key VET levers such as the delivery of training, the running of TAFE NSW, and the targeting of course subsidies.

Despite many reviews of VET in the past decade, few reforms have modernised learning modes, career pathways, or VET's relationship with industry. Bias against VET is still strong, with universities seen as the default pathway, especially for Higher School Certificate (HSC) graduates.

COVID-19 has displaced thousands of workers and accelerated structural changes to the economy. Many jobs will not return, requiring workers to reskill or upskill.

Chronic skills shortages in trades are the result of unsuitable and limited training pathways beyond apprenticeships. Low wages and a lengthy, inflexible training structure deter potential trades workers.

Poorly targeted subsidies have encouraged many students to enrol in courses of low value to employers and students. The mismatch between skills delivered by VET and industry needs has further contributed to poor employment outcomes.

There is growing interest in micro-credentials from industry, students, and government. Micro-credentials are a highly targeted and efficient method of skills delivery and are well-suited to life-long learning.

SUMMARY OF RECOMMENDATIONS

RECOMMENDATION 3.1

Continue to provide targeted workforce support, though the 'earn or learn' strategy, focusing on the skills needed for the post-pandemic economy.

RECOMMENDATION 3.2

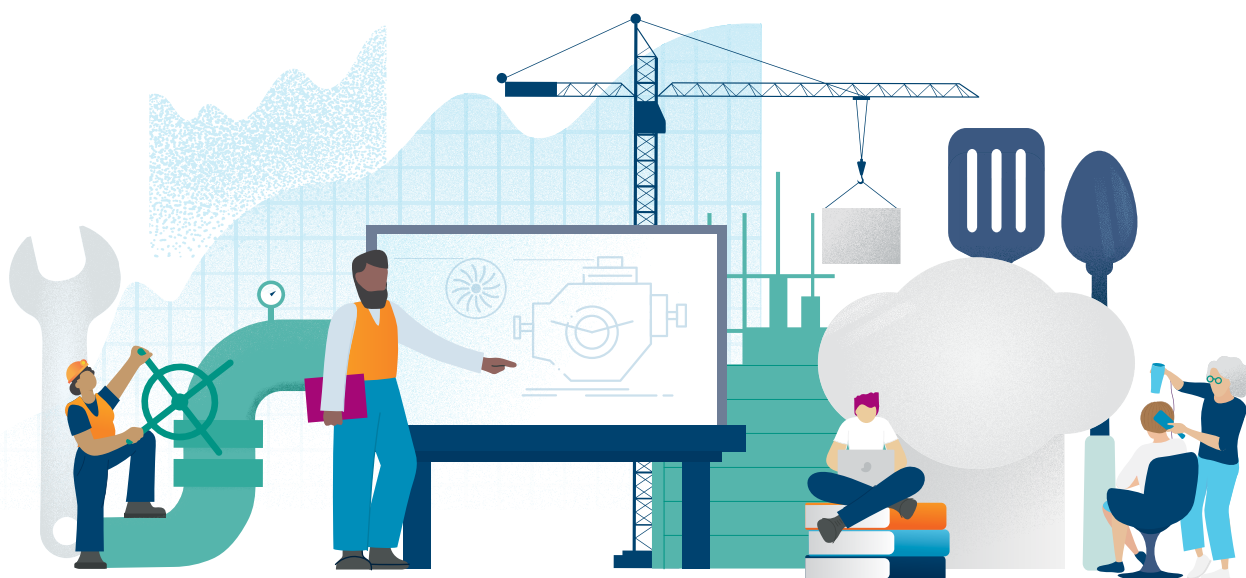
Introduce new pathways to trades qualifications aimed at HSC-holders and mature-aged workers. New pathways should allow trades training outside the traditional apprenticeship model. Continue roll out of the Trades Skills Pathways Centre to pilot new pathways in the construction sector.

RECOMMENDATION 3.3

Target VET subsidies more effectively using labour market data and redirect course funding to address identified skills shortages.

RECOMMENDATION 3.4

Extend Smart and Skilled program subsidies to target short courses and micro-credentials. Prioritise their funding towards skills which employers recognise and value.







Forward-looking regulation supports innovation and competition

Regulation helps to protect the health and safety of the NSW community, make our economy work better, and create the society we want. Done poorly, regulation stifles innovation, creates barriers to competition, imposes unnecessary costs on businesses, and slows down productivity growth. Regulatory reform gives us a powerful lever to ensure the economy responds to change and supports a healthy society.

KEY FINDINGS

Flexible, outcomes-focused regulation can quickly adapt and respond to changing social, economic, and technological circumstances. The NSW Government acted quickly at the onset of COVID-19 to provide further flexibility for businesses and consumers. Continuing this good work will help with our economic recovery too.

Emerging technologies can boost productivity and enhance the lives of NSW residents. Some regulations are currently constraining, rather than encouraging, the use of certain emerging and innovative technologies in New South Wales.

Frequent review of regulatory regimes ensures they remain fit-for-purpose and continue to deliver the intended benefits at the least cost to businesses and consumers.

A new and strategic approach to regulation in New South Wales will help reduce the compliance, administration, and efficiency costs of poorly designed and administered regulation.

SUMMARY OF RECOMMENDATIONS

RECOMMENDATION 4.1

Evaluate the success of the extended COVID-19 regulatory changes and retain them unless it can be shown there is no net public benefit.

RECOMMENDATION 4.2

Pursue automatic mutual recognition to help overcome NSW skills shortages.

RECOMMENDATIONS 4.3-4.5

Modernise regulation to encourage the use of emerging and innovative technologies, such as drones, personal mobility devices, and e-bikes.

RECOMMENDATIONS 4.6-4.15

Review existing regulatory regimes to ensure they remain fit-for-purpose and continue to provide the intended benefits; areas include occupational licencing, childcare, and agricultural regulation.

RECOMMENDATIONS 4.16 & 4.17

Move to a best-practice regulatory policy framework underpinned by Regulatory Stewardship and rigorous impact assessments.



Meet the challenge of sustainable, well-priced water and energy

WATER

Population growth and drought will continue to challenge the urban water sector. The sector can be better placed to maintain the affordable and reliable access to water services critical to a productive and liveable State.

KEY FINDINGS

The water sector's functions are spread across a number of agencies and corporations. That makes coordinated long-term decision-making harder.

Purified recycled water for drinking is a safe and cost-effective supply option. Securing public support is key to ensuring the option is 'on the table'.

The way we fund our 92 local water utilities (LWUs) is inefficient and not based on need. New operating models would help LWUs provide better services.

Managing demand for water can ease supply pressures, but it can also have social and economic costs.

SUMMARY OF RECOMMENDATIONS

RECOMMENDATIONS 5.1-5.3

Improve governance by setting a long-term vision and plan for the sector, clarifying roles and responsibilities, and improving collaboration and cooperation.

RECOMMENDATION 5.4

Engage with the public on the benefits of purified recycled water for drinking and explore investments that demonstrate and built trust in the recycling process.

RECOMMENDATION 5.5

Design and implement a needs-based funding model and work with the utilities to develop more efficient operating models.

RECOMMENDATIONS 5.6 & 5.7

Ensure the way we manage water demand maximises benefits for the community.



ENERGY

A major technological transition is underway in the energy sector. The switch from coal to renewable generation presents both risks and opportunities. Energy policy must evolve with the market to maximise the benefits of the transition and mitigate the risks.

KEY FINDINGS

The National Electricity Market has a strong governance structure that is well positioned to manage the energy transition now underway.

Reliability of electricity is important but this cannot come at a disproportionate cost. Duplication of State and national reliability and security measures comes at an unnecessary cost to energy consumers and taxpayers.

An efficient carbon dioxide emissions reduction mechanism is essential to a cost-effective energy transition that does not risk reliability and system security.

Growth of renewables needs to be firmed by peaking and storage capacity to deliver a cost-effective dispatchable power portfolio.

Demand management has a role in optimising the electricity system, but the slow rollout of smart meters and lack of mandatory cost reflective pricing holds it back.

New South Wales faces limited gas supplies, even with new import facilities and domestic extraction. A strategic approach to gas extraction and demand management is necessary to meet the State's gas needs within the constraint of a net zero economy by 2050.

State energy regulation is fragmented across multiple agencies. This raises costs and imposes unnecessary complexity. Energy subsidy programs are similarly numerous and complex.

SUMMARY OF RECOMMENDATIONS

RECOMMENDATION 5.8 & 5.11

Where possible, ensure NSW policy is developed and implemented within the National Electricity Market's governance structure.

RECOMMENDATIONS 5.9 & 5.10

Revisit the Energy Security Target and conduct careful evaluation before invoking the Electricity Infrastructure Safeguard under the Electricity Roadmap.

RECOMMENDATION 5.12

Lift the ban on nuclear electricity generation for small modular reactors.

RECOMMENDATIONS 5.13 & 5.15

Investigate new and innovative approaches to improve electricity pricing and achieve the NSW Government's 2050 target of net zero emissions.

RECOMMENDATION 5.14

Improve land use regulation and manage demand for gas.

RECOMMENDATIONS 5.16 & 5.17

Rationalise energy governance and streamline energy subsidies.



A better mix of state and local taxes can encourage growth

The Government funds vital services and infrastructure for a growing population. Yet some of our taxes are distorting the economy and impeding productivity growth. Some discourage work or investment; others disguise the real cost of goods and services. New South Wales will be more productive and better able to fund services and infrastructure if we move towards a more efficient tax mix.

KEY FINDINGS

New South Wales is overly reliant on inefficient taxes. Property transfer duty is the most costly and unreliable.

Jurisdictional differences in payroll tax administration can distort competition between states, by encouraging business to set-up in states with lower compliance costs.

An efficient and sustainable road user charge should be introduced to replace foregone excise revenues as zero and low emission vehicles (ZLEVs) gain market share. A low charge should be imposed immediately and increased over time, with the potential for the charge to change in line with location and time of driving.

The existing local government rates mechanism does not sufficiently compensate councils for population growth. This leaves local governments with insufficient revenue to meet demand for services, and a disincentive to accept development.

SUMMARY OF RECOMMENDATIONS

RECOMMENDATION 6.1

Replace inefficient taxes with more efficient ones. Start by replacing property transfer duty with a broad-based property tax on unimproved land values.

RECOMMENDATION 6.2

Coordinate payroll tax administration across states and territories and identify options to alleviate the impact on startups from payroll tax for the first five years of operation.

RECOMMENDATION 6.3

Abolish motor vehicle duty and replace with a road user charge for eligible electric vehicles.

RECOMMENDATION 6.4

Implement the local government rate peg reform to allow councils' general income to grow with population. If funding from rates revenues continue to be insufficient, councils should hold a plebiscite of ratepayers to test support for abolishing the rate peg.





SOLD

Plan for the housing we want and the jobs we need

Planning systems are enablers of productivity. In cities, they pool together talent, capital, and suppliers of goods and services. At the same time, they must manage the many costs of this process, such as congestion, pollution, and increased pandemic risk. Overly prescriptive and complex planning regulations stifle business competition and reduce housing supply. Changes to support the economy during the pandemic have helped—and they show how our planning system can be more responsive.

KEY FINDINGS

Housing supply has failed to keep up with demand. That has led to an undersupply of housing, increasing the cost of living for households and making New South Wales a less attractive place to live and work.

Regulations on apartment design and car parking requirements add to the cost of housing and are out of step with the needs of the community.

Development applications are taking longer to assess, and in some cases, take substantially longer than other jurisdictions, restricting housing supply and reducing affordability.

Prescriptive rules on land use by businesses are inflexible and cannot accommodate innovative businesses and the evolving economy.

As our population grows and our backyards shrink, access to open and green space is important for our productivity. It keeps people healthier, connects communities, and helps make cities more resilient to the impacts of climate change.

Infrastructure contributions are an important funding source to deliver infrastructure required to accompany growth. Over time the system has become more complex and is perceived as opaque and inefficient.

SUMMARY OF RECOMMENDATIONS

RECOMMENDATION 7.1

Develop and implement a system of long-term housing targets underpinned by strong evidence and governance.

RECOMMENDATION 7.2

Review apartment design regulations to ensure benefits justify costs and accommodate consumer choice.

RECOMMENDATION 7.3

Identify the causes of long assessment times in New South Wales and opportunities to bring them in line with best practice.

RECOMMENDATIONS 7.4 & 7.5

Progress reforms to rationalise employment zones and evaluate alternative ways to manage industrial land and urban services.

RECOMMENDATION 7.6

Progress development of a consistent way to measure the benefits of open and green space, and incorporate it into land use planning.

RECOMMENDATION 7.7

Implement all recommendations of the *Review of Infrastructure Contributions* to deliver a reformed contributions system.



Smarter infrastructure will support jobs and communities

Infrastructure enables economic activity. It moves commuters to work and freight to markets. It also provides critical services such as energy, housing, education, and healthcare. Investing in the right infrastructure is a powerful lever by which the Government can raise productivity.

KEY FINDINGS

Poorly coordinated land use planning and infrastructure delivery can generate community resistance to growth and impose high costs on Government.

Infrastructure investments are among the most expensive and important decisions governments make. Identifying and prioritising the right projects can have lasting benefits. Choosing badly can impose substantial costs on society.

Infrastructure bottlenecks are a drag on productivity. Road congestion and public transport crowding cost individuals and businesses valuable time and make New South Wales a less attractive place to live and work.

SUMMARY OF RECOMMENDATIONS

RECOMMENDATION 8.1

Plan for greater housing and business activity in areas where there is spare infrastructure capacity.

RECOMMENDATION 8.2

Improve transparency to create the right incentives for good infrastructure investment.

RECOMMENDATION 8.3

Ensure that agencies' business cases align with Government guidelines and that funding is given to properly evaluate projects.

RECOMMENDATION 8.4

Investigate a package of light-touch options to address road congestion. This should include measures that promote good driving behaviour, encourage off-peak travel, and targeted investments at specific congestion hot spots.

RECOMMENDATION 8.5

Assess how Opal fares and concessions can be used more effectively to manage public transport demand and support those that need it the most.



01 | Productivity drives our prosperity



1.1 | In the long run, productivity is almost everything

Productivity is the most important tool New South Wales has for improving our economic wellbeing. Our productivity grows as we learn how to produce more and better goods and services, using less effort and resources. More than anything else, it drives up our living standards.

Growth in productivity has given us the enhanced living standards we so enjoy. Among its benefits:

- **Medicine:** The French king Louis XV was perhaps the world's richest human being in 1774—yet the healthcare of the day could not save him from smallpox. Over the past year we have seen a deadly global pandemic blunted, first by techniques like quarantine and then by affordable vaccines undreamt of in the eighteenth century.
- **Manufacturing:** 300 years ago, a weaver's daily output was a few squares of hand-woven cloth. Today a technician with modern industrial looms can churn out huge bolts of cloth in the same time.
- **Farming:** In 1789 former burglar James Ruse produced New South Wales's first successful grain harvest on a 12-hectare farm at Rose Hill. Today the average NSW broadacre property is 2,700 hectares and produces far more on every hectare, often with no more people.
- **Travel:** 67 years after the invention of powered flight, in 1970, a Sydney-to-London return flight cost A\$4,600, equivalent to more than \$50,000 in today's terms. Using today's advanced aircraft, an airline can provide that flight for less than \$1,400—one-thirtieth of the 1970 cost.
- **Communications:** Australia's first hand-held mobile call was made at the Sydney Opera House in February 1987 on a brick-like device costing \$4,000 (\$10,000 in today's terms). Today we can buy a new smartphone for just \$150, and it has capabilities barely dreamt of a third of a century ago.

And productivity growth is still driving our wealth, prosperity, and quality of life upwards.

Of course, productivity is not everything. It is also crucial that we treat each other well, distribute the benefits of productivity fairly, and use our productive capacity to look after the most vulnerable members of our community. But before we can distribute productivity's benefits in this way, we have to create them. We have to make productivity grow.

As Nobel Prize-winning economist Paul Krugman famously wrote: 'Productivity isn't everything, but, in the long run, it is *almost* everything' (Krugman 1997). From decade to decade, productivity growth arguably matters more than any other number in an economy.

Productivity growth itself is driven by increases in our stock of skills and expertise (or 'human capital') and by investment in physical capital. Productivity grows when we increase competition, raise tax more efficiently, improve regulation, or drive efficiency within firms. But by far the biggest long-term driver of productivity growth is 'technological innovation'—a term that covers everything from new medicines to industrial machinery to global positioning systems.¹

Our future prosperity depends upon how well we do at growing more productive—how smart we are in organising ourselves, investing in people and technology, and getting more out of both our physical and human potential. Just raising NSW productivity to that of the United States (US) would lift our incomes by around 20 per cent. As the Commonwealth Productivity Commission recently pointed out, 'on average it takes five days for an Australian worker to produce what a US worker can produce in four' (Commonwealth Productivity Commission, 2020a).

1 Technology's contribution to overall productivity growth has been estimated at 80 per cent (Jones, 2015).

1.2 Productivity growth has grown more urgent

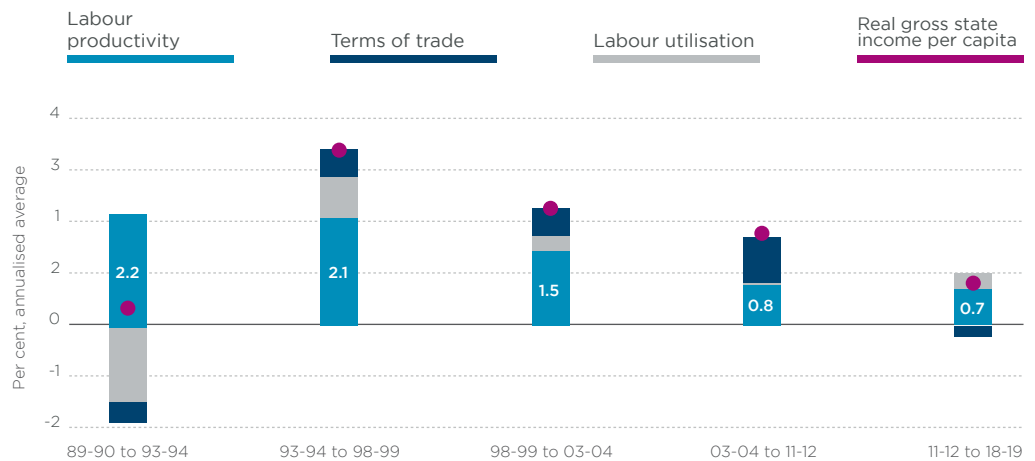
Lifting the State's productive capacity requires the same fix as always: we have to seize opportunities to change how we do things. Over the course of years and decades, this is the one thing that reliably drives up living standards.

New South Wales' productivity growth averaged a strong 2.8 per cent per year for the period from 1994-95 to 1998-99. But it then slowed to an average of 0.8 per cent between 2003-04 and 2011-12, and has averaged just 0.7 per cent since 2011-12 (see Figure 1.1).²

PRODUCTIVITY GROWTH HAS SLOWED

Unfortunately, productivity growth has slowed in New South Wales in the past decade, as it has in most advanced economies.

FIGURE 1.1: HOW NSW GROWTH HAS SLOWED



Source: Australian Bureau of Statistics Cat No. 5220.0, 6202.0.

We should treat these productivity statistics cautiously because productivity is notoriously difficult to measure. It is getting even harder to measure over time as our economy shifts from producing goods, like food—which are tangible—to services, like education and healthcare—which are less tangible. But the trend to weakening productivity growth is so clear and sustained that we cannot dismiss it as a statistical glitch (NSW Treasury, 2021). The statistics seem to be pointing to a real economic problem.

The NSW Productivity Commission's 2019 Discussion Paper identified how, without any action, our productivity

performance will keep deteriorating, impairing the State's economic performance and fiscal position (NSW Productivity Commission, 2019).

The need for structural reform has only grown as New South Wales has faced new challenges: the 2019-20 bushfires, a global COVID-19 pandemic, and our recent floods.

But unwelcome as it has been, COVID-19 has shown the State's ability to rapidly reform. And it has uncovered opportunities for productive change in New South Wales that, if adopted by Government, could set us up for long-term productivity growth.



The need for structural reform has only grown as New South Wales has faced new challenges

² Measured productivity is estimated by subtracting the growth in inputs from the growth in output—it is the residual (Gordon, Zhao, and Gretton, 2015).



If productivity growth doubled from its current **0.7 PER CENT** per year, by 2056 real gross state product per person would be around **\$33,000** per year higher

THE SLOWDOWN IS A GLOBAL TREND

This fall in productivity growth is not a NSW phenomenon but a global one. It has been seen not just across all Australian states and territories, but across all advanced economies, including the United States, Germany, and Japan (Baily, Bosworth, and Doshi, 2020). In fact, some advanced economies are doing worse than we are. Over most of the past quarter-century, Australia's productivity growth has outstripped that of the nation it is most often compared to, Canada (Capeluck, 2016).

Economists offer several theories about the global slowdown in productivity growth, but remain divided on the causes. So far, no one explanation has won out. The theories include:

- a global slowdown in technology development
- reduced innovation caused by declining wages
- lower investment in research and development
- a mining boom overhang
- overinvestment in passive assets like housing, compared to more innovative activities
- an overreliance on population growth and workforce participation to fuel economic growth
- the emergence of 'zombie firms', companies that are otherwise non-viable but have been kept afloat by low interest rates.

As the 2016 NSW Intergenerational Report (IGR) showed, if slower productivity growth continues into the future, we can expect it to translate into slower growth in our living standards and increasing gaps between budget revenues and expenditures, as our population ages (NSW Treasury, 2016).

The US economist Benjamin Friedman argues that when many people see their economic position stagnating, society may enter a period of rigidification, retrenchment, and retreat. This can often contribute to social problems: lower support for opportunity, diversity, generosity to the less well-off, and even a lower degree of support for democracy. Other research has since lent support to some of these positions (see for instance Becchetti and Castriota, 2007; Case and Deaton, 2020).

Without productivity growth, then, not only can improvements in our standards of living stall, but it is possible social cohesion may be eroded too.

PRODUCTIVITY CAN REBOOT OUR PROSPERITY

If we can reverse our slowing productivity growth, there are huge gains to be made.

If productivity growth doubled from its current 0.7 per cent per year, by 2056 real gross state product per person would be around \$33,000 per year higher (see Figure 1.2).³

³ Gross state product is often referred to as GSP. It is the state version of gross national product, or GNP, a useful (though imperfect) attempt to estimate the value of a region's products and services over a given timespan.

FIGURE 1.2: PRODUCTIVITY'S LONG-TERM POWER



Source: NSW Treasury's 2016 Intergenerational Report.

Note that 0.7 per cent is the annual average growth rate from 2011-12 to 2018-19; 1.5 per cent is the long-run annual growth rate assumed in the 2016 IGR.

This is not an unattainable goal. Because the recent slowdown in productivity is a global phenomenon, productivity will likely rebound somewhat in time across the world, without any action from Australia's governments. But to get back to the stronger rates of productivity growth seen in the past, all levels of government will need to act decisively. The NSW Government will need to play its part.

By focusing on productivity growth, we can lift our living standards without working more or using more of anyone's savings. We can improve life for workers and businesses at the same time (see Box 1.1). Doing so may also go a long way to keeping New South Wales a successful, hospitable, and dynamic society.

If we want our futures to be better than our pasts, and if we want to keep living as well or better than our parents and global neighbours, the NSW economy needs a productivity growth reboot.



BOX 1.1: PRODUCTIVITY GROWTH MATTERS FOR BOTH BUSINESS AND WORKERS

The benefits of productivity growth are generally split between workers (who earn higher wages), and the owners of capital (who earn higher profits).

The share of income that goes to workers' wages varies over time. From 1992 to 2020, it fell by four percentage points—from 62 to 58 per cent. This trend has been driven by the rising in house prices, the boom in mining sector profitability as new capital investment has come online, and an increase in the profitability of the financial sector in the post-Global Financial Crisis low interest rate environment (La Cava, 2019).

Some stakeholders worry workers are no longer getting a fair share of the income gained through productivity improvements, questioning the need to pursue productivity growth.

But productivity growth undoubtedly still benefits workers:

- Over the past 20 years, the wages of NSW workers have risen by 82 per cent whereas inflation has risen by only 60 per cent. In other words, workers' material standards of living have risen substantially. Productivity growth made this possible.
- Over the past century, governments have taken on a growing role redistributing the benefits of productivity gains to workers through new and improved government services, the tax system and social support payments.
- Most Australian workers share the benefits of productivity not only through wages but profits. Workers often receive profits through interest, dividends or capital gains on superannuation, savings, and investments; and capital gains on dwellings.

Without dismissing concerns about the wage-profit split, these figures show the truth of Paul Krugman's statement that opened this chapter: productivity really is almost everything.



1.3 | The pandemic shows us we can change faster

The pandemic gave New South Wales an opportunity to try new ways of doing things, to find new ways to keep the economy moving, and to ensure our future economic and employment prosperity.

At the height of the crisis, we faced unanticipated limitations on our daily lives, on our ability to move around New South Wales, and on our businesses' ability to run their operations. We rapidly mobilised both health and economic measures to keep the economy moving and people in jobs, while at the same time keeping our population healthy. Among the economy-wide changes we made during the pandemic:

- Many people quickly learnt new skills to work and learn from home and collaborate online.
- Many retailers shifted more of their business online—restaurants, for instance, made a huge switch to takeaway and home delivery.
- Businesses deployed communications technology to let remote work happen.⁴
- Schools and universities adopted online learning.

Since the release of the Green Paper, the NSW Government has progressed some of the Green Paper's draft recommendations in the 2020-21 Budget. These include:

- launching a suite of planning reforms aimed at maximising the productivity and flexibility of our **employment lands** and **further reducing assessment times**, as part of the Government's *Planning Reform Action Plan*.
- building a new Trades Skills Pathways Centre (commencing in the construction sector) to develop and pilot **new flexible trades pathways**, helping women and career changers enter the trades.
- developing a **new contributions digital tool** making it easier for stakeholders to understand and interact with the contributions system.
- implementing a new nation-wide scheme for the **automatic mutual recognition** of state based occupational licences.

The Commission welcomes this progress. It highlights a point we have made repeatedly: our ability to change and adapt during this episode. And it illustrates the benefits and success from future productivity-enhancing adaptation.

Businesses and communities across NSW have demonstrated their ability to be flexible and adapt quickly to the changing circumstances that the COVID-19 crisis has brought.

OPEN CITIES ALLIANCE SUBMISSION

⁴ The NSW Innovation and Productivity Council's *NSW Remote Working Insights* (November 2020) report can be assessed here <https://www.treasury.nsw.gov.au/sites/default/files/2020-12/Full%20Report-IPC-NSW-Remote-Working-Insights-Report-1-2020-accessible.pdf>

As we succeed in minimising the spread of COVID-19, our focus should shift away from stimulus measures aimed at buttressing the economy amid a recession. We need productivity-boosting reforms that will assist with our economic recovery and reboot the NSW economy so that our businesses and citizens thrive in the decades ahead.

Many stakeholders have long advocated for productivity reform. But these calls have intensified through the natural and public health challenges of the past year. Many recognise **the need to act now** to help drive the State's economic recovery over the coming months.

We need to look now to productivity boosting reforms that will assist with our immediate economic recovery, that will grow the size of the NSW pie for citizens and businesses in the decades ahead.

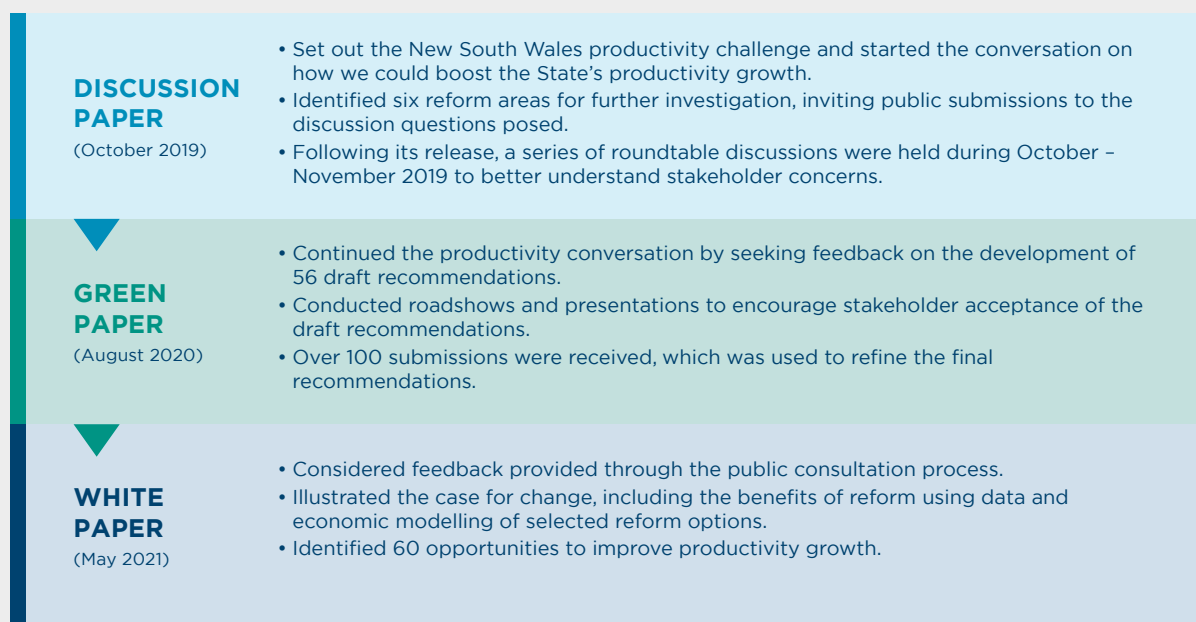
The events of the past year should give New South Wales confidence that we can indeed perform a productivity growth reboot.

BOX 1.2: WHAT THE PRODUCTIVITY COMMISSION HEARD

The Office of the NSW Productivity Commissioner (the Commission) was established in 2018 to identify a new productivity agenda for the State. A three-stage process was used to develop an agenda to boost productivity in New South Wales (see Figure 1.3).

This Productivity Commission White Paper identifies 60 opportunities for New South Wales to improve productivity growth.

FIGURE 1.3: THE PRODUCTIVITY PROCESS



Stakeholder engagement has been vital for developing this reform agenda. The Commission initially consulted with stakeholders to hear what they had to say about the need for change and the types of change. The Commission also received more than 200 public submissions from stakeholders in response to the Discussion Paper and Green Paper.

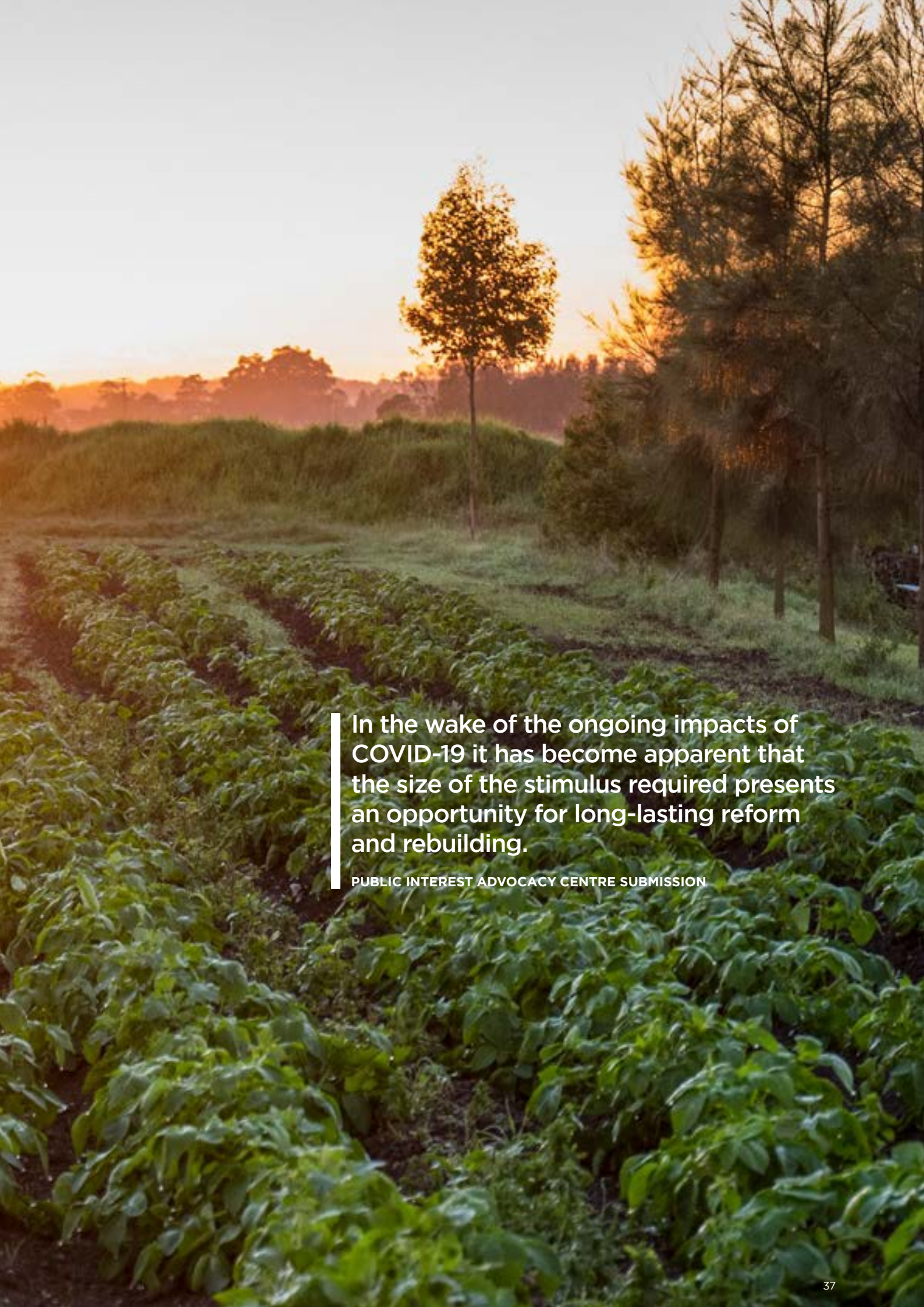
Stakeholders were unanimous that New South Wales needs productivity to deliver long-term economic prosperity for its people, communities, and businesses. Overall, they have supported the opportunities identified by the Commission. They differed at some points about how best to boost productivity. Designing reforms challenges us all to balance the varying interests of stakeholder groups.

The Commission would like to thank all stakeholders who have participated in its public consultation process as part of its productivity series. This feedback has been invaluable in shaping a strong NSW productivity reform agenda that can deliver the greatest economic benefits for NSW citizens over time.

The economic impact of COVID-19 has heightened the need for a robust productivity agenda, and the green paper's draft recommendations, among other microeconomic reforms, will be crucial to ensuring NSW can recover and prosper.

BUSINESS NSW SUBMISSION





In the wake of the ongoing impacts of COVID-19 it has become apparent that the size of the stimulus required presents an opportunity for long-lasting reform and rebuilding.

PUBLIC INTEREST ADVOCACY CENTRE SUBMISSION

1.4 A productivity growth reboot: the Commission's recommendations

The NSW Government's management of the health and economic crisis has helped to produce world-class results. Now the NSW Productivity Commission has identified **60 opportunities** that can

help to reboot productivity growth. These opportunities stand on four foundations: talent, investment and innovation, housing, and infrastructure and natural resources.

PREPARING FOR A PROSPEROUS FUTURE



TALENT

Supporting a skilled and high-performing workforce

INNOVATION

Enabling new technologies and ways of doing things

HOUSING

Improving housing choice and affordability

INFRASTRUCTURE

Smarter use of infrastructure and natural resources

Together, the NSW Productivity Commission's recommendations will deliver a better NSW economy



Making housing more affordable



Lowering the cost of living



Making it easier to do business



Making it easier to move to NSW



New South Wales' management of the health and economic crisis has helped to produce world-class results

1. TALENT: SUPPORTING A SKILLED AND HIGH-PERFORMING WORKFORCE

Invest to improve workforce flexibility and resilience, and re-orient training and education priorities to meet employment and skill demand in the NSW economy.

Governments can drive productivity growth and lift economic prosperity by supporting investment in human capital and improving its use. The right amount of quality education makes us more likely to work and earn good incomes (Forbes, Barker, and Turner, 2010).

The importance of human capital has increased as the global economy has placed greater value on skills. Arguably the single biggest productivity challenge for governments is to increase the value their citizens can add to the global economy. They can do this 'by enhancing their skills and capacities and by improving their means of linking those skills and capacities to the world market' (Reich, 1991). As service activities increasingly dominate the economy, success and prosperity will depend even more on our continued ability to raise the quality of our human capital.

The health and economic crisis of the COVID-19 pandemic has shown the need to reskill significant segments of the labour force. We need to prepare people for new career opportunities, with skills that better meet industry's needs.

Priority recommendations include:

- broadening the supply of quality teachers (Recommendation 2.2)
- supporting best-practice teaching (Recommendation 2.3)
- building new pathways into the trades (Recommendation 3.2)
- targeting VET subsidies better and encouraging higher quality training (Recommendation 3.3)
- improving occupational labour mobility (Recommendation 4.2).

2. INNOVATION: ENABLING NEW TECHNOLOGIES AND WAYS OF DOING THINGS

Ensure NSW regulation protects our citizens while allowing innovation, technology, and new ways of doing things to flourish.

The biggest long-term driver of productivity is innovation. Innovation includes new ideas from medicines to industrial machinery to global positioning systems. But innovation goes beyond technology: it includes better and new ways of doing things, from simplifying planning processes to introducing new management techniques.

The COVID-19 pandemic was a significant disruptor, but it boosted innovation. Lockdowns forced many businesses to reinvent themselves with a new 'business as unusual' philosophy. Hotels and cafes turned into takeaway venues overnight. Gin distilleries turned to manufacturing hand sanitiser. Universities moved to remote learning and adopted state-of-the-art solutions to keep students engaged.

The depth and speed of these changes shows we can make the reforms that productivity growth requires.

Priority recommendations include:

- Evaluate the success of COVID-19 regulatory changes (Recommendation 4.1)
- promoting more flexible rules for use of drones (Recommendation 4.3)
- regulating to let personal mobility devices and e-bikes fulfil their potential (Recommendation 4.4)
- lifting the ban on nuclear electricity generation for small modular reactors (Recommendation 5.12)
- consolidating and increasing flexibility of employment and industrial zones to accommodate new businesses (Recommendations 7.4 & 7.5).

3. HOUSING: IMPROVING HOUSING CHOICE AND AFFORDABILITY

Pursue policies and regulation to increase the supply of the right types of housing, in the right places, at the right times.

Well-located housing plays a vital role in productive cities. The location of housing determines what jobs people can access, what skills businesses can call on, and what access households will have to all the things that make city life enjoyable.

Our housing market has not responded well to recent events. A perfect storm of record low interest rates, government stimulus spending, and higher savings have contributed to surging house prices across the State over the past year. Rising demand for housing from faster-than-expected population growth and falling interest rates have pushed up rents and housing prices. Strict constraints on the location, nature and density of housing are limiting choice and leaving people with less income to spend on other goods and services. A market that does more to give the quantity, location and type of housing NSW residents want will help alleviate these pressures.

Our inefficient property taxes further complicate the State's housing challenges. Transfer duty on high house prices makes it harder to relocate, reducing labour mobility by as much as 25 per cent, even where that might open up new opportunities (Commonwealth Productivity Commission, 2014c). It also adds substantially to the amount that first homebuyers need to save, worsening affordability for that group.

Priority recommendations include:

- switching our tax mix to more efficient taxes, starting with the replacement of stamp duty with a broad-based land tax (Recommendation 6.1)
- reforming housing supply policy to deliver the housing we need in the places we want to live (Recommendation 7.1)
- taking a more informed approach to building design regulation and approval process (Recommendations 7.2 & 7.3)
- increasing the efficiency and transparency of infrastructure contributions to deliver the infrastructure necessary to support growth (Recommendation 7.7).

4. INFRASTRUCTURE: SMARTER USE OF OUR INFRASTRUCTURE AND NATURAL RESOURCES

Establish 21st century infrastructure that makes our work more effective, and helps businesses get more from their investments.

Infrastructure underpins our lives and work. Getting smarter about how we use and invest in our infrastructure is essential to our future growth and prosperity.

Infrastructure spending is often painted as a way to stimulate the economy and create jobs, especially in times of crisis. But even when those benefits exist, they must be weighed against the borrowings they require, and other uses of the money. We should ensure we take a long-term view and prioritise projects with the greatest economic benefits.

Population growth and climate change will continue to present challenges and opportunities in how we manage our limited natural resources. Better management of our water and energy resources will ensure reliable, sustainable, and productive supply that maximises benefits for the community. A long-term vision and strategy for our power grid, underpinned by robust governance of the National Electricity Market, will minimise the costs to business and the economy as we transition from coal-based generation to a new portfolio approach.

Priority recommendations include:

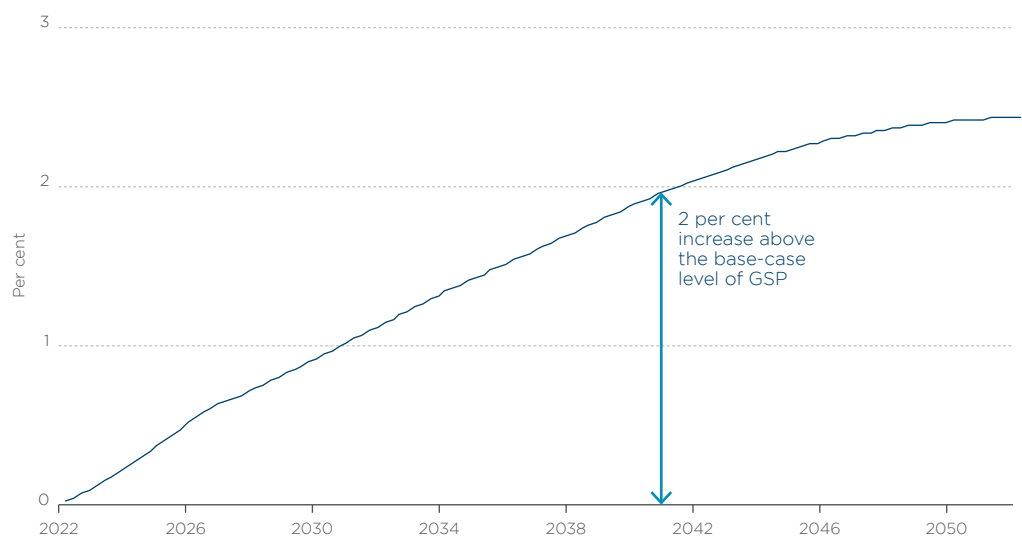
- developing a long-term vision for the water sector and prioritise approaches to meeting the economy's water needs (Recommendation 5.1)
- engaging on water recycling to showcase and build trust in new water supply options (Recommendation 5.4)
- supporting a cost-effective energy transition through the National Electricity Market (Recommendation 5.8)
- expanding higher density development within transport hubs (Recommendation 8.1)
- developing a portfolio of travel demand choices and measures to reduce congestion on roads and public transport (Recommendation 8.4).

1.5 The economic dividend from productivity reform

Economy-wide modelling, using the Victoria University Regional Model, shows that the Commission's reforms to regulation, along with reforms focusing on boosting human capital and tackling housing affordability, could

significantly improve living standards of NSW citizens. These reforms could boost gross state product (GSP) by 2 per cent per annum by 2041; that is an increase of \$19.4 billion in today's dollars—see Figure 1.4.

FIGURE 1.4: IMPACT OF PRODUCTIVITY REFORM ON GROSS STATE PRODUCT



Source: Victoria University.

This is significant when we consider that the pinnacle of productivity reforms—the Hilmer Review of the 1990s—identified measures that were estimated to improve GDP by 5.5 per cent (Commonwealth Productivity Commission, 1995). The reforms identified by the NSW Productivity Commission compare favourably with the Council of Australian Government (COAG) National Reform Agenda of the 2010s, which identified gains of only 0.5 per cent (Commonwealth Productivity Commission, 2012a).

The benefits from reform lift GSP per capita by 1.7 percent, and is equivalent to each NSW citizen over the age of 15 receiving an additional \$2,000 per year in today's dollars by 2041. These are just the start of the gains. They only capture a proportion of the proposed White Paper recommendations and they do not include the gains where the reforms feed innovation and foster new ways of doing things.

The individual reform areas were modelled separately to showcase the magnitude of individual reforms relative to each other: improving our children's school outcomes, increasing labour participation and addressing skills shortages in trades, planning changes that increase housing supply and reduce the cost of housing and rolling out an adaptable and forward-looking regulatory framework:

- Investing in the education of our children has the potential to boost productivity, lifting GSP by 1.2 per cent per annum (\$11.5 billion in real terms) by 2041, the biggest impact of any of the reforms. These benefits are realised over a long time period time, highlighting the power of our education system to support our economic wellbeing over many generations.

- Improving the housing market's responsiveness to the needs of households will bring significant and wide-reaching economic benefits. Reforming planning so as to reduce the cost of building dwellings quickly translates into a relatively rapid boost in GSP of over \$3 billion by 2029 as the increase in real wages attracts additional workers to New South Wales. The gains then slow as real wage growth and migration ease with a 0.5 per cent increase in real GSP (\$5 billion in today's dollars) by 2041. Although the benefits are realised more rapidly than for other reforms the increase in GSP are not as sustainable.
- A regulatory framework that protects NSW citizens while better enabling new technologies and ways of doing things can significantly improve the quality of life of NSW citizens. Moving towards a best-practice regulatory framework will boost GSP by 0.1 per cent (\$1.2 billion in real terms) by 2041. These benefits are likely conservative given the modelling does not account for the economic benefits that flow from innovation that occurs when obstacles to new technologies and ways of doing things are removed.
- Increasing labour force participation and addressing the economy's skills gaps through has the potential to deliver large and rapid boosts to economic growth. Introducing new and flexible pathways into trades, via the Trade Skills Pathway Centre (TSPC), can lift GSP by 0.2 per cent per annum by 2041 (\$1.2 billion in real terms).

Box 1.1 summarises the economic modelling approach used to measure the size of the prize to New South Wales from pursuing a concerted productivity reform agenda.

BOX 1.3: THE ECONOMIC MODELLING TASK

Victoria University (VU) was commissioned to estimate the economy-wide impacts of some of the final recommendations in the White Paper using a computable general equilibrium (CGE) model. The Victoria University Regional Model (VURM) is a CGE model that analyses the short-run and long-run impacts of policy changes affecting Australia and its states. The VURM database is developed using detailed official national and state statistics.

CGE modelling is useful for outlining the economy-wide costs and benefits of implementing new policies and estimating the economic dividend for New South Wales. In particular, CGE modelling is useful for illustrating what the reforms mean for the back pocket of NSW citizens.

Similar CGE modelling of policy changes have been used by the Commonwealth Productivity Commission on several previous occasions to highlight the case for reform. The most well-known examples are the National Competition Policy (NCP) (Commonwealth Productivity Commission, 1999; 2005) and Hilmer reforms (Commonwealth Productivity Commission, 1995).

VU individually modelled the following recommendations to measure the magnitude of the productivity dividends to the economy and to households that can be realised from progressing some of the reforms. Specifically the following reform areas were modelled:

- Lifting best practice teaching (Recommendations 2.1-2.4)
- Modernising the Vocational Education and Training (VET) system by building more pathways to trades (Recommendation 3.2)
- Rolling out an adaptable and forward-looking regulatory framework (Recommendation 4.17)
- Building the right housing in the areas we want (Recommendations 7.1-7.3).

Together, the implementation of these reforms can substantially improve living standards for NSW citizens.

1.6 Implementing the reform agenda

Recommendations in this White Paper aim to help the State's economy recover from the effects of COVID-19, and to set it up for an era of stronger productivity growth. They are not NSW Government policy, nor are they binding on the NSW Government. The Commission makes recommendations looking through a productivity lens. The Government may need to look at the issues through other lenses too, and thus may arrive at slightly different conclusions.

Nevertheless, the Commission welcomes the NSW Government's commitment to a productivity reform agenda that can help make New South Wales a better place to live, work, start a business, and raise a family. The Commission is pleased that the Government is already acting on at least 18 of 56 of its draft recommendations from its 2020 Green Paper. Many are already in the early stages of implementation.

It is important to sustain the momentum for reform by building on this suite of measures, alongside other microeconomic proposals already in train (e.g. property tax reform).

Borrowing from Professor Ross Garnaut, **"In discussing the reform task... I sometimes employ a cricket metaphor about how a century comprises plenty of singles as well as a few big sixes over the fence... I do not downplay the importance of the singles, doubles and fours. These are essential contributions to a century."** (Garnaut, 2021).

As a State, we must act quickly to make the most of the current window of opportunity for reform. Timely consideration and adoption of the remaining recommendations will deliver the productivity reboot that we have described.

Once the agenda is confirmed, the NSW Government should establish governance arrangements to oversee implementation of the reform package.

As part of its future work program, the Commission will continue to explore new reform opportunities with stakeholders. Ongoing reform will ensure we continue to reap productivity growth's big dividend—lasting improvements to the lives of the people of New South Wales.

1.7 Report outline

Recommended reforms are described in detail across this report:

- Improving our **schools'** ability to provide the quality education that the people of New South Wales need to reach their potential (Chapter 2).
- Ensuring we invest in the right workplace **skills** for a globally competitive and adaptive workforce (Chapter 3).
- **Regulating** in ways that support innovation and competition (Chapter 4).
- Ensuring reliable, sustainable, and productive supply and use of our **water and energy** resources (Chapter 5).
- Modernising our **tax system** to help our economy grow (Chapter 6).
- **Planning** for the housing we want and the jobs we need (Chapter 7).
- Gaining more from our **infrastructure** (Chapter 8).

02 Best-practice teaching to lift school results



Recommendations

RECOMMENDATION 2.1: TREAT TEACHER SUPPLY AND QUALITY AS INVESTMENT

Apply the principles of capital investment to teacher supply and quality, evaluating new and existing initiatives, expenditure, and reforms in cost-benefit terms.

Before 2022, establish a long-term teacher supply strategy, based on cost-benefit principles, including a portfolio of evidence-based measures, and innovative pilot programs with built-in evaluation.

RECOMMENDATION 2.2: BROADEN THE SOURCES OF QUALITY TEACHERS

Design and implement accelerated teaching pathways to increase the supply of quality teachers:

- Pilot employment-based teaching pathways by 2021, targeting urgent teacher shortages in science, technology, engineering, and maths (STEM).
- Implement a program to recruit overseas qualified teachers, with appropriate evaluation and review built in.
- Review the costs and benefits of the requirement for a two-year full-time equivalent master's program for teaching by 2021. Compare it with one-year full-time equivalent pathways.
- Within two years of the review, design and implement alternative accelerated pathways. Put in place regular monitoring and evaluation of teacher uptake and quality.

These measures should eventually form part of the long-term teacher supply strategy described in Recommendation 2.1.

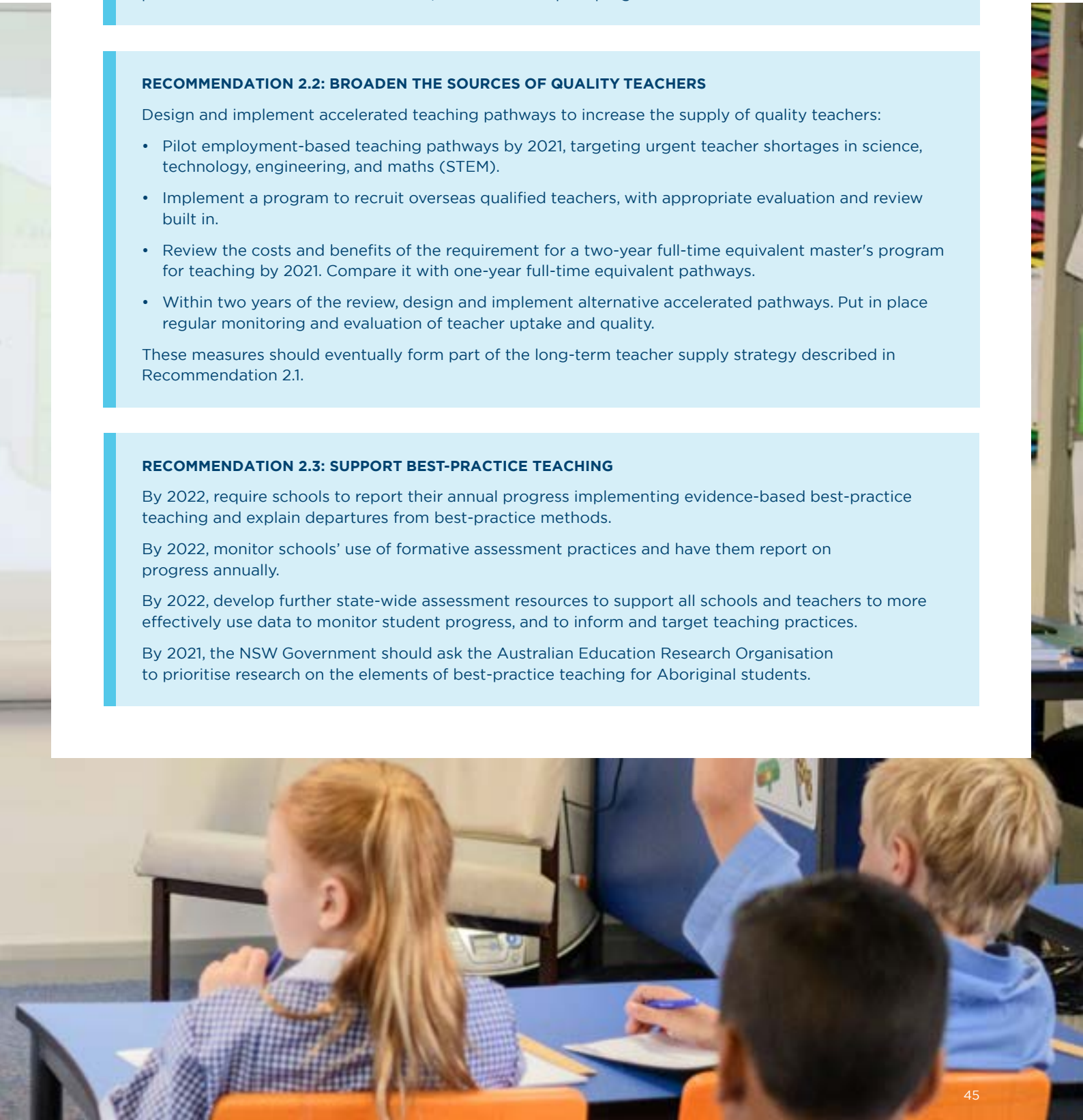
RECOMMENDATION 2.3: SUPPORT BEST-PRACTICE TEACHING

By 2022, require schools to report their annual progress implementing evidence-based best-practice teaching and explain departures from best-practice methods.

By 2022, monitor schools' use of formative assessment practices and have them report on progress annually.

By 2022, develop further state-wide assessment resources to support all schools and teachers to more effectively use data to monitor student progress, and to inform and target teaching practices.

By 2021, the NSW Government should ask the Australian Education Research Organisation to prioritise research on the elements of best-practice teaching for Aboriginal students.



RECOMMENDATION 2.4: IMPROVE TEACHER PERFORMANCE EVALUATION

The Government should require schools to implement systems of classroom observations, including peer-to-peer and supervisor observations, by 2023. Participation by teachers should be a mandatory part of the Performance and Development Framework (PDF).

- The Government should develop and implement a training program and standardised assessment tools to build the classroom observation capabilities of teachers and school leadership.

The Government should require schools to implement robust measures of teacher effectiveness by 2023, including classroom observations, measures of individual teacher 'value-added', and 360-degree feedback from students, school leaders and peers.

The Government should:

- train teachers and supervisors to use these new measures of teacher effectiveness to genuinely support continuous improvement
- develop a blueprint for measuring individual teacher value-added in NSW schools from 2023, including key milestones and timings.

By 2022, the Government should revise the PDF to require the following:

- Teachers should include specific, measurable, achievable, relevant, time-based (SMART) goals related to the Australian Professional Standards for Teachers (Teaching Standards), student outcomes, and best-practice teaching in their Performance and Development Plans.
- Supervisors should explicitly assess performance against the Teaching Standards and SMART goals at the end of each performance cycle. They should be obliged to provide an independent assessment, in writing.
- At least two classroom observations by supervisors should be mandatory each year, with supervisors obliged to observe and provide professional support whenever they deem appropriate for the teacher's development.
- Teachers and supervisors should use individual teacher value-added, classroom observations, and 360-degree feedback in teacher performance assessment.
- A separate PDF for school principals that reflects their unique role and makes them accountable for improving in-school teaching practices.

The Government should make giving and receiving classroom observations a major part of a teacher's professional development requirements. It should comprise at least 50 per cent of the 100 hours required every five years.

The Government should require schools to report annually on the implementation of the new performance measures, with monitoring to inform the support provided to schools.

RECOMMENDATION 2.5: CREATE A CENTRE FOR TEACHING EXCELLENCE

Establish a public-facing Centre for Teaching Excellence within the NSW Department of Education by 2021, to be led by a Commissioner for Teaching Excellence and staffed with high-performing teachers, to:

- Be publicly accountable for leading improved teaching quality across the system.
- Champion, train and support schools and individual teachers with resources to implement best-practice teaching methods, measures of teacher effectiveness, and systems of continuous improvement, including classroom observations (as outlined in Recommendations 2.3–2.4).
- Hold schools accountable for their progress implementing best-practice teaching and administering their reporting requirements (as outlined in Recommendations 2.3–2.4).
- Provide an institutional hub for a new instructional lead teacher pathway (as outlined in Recommendation 2.6).

RECOMMENDATION 2.6: HELP GOOD TEACHERS KEEP TEACHING

Develop an ‘instructional lead’ career pathway for highly effective teachers as an alternative to an administrative career progression. Highly effective teachers should be identified using a suite of robust measures, as outlined in Recommendation 2.4.

Evaluate uptake, rollout, and effectiveness of these new pathways against implementation key performance indicators, with one instructional lead teacher in every school within three years.

Leverage instructional lead teachers to spread best practice across the school system through a Centre for Teaching Excellence (see Recommendation 2.5). Incorporate these teachers into a long-term teacher supply strategy (see Recommendation 2.1).



2.1 | Our best bet for school improvement: teaching quality

Our schools play many roles preparing children for adult life. One of the most important is to prepare children for economic success. School can teach them skills vital to earning an income, creating a career, and helping make our economy more productive for everyone.

In consultations on the State's productivity, many stakeholders highlighted the importance of reforming NSW schools. Submissions pointed to poor results since 2000 and called for the direction of reforms to change. Stakeholders returned to these same topics during consultations and roundtables.

This chapter argues that if we want to turn things around, we need to keep following the best available evidence. And the evidence is that school results will be most affected by **teaching quality**.

THE TEACHING QUALITY CHALLENGE

Most of us have experienced the difference between good and bad teaching in our own school lives.

We know that **many factors affect student performance**. Among them are socio-economic status, family characteristics, and parental involvement (see Box 2.1). But if we focus on factors within the school environment, which governments can influence directly, teaching quality makes a bigger difference than anything else.

Teaching quality is not a simple concept; it is a complex bundle of human behaviours and techniques. Even many teachers can find it hard to identify exactly what a great teacher is doing. The elements of good teaching differ depending on the context. And educational research has not yet provided us with a full understanding of what the best teachers do, or how teachers can improve.

Yet this research does point clearly in particular directions.

In particular, we can do much to **define and measure teaching quality**.

Statistical methods help us to identify the difference a high-performing teacher makes to student results, compared to a teacher who performs poorly. That difference is teaching quality. The best research suggests its effects are larger than any other interventions we can make through the school system. A United States study, for example, found that a student's lifetime earnings increase by 1.34 per cent for each school year where they have access to quality teaching (Chetty, Friedman, and Rockoff, 2014).

Where we do know with reasonable certainty what helps students learn better, we can do more to spread those best-practice teaching methods. Teachers themselves have a real appetite for improvement; our school system needs to do more to feed that appetite.

THE TEACHING QUALITY PAYOFF

Because governments fund and regulate schools and directly employ so many school teachers, they control the most important levers for improving teaching quality. By pulling these levers governments can raise student outcomes, translating into a host of benefits including greater workforce participation and employment, stronger productivity, and higher wages and lifetime earnings.

Modelling suggests that improving the quality of school teaching could be **one of the biggest things New South Wales can do to improve its productivity**.¹ Improved student outcomes from better quality teaching would boost GSP by \$11.5 billion in 2041. This translates into a rise in GDP per capita of over \$1,100.

And because quality teaching makes a bigger difference than any other factor in the school environment, it can also help historically disadvantaged groups, like Aboriginal students, to advance (see Figure 2.2).

¹ Victoria University (VU) was commissioned to estimate the economy-wide impacts of some of the final recommendations in the White Paper using a computable general equilibrium (CGE) model. The Victoria University Regional Model (VURM) was used. It is a CGE model that analyses the short-run and long-run impacts of policy changes affecting Australia and its states.

A CHANGE IN DIRECTION

The bad news, as this chapter will show, is that recent waves of national reform, though well intentioned, have only had a marginal impact on teaching quality. Since 2000, governments have increased per-student funding, and made initial teacher training more onerous. Neither initiative has improved measured outcomes.

As the next section will show, student results since 2000 have been tracking poorly. Based on those results, neither greater funding nor longer initial training provides the answer.

There are many gaps in our educational understanding. Improving NSW school education requires looking honestly at what evidence we have, making the best judgments we can from it, and then acting.

THE REFORMS WE NEED

This chapter proposes a suite of evidence-based reforms to lift teaching quality across the whole profession and embed best-practice teaching in every classroom. These include the following:

- Use investment principles to ensure spending on teacher supply and quality is effective.
- Broaden the supply of quality teachers with a Teacher Supply Strategy and new employment-based pathways into teaching.
- Provide practical resources to support best-practice teaching in every classroom.
- Modernise teacher performance evaluation to give teachers the meaningful feedback they need to improve continuously.
- Establish a public facing Centre for Teaching Excellence to lead efforts to improve teaching quality, and support schools and teachers to continuously improve.
- Keep excellent teachers in the classroom with a new lead teacher career pathway.

Achieving reform in this area will challenge us. But the COVID-19 pandemic has shown how quickly schools, teachers and students can innovate and adapt to new ways of teaching and learning.



Evidence-based reforms can lift teaching quality

And although the system has performed poorly overall, it already contains examples of excellence that can be the seeds of its future success. By robustly measuring teaching excellence, we can give teachers the feedback they need to continuously improve, and we can identify, recognise, and reward the excellent teachers we already have. By harnessing these teachers to spread best practice, we can raise student outcomes and build the teaching profession up from within.

THE PROBLEM: NSW SCHOOL PERFORMANCE HAS FALLEN THROUGH THE 2000S

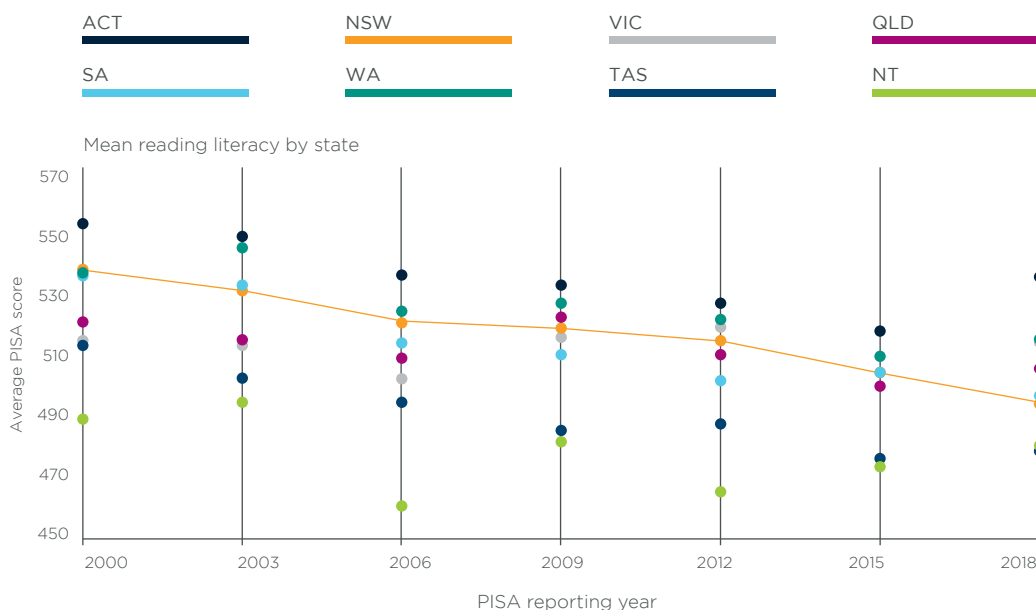
New South Wales' recent record in improving our education system is, by many indicators, poor. But the trends in our students' outcomes do help us understand more about what works and what does not.

FALLING PISA RESULTS

On a key international measure, New South Wales' school results have been falling throughout this century. A number of stakeholders have pointed to disappointing results from the Organisation for Economic Co-operation and Development (OECD) Programme for International Student Assessment (PISA). PISA measures 15 year olds' reading, maths, and science understanding. PISA is perhaps the most influential world wide standard for comparing educational attainment.

The latest 2018 PISA results show absolute and relative falls in New South Wales students' average scores. The falls extend across all three domains—reading, mathematical, and scientific literacy. For the first time, maths results fell to the OECD average (see Thomson et al., 2019).

FIGURE 2.1: NSW STUDENTS' PISA PERFORMANCE HAS FALLEN FASTER THAN OTHERS



Source: Australian Council for Educational Research (ACER).

While Australia’s PISA performance has declined in comparison to the rest of the world, New South Wales’ performance has also declined in comparison to other states and territories. Some of the largest declines in PISA results were for New South Wales (see Figure 2.1). Our State now ranks in the bottom half of jurisdictions across all three domains—maths, science, and reading. Victoria shows the strongest results between 2000 and 2018, reporting no decline in average reading and science literacy.

Falls in PISA scores are not unusual. Other developed-nation jurisdictions to record falls in PISA scores over this 18-year period include South Korea, Japan, Switzerland, Sweden, Finland, New Zealand, Canada, the United States, France, and the United Kingdom. None of these jurisdictions however, has recorded the nearly 40-point fall that New South Wales has seen (World Bank, 2021).²

OTHER MEASURES SHOW STAGNATION

Another key international measure is the Trends in International Mathematics and Science Study. Results from 2019 show significant improvement in maths and science compared to 2015, but unfortunately these are only a recovery from low scores attained in the early 2000’s. Notably, primary school maths scores have stagnated below 2007 results.

National Assessment Program in Literacy and Numeracy (NAPLAN) results tell a similar story. New South Wales’ relative performance has declined significantly when compared to states such as Western Australia and Queensland. These differences in performance across the nation show there is ample room to improve State policy settings to lift student achievement.

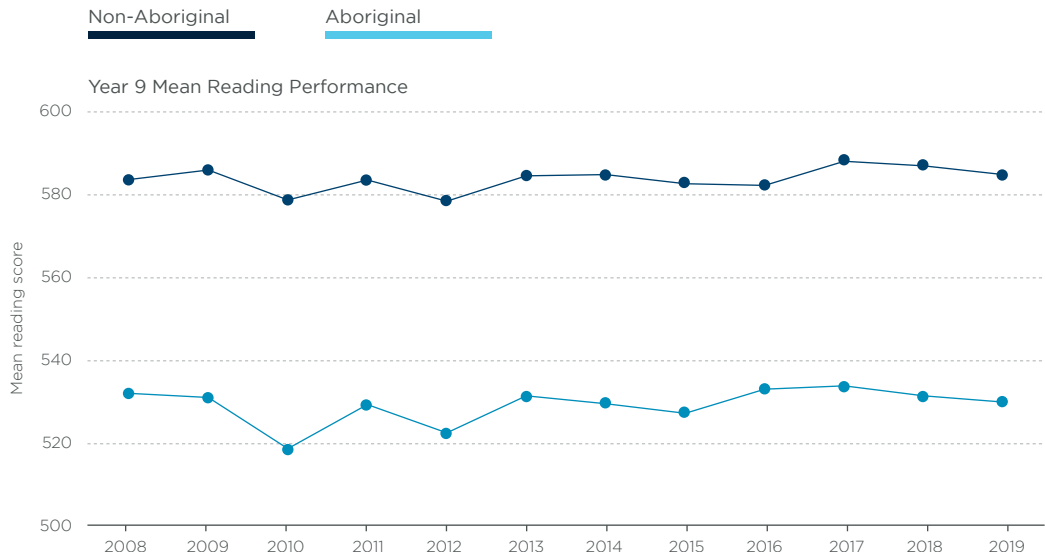
Socio-economic status has a big impact on student learning outcomes (see Box 2.1). The school system cannot be expected to overcome the effects of disadvantage on its own, but it remains one of the most powerful tools governments have to help level the playing field.

Both PISA and NAPLAN results highlight a lack of progress made in closing gaps in educational attainment for disadvantaged groups. Since 2000, average PISA results for students in the lowest quartile have lagged behind their peers in the highest quartile by around three years of schooling.

Large gaps also remain between Aboriginal and non-Aboriginal students. Results suggest that by age 15, the average Aboriginal student lags around two and a half years behind their peers in reading skills (see Figure 2.2).

² Australia’s overall score declined by 27 points. The largest overseas decline among advanced nations was that of the United Kingdom, where the average score declined by 25 points.

FIGURE 2.2: THE GAP REMAINS BETWEEN ABORIGINAL AND NON-ABORIGINAL STUDENTS' NAPLAN SCORES



Source: Australian Curriculum, Assessment and Reporting Authority.

More generally, PISA results have declined across the entire distribution of students. All socio-economic groups, school sectors, and both high- and low-performing groups experienced a slide in academic performance. Differences in performance between school sectors were almost entirely explained by their students' different socio-economic backgrounds. This suggests there was no significant difference in the effectiveness of different school sectors.

The sustained decline in outcomes is at odds with the level of skills and knowledge that young people need to thrive in an increasingly competitive and global economy. The proportion of NSW students failing to achieve minimum standards across the three PISA domains has risen from 32 per cent in 2006 to 42 per cent in 2018. A growing number of young people now lack the knowledge they need to reach their full economic potential (Thomson et al., 2016).

Some stakeholders have expressed concern that reflecting on the poor outcomes of our school system could reinforce a 'narrative of failure'.

But the purpose of this paper is to identify problems for the purpose of suggesting how they can be fixed.

And as will be seen, even though our school system has performed very poorly overall, it nevertheless contains examples of excellence. These examples can serve as the seeds of our education system's future success.

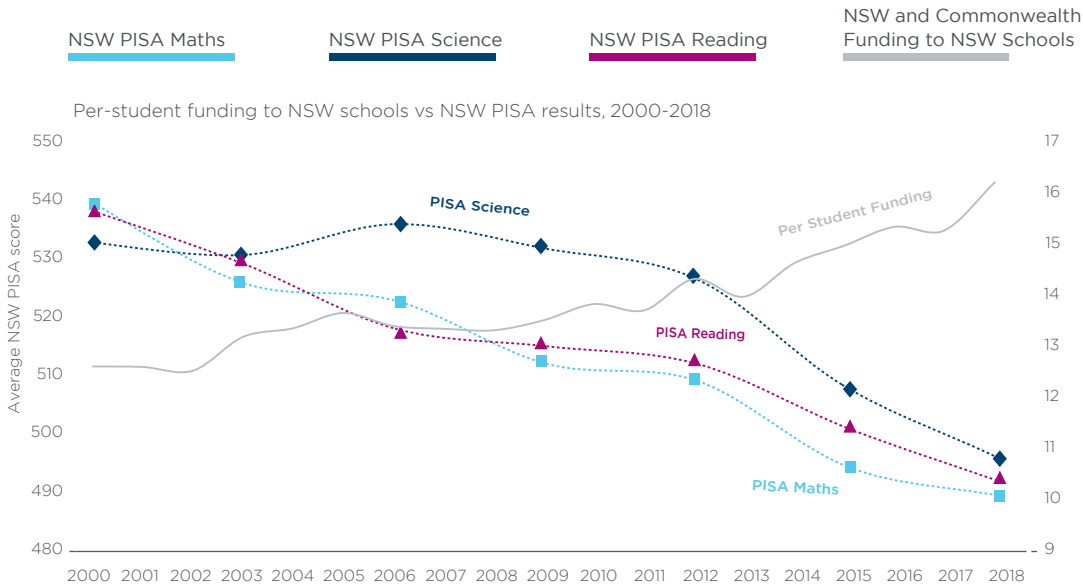
THROWING MONEY AT THE PROBLEM HAS NOT WORKED

Confronted by the decades-long decline in NSW school performance, many will infer that our schools must be chronically underfunded. Unfortunately, NSW school results have worsened even as taxpayers have spent record amounts to support them.

Commonwealth and NSW Government expenditure on NSW public schools rose from \$16,774 per student in 2009-10 to \$20,436 in 2018-19 (in 2018-19 dollars), a 22 per cent increase (Commonwealth Productivity Commission, 2021c). At the same time, other Australian states, such as Victoria, have consistently lower school funding levels yet better average student performance.

Adequate and equitable school funding is necessary to maintain and improve educational outcomes. But it is not enough. And we already make significant new investments in school education each year.

FIGURE 2.3: STUDENT PERFORMANCE HAS DECLINED DESPITE HIGHER FUNDING



Source: ACER, Commonwealth Productivity Commission.

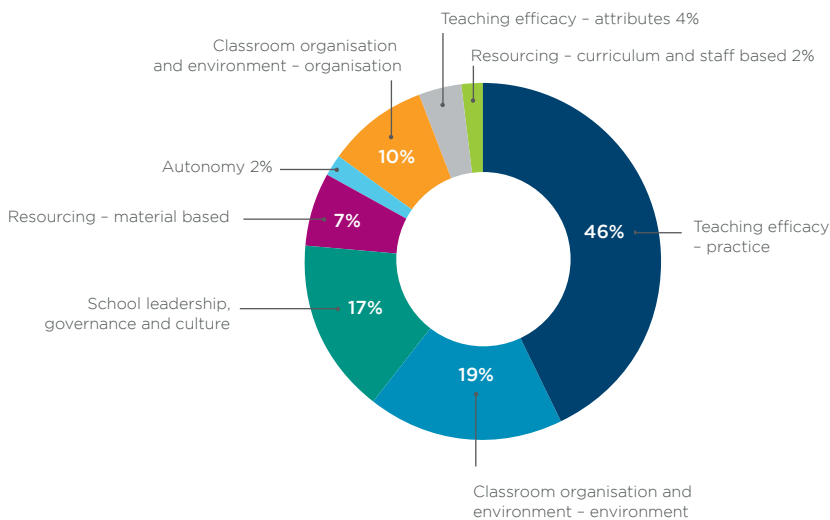
To lift student performance, policymakers need to look beyond additional funding, towards the structures and practices of our education system, and the real drivers of improved outcomes.

TO IMPROVE RESULTS, IMPROVE TEACHING QUALITY

The quality of our schooling system ultimately rests on the quality of classroom instruction by our teachers and school leaders. Teachers and school

leaders directly affect learning by determining how teaching is delivered in classrooms and how the curriculum is conveyed to students. This is supported by strong evidence. Multiple independent studies have found the quality of teachers and their teaching is the most important in-school factor in improving student learning (Hattie, 2005; Hanushek, 2011; Chetty, Friedman, and Rockoff, 2014) (see Figure 2.4).

FIGURE 2.4: TEACHING QUALITY HAS THE BIGGEST INFLUENCE ON STUDENT OUTCOMES



Source: Deloitte Access Economics (2017). Note: This chart examines in-school factors only, see Box 2.1 for other factors.





Any sustained lift in student performance will depend on improving the quality of day-to-day teaching. This requires us to ensure that the system is well placed to attract and develop the best teachers. This means removing barriers to entry into teaching that discourage high performers. Requirements that are not proven to support better outcomes for students—such as a two-year master’s degree requirement—need to be removed. Meanwhile, systems to accurately identify and reward the best teachers need to be built. The existing workforce should be supported with strong systems to develop teachers in the classroom. Moreover, the teaching

approaches most likely to work—those with the strongest evidence that they improve learning—should be embedded.

Teaching quality also depends on policies that develop and support the capabilities of teachers and school leaders. Improved teaching quality will also support other important aspects of school reform, including the current redesign of the curriculum by the NSW Education Standards Authority (NESA). The redesign aims to modernise the curriculum, provide strong foundations for lifelong learning, and cut inessential workloads so teachers can focus on the core of their jobs, teaching our children.

BOX 2.1: BESIDES TEACHING QUALITY, WHAT ELSE DRIVES STUDENT OUTCOMES?

While the evidence shows teaching quality is the biggest in-school driver of student outcomes, factors outside the school also play an important role.

In the United States, a landmark report compiled under sociologist James Coleman (1966) found that familial and socio-economic factors had the most impact on US student learning outside of the classroom.

The finding on the importance of family and background factors has been broadly supported in the years since Coleman’s report. In Australia, the Longitudinal Study of Australian Children found that children living in poverty were likely to be more than a third of a school year behind their peers by Year 3.³ It also found that lower levels of family cohesion and school attendance both had negative, but smaller, effects on NAPLAN scores.

Strong parental engagement in student learning has been also shown to have positive effects on student mathematics scores but the numerous forms this can take make identifying the impacts of specific approaches difficult (Sheldon & Epstein, 2005; Emerson et al., 2012). Student personality has also been found to influence academic outcomes, with conscientiousness being the strongest predictor (Noftle and Robins, 2007).

But within schools, teaching quality has been found to be the most important determinant in student outcomes. The difference between a quality teacher and a poor-performing one has been estimated to be at least a quarter of a million dollars in lifetime earnings per classroom in multiple studies (Chetty et al., 2014; Hanushek, 2011).⁴

³ The Longitudinal Study of Australian Children is following the development of 10,000 children and families from across Australia.

⁴ Figure stated in United States dollars.

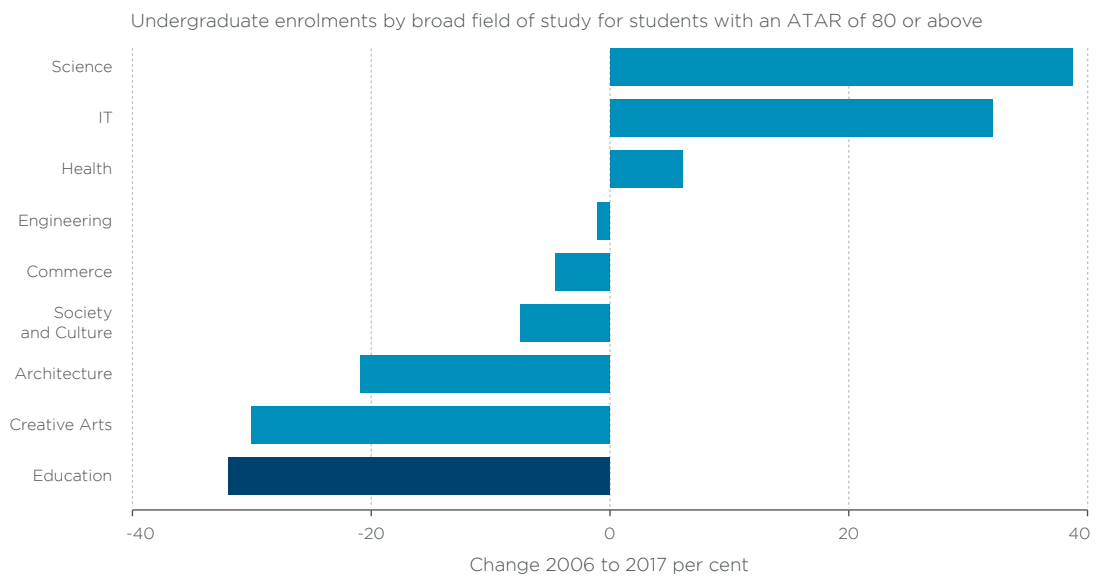
ATTRACT, DEVELOP, AND RETAIN HIGH-QUALITY TEACHERS

Quality teaching depends on a high-quality teacher workforce. As the largest employer of teachers in Australia, the NSW Government can foster a high-performing teaching workforce through policies to attract, develop, and retain the best teachers.

The teaching workforce faces many well known challenges. They include a more complex and demanding teaching environment, strong growth in student numbers, and a forthcoming surge in retirements as the workforce ages.

Moreover, there is evidence that the academic quality of teaching entrants, measured by average literacy and numeracy skills, has weakened over the years (Murtough and Woods, 2013; Leigh and Ryan, 2006). Research by the Grattan Institute indicates that fewer high achievers are pursuing teaching. The average level of academic achievement of students entering teaching degrees appears to have fallen over the past decade across Australia, as shown in Figure 2.5 (Goss and Sonnemann, 2019).

FIGURE 2.5: TEACHING HAS FAILED TO ATTRACT MORE HIGH ACHIEVERS



Notes: Agriculture and hospitality are excluded due to low student numbers. 'Education' includes curriculum studies and teacher education. Figures include domestic onshore commencing bachelor-degree students' enrolments for all students with a known ATAR 80 or above and aged 20 or younger, regardless of the basis of admission.

Source: Grattan Institute.

The attractiveness of teaching as a career has clearly declined relative to other professions, particularly for higher achievers (Goss and Sonnemann, 2019). Increased competition from other sectors—often offering better remuneration, progression opportunities, and flexibility—has exacerbated

long-term imbalances in teacher supply and demand. This is particularly evident in areas of science, technology, engineering, and maths (STEM), as discussed in Box 2.2. The problem affects inclusive education and English teachers as well.

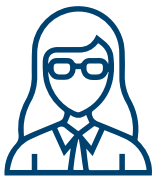
BOX 2.2: THE CRITICAL SHORTAGE OF STEM TEACHERS

The growing shortage of qualified teachers in STEM subjects is well documented (Shah, Richardson, and Watt 2020; Commonwealth Productivity Commission 2012c; Timms et al. 2018). The shortage is particularly serious for maths teachers, with around one in five teaching ‘out-of-field’—that is, lacking a suitable qualification to teach maths (Prince and O’Connor, 2018; Timms et al., 2018). Schools in disadvantaged and remote areas suffer the most.

Addressing these persistent areas of teacher shortages is an urgent policy challenge. Maths and other STEM skills are crucial for improving Australia’s productivity growth and capacity for innovation. Yet ‘out of field’ teaching is widely considered to impair student learning and maths literacy in New South Wales has seen a long-term decline. Studies consistently show that teacher subject knowledge in mathematics is strongly related to student academic achievement in that subject area (Metzler and Woessmann, 2012; Hanushek, 1986; Hanushek and Rivkin, 2006; Goe et al., 2007).

Current initiatives, including scholarships and financial incentives, are not overcoming persistent shortages of STEM teachers. The NSW Government agrees to cover tuition fees, provide monetary allowance during study, and in some cases arranges part time teaching during study. In return, recipients are obliged to teach in an agreed public school for a minimum of three years. Although the scheme is highly attractive, stakeholders have noted that these high-potential teachers are courted, often successfully, by non government schools upon graduation.

The recently announced initiative to make maths compulsory for senior students, combined with fewer teaching graduates specialising in STEM subjects, will likely exacerbate the issue, with ramifications for teaching quality.



We use better principles to invest in school buildings than in our teachers

Faced with this challenge, we need to cast the net as wide as possible and lower the barriers to bringing more people into the system who have the potential to be great teachers.

APPLY INVESTMENT PRINCIPLES TO TEACHER SUPPLY AND QUALITY

We know that our children’s education, our future workers, and our long-term prosperity all depend on having the right quantity and quality of teachers available. But we rarely think about what this means in economic terms. Our teachers represent the fundamental stock of human capital that makes our public-school system work. Every quality teacher recruited and every improvement in teaching quality enhances this stock of human capital. Although it is not an asset for accounting purposes, the human capital of our teaching workforce is the largest economic asset the NSW education system manages. Because of this, efforts to grow the supply of teachers and improve teaching quality represent capital investments, much like our investments in infrastructure (e.g. the building of new Metro lines).

TREAT TEACHING CAPITAL SYSTEMATICALLY

But governments have rarely approached investing in the teacher workforce in the same way as other forms of capital investment, like transport infrastructure.

When governments allocate funding to build and upgrade roads and rail, they identify, evaluate, and prioritise alternative investments using the tools of cost benefit analysis. Clear distinctions are made between capital investment, and ongoing operational costs like track maintenance and transport workers’ wages.

By contrast, in our education system, spending to improve the size and quality of the teaching workforce has not been clearly distinguished from operational expenditure, such as spending on teachers’ wages and school maintenance. As a result, funds best spent on human capital investment are instead used to meet operational pressures. Conversely, rising operational expenditures, for example on teachers’ wages, are portrayed as ‘strategic investments’ in teacher supply or quality, without strong evidence the expenditure will achieve these objectives.



NSW Teachers Federation suggests an additional **11,000 TEACHERS** will be needed **BY 2031**

Governments have never been as strategic about their investments in teacher supply and quality as they have with bricks and mortar investments. Nor have they measured the returns in the same systematic way. We use better and clearer principles to assess investments in new school buildings than we do to invest in the people who work in them. There is nothing to stop us using the same principles to start making our investments in teacher supply and quality more effective.

In failing to apply capital investment principles to teacher supply, the NSW Government has likely contributed to the emerging mismatch between our demand for and supply of teachers. Investments in physical infrastructure like roads and railways are made based on long-term, evidence-based projections of future demand, grounded in demographic trends. By contrast, the assumption has been that general increases in education funding, spending on teachers' wages and professional development, longer initial teacher education and a demand driven university system, will 'take care' of teacher supply and quality. As a result, there is an emerging gap between the number and quality of specialist teachers joining the workforce, and the needs of our public schools. A recent report commissioned by the NSW Teachers Federation suggests an additional 11,000 teachers will be needed by 2031 (Rorris, 2021). The NSW Department of Education estimates that STEM and inclusive education disciplines will continue to be at risk of shortfalls, especially in rural and remote regions and areas of significant forecasted population growth.

SECURE THE SUPPLY OF TEACHERS

Securing the supply and quality of the NSW teaching workforce is a long-term project. But a more effective approach can begin today. The Government can take the first step by developing an overarching teacher supply strategy that:

- reframes investment in teacher supply and quality as capital investment
- plans to meet the long-term demand for quality teachers
- plans to develop a portfolio of evidence-based and innovative measures to address student outcomes
- provides for monitoring and reporting of outcomes to build up the evidence base
- is underpinned by a business case based on the principles of cost-benefit analysis.

Matching the supply of subject matter qualified teachers to the quantity and locations of future demand is a multifaceted challenge. A teacher supply strategy should provide for a portfolio of evidence-based investments targeted at different facets of the challenge. And it should include measures targeted at critical shortage areas, such as STEM teachers, inclusive education teachers, and the regional and remote teacher workforce.

A supply strategy should prioritise investments and structural reforms with the strongest cost benefit ratios and a well established evidence base. It is also important, however, to experiment, innovate, and learn more about what works. A teacher supply strategy should therefore also include some funding for innovative pilots (like employment-based pathways) with built-in evaluation plans and clear criteria for success and failure. There is value in studying and piloting initiatives that have worked elsewhere. In this way, over time, we can do more of what works and less of what does not.

In addressing teaching quality, the Government should likewise look more systematically at the relative costs and benefits of different interventions. As will be seen, this means shifting towards evidence-based initiatives, like teacher observations, and away from approaches with a poor track record, like making initial teacher education more onerous.

RECOMMENDATION 2.1: TREAT TEACHER SUPPLY AND QUALITY AS INVESTMENT

Apply the principles of capital investment to teacher supply and quality, evaluating new and existing initiatives, expenditure, and reforms in cost-benefit terms.

Before 2022, establish a long-term teacher supply strategy, based on cost-benefit principles, including a portfolio of evidence-based measures, and innovative pilot programs with built-in evaluation.

Focus on high-quality candidates rather than the length of training

While stakeholders recognised the passion and dedication of teachers and school leaders, they highlighted the need for a stronger workforce. All stakeholders expressed a desire to attract some of the best and brightest to become the next generation of educators.

For a decade or more, the teacher quality reform agenda has focused primarily on raising the requirements to enter teaching. And ‘raising the bar’ for new teachers does seem a plausible way to raise teaching quality and the status of the profession. But in practice, it has several flaws:

- As will be seen, a credentialist approach conflates credentials with quality.
- By focusing narrowly on new teachers, a credentialist approach fails to target the bulk of the profession. Accreditation reforms, which *do* target the whole profession, have their own limitations (discussed in Section 2.6).
- Finally, more onerous and longer qualifications for new teachers have unintentionally raised barriers to talented people entering the profession.

The evidence suggests that it is the quality of candidates that matters most, not the length of training. This section therefore looks at how to get high-potential candidates into the classroom and earning income faster. Key recommendations include reviewing the requirement for a two-year Master of Teaching and making more strategic use of ‘conditional accreditation’ to speed up classroom entry.

LONGER TRAINING COURSES DO LITTLE FOR QUALITY

As part of a national push to improve teaching quality, New South Wales has seen a wave of reform focused on raising the bar for new teachers. New teachers must now meet increased academic requirements to enter initial teacher education (ITE) programs.

- They must achieve a Band 5 HSC result in a minimum of three subjects.⁵
- They must sit a test to show they are in the top 30 per cent of the adult population for literacy and numeracy.
- Aspiring teachers who already hold an undergraduate degree must now complete a two-year Master of Teaching (see Box 2.3). They previously needed only a one-year Graduate Diploma of Education.

BOX 2.3: WHAT DO ASPIRING TEACHERS LEARN IN THEIR MASTER OF TEACHING?

The postgraduate Master of Teaching taught in Australian universities consist of a core component and a curriculum oriented component.⁶

The core component varies slightly across institutions but generally cover aspects of teaching theory, childhood development, and fostering a learning environment. This is complemented with courses in addressing inclusion and diversity, working with those with disabilities, and education in an Aboriginal context. Professional experience is also a compulsory aspect of the course but can vary in location and experiences, depending on the university.

The curriculum component is prescribed for primary school teachers, given they are generalist educators. Secondary school teachers specialise in one or more elected disciplines, ranging from mathematics to the fine arts. The courses in this component all give an overview of the subject’s current curriculum, how to create lesson plans and program lessons, and any relevant teaching stratagems particular to that discipline.

⁵ Band 5 sits between ‘average’ performance (Band 4) and the highest performance (Band 6).

⁶ The NESA administers NSW teacher accreditation. Graduates of education courses accredited by the Australian Institute for Teaching and School Leadership are eligible for such accreditation.

The Teacher Education Ministerial Advisory Group's 2014 report, *Action Now: Classroom Ready Teachers*, drove introduction of the two-year master's degree requirement for ITE. There was widespread concern that teachers were not adequately equipped to address diverse learning needs, did not have sufficient knowledge of teaching theory, and were not equipped to teach numeracy and literacy. The report called for universities to teach aspiring teachers more curriculum and theories of teaching. It led to longer training for new teachers.

It sounds plausible that studying education for longer would increase the skills and knowledge of graduates and improve graduate teacher outcomes. Unfortunately, the evidence suggests that gains from longer teaching pathways are minimal or even nil.

Australian and international evidence on higher accreditation requirements, including teacher certification, shows a mixed to weak relationship with improved student outcomes (Commonwealth Productivity Commission, 2012c).⁷ The bulk of empirical evidence, including randomised controlled trials, finds teacher certification bears little relationship to teacher effectiveness, as measured by impacts on student achievement (Decker, Mayer, and Glazerman, 2004; Gordon, Kane, and Staiger, 2006; Kane, Rockoff and Staiger, 2006; Ladd and Sorensen, 2015; Ryan, 2017).

Several studies cite higher and longer qualification requirements in high PISA-ranking countries like Finland as evidence for increasing teacher credentials (Darling-Hammond, 2017). But as noted by the Commonwealth Productivity Commission, it is difficult to separate credential effects from broader reform that occurred over the same period (Murtough and Woods, 2013). Finland's PISA performance, like Australia's, has been declining since at least 2006. Finland is now outperformed by China, Singapore, Hong Kong, South Korea, Macao, and Estonia.

In fact, Singapore—the second-ranked country in PISA—offers a one-year graduate teaching qualification alongside an employment-based pathway for those with no teaching qualification.

Efforts to improve standards by lengthening ITE have conflated credentials with quality.

Research suggests that rather than focusing on pre-service training time, the quest for teacher effectiveness should prioritise two stronger indicators: training quality, and candidate attributes such as subject matter expertise and academic strength.

LONGER TRAINING DISCOURAGES HIGH-PERFORMING WOULD-BE TEACHERS

If longer training and higher credentials do not improve teaching quality, we might hope they have other benefits. It is plausible, for example, that more credentials could signal a higher status for the teaching profession. That could attract higher-quality candidates into teaching.

Unfortunately, practice has not borne this out. In fact, the additional year of qualification needed to teach discourages potential high-quality teachers from joining the teaching profession.

And the profession is already facing supply challenges in key areas, such as STEM.

An aspiring teacher must now complete either an undergraduate or postgraduate teaching degree before teaching in NSW schools. The undergraduate pathway takes a minimum of four years. Postgraduates need a minimum of two years of teacher education, so this pathway needs a minimum of five years.

⁷ One United States study found traditional certification did improve student outcomes (Darling-Hammond et al., 2005). However, the study's methodology was strongly criticised, particularly for failing to appropriately control for differences in students' socio-economic status (Podgursky, 2006).

Longer pathways increase the cost—and the risk—of becoming a teacher, particularly if you come to the profession later in life. Longer university courses cost aspiring teachers more (and taxpayers pay more too). And the extra time spent training could have been spent earning income, gaining practical experience, and teaching school students.

- Some teachers realise that they are poorly suited to teaching only upon entering the classroom. Extra university training delays this discovery, raises its cost, and reduces the time available to pursue more suitable careers.
- Longer pathways into teaching are even more costly for two important groups of potential candidates: high-performing graduates and mid-career professionals. Because high performers have more options and a greater lifetime earning potential, they sacrifice more income for each year they spend out of the workforce. Mid-career changers have fewer working years left and often have families to support. This too raises the cost of each extra year out of the workforce, in initial teacher education.

Unless addressed, onerous ITE requirements will continue to deter high-performing teaching candidates.

In roundtables and submissions, stakeholders underlined the need to focus on creating a high-quality teaching workforce. While stakeholders recognised the passion and dedication of existing teachers and school leaders, they highlighted the need for a stronger workforce. All stakeholders expressed a desire to attract some of the best and brightest to become the next generation of educators.

FOCUS ON CANDIDATE ATTRIBUTES, NOT LENGTH OF TRAINING

The NSW Centre for Education Statistics and Evaluation (CESE) suggests that the cognitive, verbal, literacy and academic abilities of teachers have the greatest impact on student learning outcomes. International research also points to the importance of subject-matter knowledge for teaching effectiveness, particularly for subjects like maths (Goldhaber and Brewer, 1997).

A series of gold standard randomised controlled experiments confirm that qualified teachers are equalled or outperformed by unqualified teachers who have stronger academic backgrounds:

- Decker, Mayer, and Glazerman (2004) found that for students in years 1 to 5, the unqualified group produced similar results in reading and better results in maths by 0.15 standard deviations. That is the equivalent of one month of additional instruction over a school year.
- Clark and her colleagues looked at middle school and high school maths teachers. They too found the unqualified group produced better results (Clark et al., 2013). In another study, Clark and fellow researchers focused on US elementary grades,⁸ and again found that unqualified teachers outperformed qualified ones in reading instruction, achieving the equivalent of 1.3 months extra instruction over a year (Clark and Isenberg, 2020).

US research has also found that although traditional cognitive measures (such as academic scores) can predict teacher performance, non-cognitive measures (including personality traits) also play a significant role (Rockoff et al., 2008). Some Australian ITE courses have begun to integrate these findings:

- The University of Notre Dame interviews each student and assesses a personal statement.
- The University of Melbourne has created a Teacher Capability Assessment Tool to predict a candidate's teaching potential.

⁸ US elementary school usually runs from kindergarten or first grade to fourth, fifth or sixth grade.

This evidence suggests that recruiting high-quality teachers is more about attracting the right candidates than the length of training. Policy should focus on making it easy for those with strong academic backgrounds and the right personality attributes to enter the profession, as they are the candidates most likely to become excellent teachers.

It is also difficult to know in advance who will thrive as a teacher. Getting high-potential candidates into the classroom more quickly gives them the opportunity to discover more cheaply and quickly whether teaching will be right for them. It reduces the cost to the individual and the taxpayer of working out whether teaching is a suitable career.

HELP THOSE WITH HIGH POTENTIAL TEACH AND EARN INCOME FASTER

New South Wales needs to remove unhelpful barriers and clear the way for those most likely to become high-performing teachers to enter the classroom and begin earning income.

We can choose from several options to achieve this.

- A partial solution is to compress initial teacher education into faster intensive courses. The University of Newcastle employs a trimester system, so that teachers can complete their postgraduate degree in one and a half years instead of two.
- This gets new teachers into the classroom more quickly. But it still requires aspiring teachers and to pay for and complete a two-year full-time equivalent study load, which acts as a considerable barrier to teaching. It also requires the taxpayer to subsidise an extra year of full-time equivalent study, without demonstrable benefits.
- Another partial solution is to take advantage of 'conditional accreditation'. New South Wales is unique amongst Australian jurisdictions in letting aspiring teachers become 'conditionally accredited' in their final year of ITE. Conditional accreditation gives aspiring NSW teachers the ability to enter the classroom and earn an income faster, potentially reducing barriers to entering the profession. While conditional accreditation is widely used in New South Wales, stakeholders indicate its use today is largely ad hoc, left to the initiative of individual teachers and schools.

- As the largest employer of teachers in New South Wales, the NSW Government could use 'conditional accreditation' systematically, to get high-performing candidates into the classroom faster. It could be used to address shortages more quickly, for example, in STEM subjects and in regional areas. The option to teach full- or part-time while completing the final stages of a teaching qualification could be used to reduce the uncertainty and opportunity cost of becoming a teacher.

While conditional accreditation and compressed training may help, the length of training still acts as a barrier to entry into the profession. It is time to review the costs and benefits of the requirement for a two-year Master of Teaching, particularly for secondary teachers where subject-matter qualifications count more, and in subjects like STEM where supply issues are most acute.

Where longer ITE is not found to improve student outcomes or where it adversely impacts teaching shortages and thus teaching quality, the requirement should be shortened back to a Graduate Diploma.

As NSW ITE requirements reflect a national approach, the NSW Government should seek to work with the Australian Government. A review of ITE is being undertaken by the Commonwealth Government (Department of Education, Skills and Employment, 2021b). This is an opportunity to collaborate.

OPEN EMPLOYMENT-BASED PATHWAYS FOR HIGH ACHIEVERS

New South Wales has options to expand the pool of potential high-performing teachers. One option is to open the profession to individuals with relevant experience outside education (Schleicher, 2011). For example, where high performers hold university-level qualifications in one or more high school subjects, the system could allow them to work and earn as teachers while they complete their teaching qualifications.

International and Australian examples show how other alternative pathways can work alongside more traditional routes, improving teacher supply and quality at the same time.







High performers with university qualifications in high-school subjects could work as teachers while completing a teaching qualification

Singapore has a highly successful competitive program to attract academically strong mid-career professionals into teaching. Candidates do not need an education-related qualification. The application process includes rigorous screening. If candidates successfully complete initial screening, they spend time in schools as untrained contract teachers for up to a year. They are then assessed on suitability for teaching and may progress to a teaching diploma while continuing their work in the classroom.

The Teach For Australia (TFA) program is an Australian example of an employment-based teacher training pathway to address teaching shortages. Since 2008 the program has placed high-achieving teacher candidates into hard-to-fill positions in disadvantaged schools across Victoria, the Northern Territory, Western Australia, and Tasmania. Following a fast-tracked course in teaching and simultaneous two-year placement, participants obtain a Master of Teaching degree and are fully qualified to teach. The program has succeeded attracting high-quality graduates, with participants outperforming other graduate teachers by the end of the program (Dandolo Partners, 2017).⁹

Concerns about cost-effectiveness and retention halted the program's uptake in New South Wales. Yet analysis has shown that the TFA pathway had a total cost of \$118,000 per student, compared to \$150,000 cost of the standard Master of Teaching route (Pricewaterhouse Coopers, 2016). And 11 years after the program begun 84 per cent of TFA alumni was still working in education; 70% as teachers or school leaders.

Significant demand is present for these pathways. In 2021, TFA has 171 candidates enrolled across Australia. It turns down almost as many quality candidates for lack of additional funding.

Given the NSW teacher supply challenge, and the costs of comparable pathways, the State should expand such employment-based pathways as fast as practicable to meet demand from these high-performing candidates. These pathways should have an initial focus on STEM graduates to address urgent shortages. The only limit on expansion should be the ability to

scale successfully and to attract, place and retain high-quality candidates. These employment-based programs should also form a major plank of an overarching long-term teacher supply strategy.

The NSW Government has announced an important first step to address this recommendation. The 2020-21 NSW Budget announced funding to co-design a bespoke model for attracting mid-career and high-achieving professionals into teaching, with TFA and the teaching profession. The pilot program will focus on filling critical shortages in STEM subject areas and in regional and rural schools.

But the NSW Government should consider funding TFA to pilot its own program alongside the bespoke model the NSW Government is developing. Such a TFA pilot would provide more data about what works best in New South Wales. TFA has a proven model, national recruitment network, and singular experience providing employment-based pathways in Australia.

As well as recruiting high performers from other careers, New South Wales should leverage its international status as a preferred place to live and work. By designing employment-based pathways the State can attract qualified foreign teachers and meet immediate critical local needs. The Queensland and New Zealand governments both already leverage international teaching talent through recruitment agencies.

In general, increased competition for high-achieving candidates should spur greater innovation in teacher training and accreditation (Organisation for Economic Co-operation and Development, 2008). Removing unnecessary barriers and opening new pathways into teaching can help to expand the supply of high-quality teaching candidates. The current system is increasing the length of teacher training, and thus discouraging quality teaching entrants. All that is leading to students learning less.

⁹ For instance, school principals reported that TFA associates 'outperform their peers on all Australian Professional Standards for Teachers measures surveyed by Dandolo after both have spent two years in the classroom'.

RECOMMENDATION 2.2: BROADEN THE SOURCES OF QUALITY TEACHERS

Design and implement accelerated teaching pathways to increase the supply of quality teachers:

- Pilot employment-based teaching pathways by 2021, targeting urgent teacher shortages in science, technology, engineering, and maths (STEM).
- Implement a program to recruit overseas qualified teachers, with appropriate evaluation and review built-in.
- Review the costs and benefits of the requirement for a two-year full-time equivalent master's program for teaching by 2021. Compare it with one-year full-time equivalent pathways.
- Within two years of the review, design and implement alternative accelerated pathways. Put in place regular monitoring and evaluation of teacher uptake and quality.

These measures should eventually form part of the long-term teacher supply strategy described in Recommendation 2.1.

2.3 Strive for best-practice teaching in every classroom

Teacher quality matters more than anything else to a school's effect on its students. In particular, Australian research shows that high-quality teachers drive student achievement most directly through **effective teaching practices** (Deloitte Access Economics, 2017). These are the specific teaching methods and strategies a teacher uses in a classroom.

Studies of classroom teaching practices reveal strong consistency in what highly effective teachers do. While there is no one-size-fits-all approach, the evidence shows clear principles and foundations for highly-effective teaching. According to CESE, these principles include:

- **Give feedback:** The learner or teachers must receive information about the learner's performance against learning goals. Teachers and students use feedback to redirect their efforts to achieve better outcomes. Effective feedback is one of the most powerful influences on learning. It has the greatest impact when it focuses on improving tasks, processes, student self-regulation and effort.
- **Provide explicit teaching or direct instruction:** Teachers must clearly show students what to do and how to do it. They should use worked examples and create opportunities for students to demonstrate understanding and to apply what they have learnt.

- **Use data to inform practice:** Effective analysis of student data helps teachers to better understand and meet students' learning needs and to understand how students are responding to different teaching approaches.

Classroom teachers must be made genuinely accountable for implementing practices that improve teaching quality. And they must be supported with the feedback they need in order to improve (Recommendation 2.4).

Unfortunately, consistent evidence about what works has not been matched by a consistent focus on implementation. Reform is needed to ensure that all levels of the NSW school system—from teachers, to school leaders, to the Government itself—are focused on implementing best-practice teaching, and are accountable for doing so.

Embedding best-practice teaching in every classroom will require a comprehensive cultural transition. It will need interventions, resources and support tailored to the needs of individual schools and teachers. As will be discussed later in this chapter, a **Centre for Teaching Excellence** (Recommendation 2.5) could lead and support this cultural transition.

TEACHERS NEED RESOURCES, INCENTIVES, AND FEEDBACK TO IMPROVE

Teachers need to be at the centre of any strategy to improve teaching quality.

Clearly defined guidelines, sorted by learning area, can support teachers to implement evidence-based teaching practices. Excellent teachers generate evidence about effective teaching practices every day. This should be systematically captured and used to support implementation of best practice.

Teachers should also be supported with high-quality, proven data and assessment tools (see Box 2.4). National online and on demand assessment resources and tools are being developed under the National School Reform Agreement. These can help teachers to track and improve student learning. To better leverage existing resources, the NSW Government should continue to develop and share best-practice assessment tools with all schools in New South Wales.

BOX 2.4: BENCHMARKS AND ASSESSMENT TOOLS ENHANCE LEARNING OUTCOMES

Common benchmarks and assessment tools enhance learning outcomes. They help teachers collect reliable data and analyse student achievement. That allows teachers to adjust their teaching to better meet each student's needs. They also build teachers' capacities for data collection and analysis.

Schools across New South Wales already use a wide variety of assessment strategies, tools, and resources. The NSW Department of Education has rolled out a number of on demand diagnostic and formative assessment tools aligned to NSW syllabus outcomes and the National Literacy and Numeracy Learning Progressions. These include:

- check-in assessments for reading and numeracy in Years 3-9
- literacy and numeracy short assessments
- a phonological awareness diagnostic
- an on-demand phonics diagnostic assessment
- the mandatory Year 1 phonics screening check
- a new numeracy assessment called the Interview for Student Reasoning
- Best Start Kindergarten and Best Start Year 7.

These assessment tools provide teachers with information about students' learning needs to inform targeted teaching. Additionally, tools such as 'data walls' are simple and effective ways for teachers to generate and use assessment data in their teaching.

But the toughest issue for teachers is not about information and resources. It is that the current education system does not support or incentivise teachers and schools to embed best practice.

This requires making classroom teachers, school leaders, and government accountable for adopting practices that improve teaching quality. It also requires supporting teachers with the meaningful feedback they need to improve. In Section 2.4 below, we outline how reforms to the teacher Performance and Development Framework can support this.

FOCUS SCHOOL LEADERS ON TEACHING QUALITY

Teachers are not the only actors who contribute to teaching quality. So accountability for improving should not rest solely on their shoulders. Principals have the second largest in-school impact on student outcomes, after classroom teaching. Studies indicate highly effective principals can make a considerable difference to student outcomes. They can raise the achievement of a typical student by between two and seven months of learning in a school year (Branch, Rivkin, and Hanushek, 2013).

School leadership and quality teaching are closely linked. The most effective school leaders improve student outcomes partly because they focus on improving classroom instruction. They involve themselves in teachers' learning and development. In a 2009 meta study, John Hattie found instructional leadership can have three to four times more impact on student outcomes than approaches that focus on teacher autonomy (Hattie, 2009).

The leaders of some NSW schools already focus on best-practice instructional methods (see Box 2.5). Wide-scale improvement will depend on promoting evidence-based teaching methods in all schools (Masters, 2016). The challenge is to spread the ethos of our best school leaders across the board.

BOX 2.5: EFFECTIVE SCHOOL LEADERS FOCUS ON TEACHING QUALITY TO LIFT RESULTS

A study of five NSW government schools with a culture of excellence revealed the ingredients of strong educational leadership (Centre for Education Statistics and Evaluation, 2018a). The schools' principals modelled instructional leadership within and beyond their schools. They shared a common desire to foster leadership capacity among their staff, and often allowed staff to play key roles in the making and enactment of school decisions.

Taree West Public School, located on the Mid North Coast of New South Wales, provides an example of excellent school leadership. In 2016, external validation found the school was excelling in 12 of 14 elements in the School Excellence Framework. School leadership produced a culture of excellence by focusing on having teachers proactively and continually self-evaluate their practice and stay informed of current research on effective teaching. A culture of self-reflection and continuous improvement is now a core aspect of teaching at the school.

Rooty Hill High School, a comprehensive secondary school located in western Sydney, provides another example of leadership excellence. The school was named as one of the 40 most innovative schools in Australia by *The Educator* magazine in 2016 and 2017. School leadership embedded and sustained a culture of excellence within the school through a strong focus on refining the skills of teachers and delivering quality lessons (Centre for Education Statistics and Evaluation, 2018b).

The Department of Education has recently launched a new School Success Model. Under this model, the NSW Government is taking important steps to foster strong school leadership. The Fast Stream program recently announced by the NSW Government aims to create a fast lane for high-performing teachers. These candidates will gain leadership experience and will be able to become school principals in 10 years, half the usual time. The program focuses on placing these candidates in rural and regional areas of need, to remedy current shortages.

Another component of the School Success Model aimed at cultivating leadership is the Ambassador Schools pilot program. The pilot aims to recognise and leverage the leadership of exceptional schools by scaling their good practices and expertise across the school system. The pilot began in 2021 and involves Auburn North Public School, Fairvale High School and Milthorpe Public School. Additional schools will be announced as part of this program throughout 2021.

Evidence about excellent leadership practices will also be shared through the NSW School Leadership Institute to lift performance across the school system.

MAKE SCHOOL LEADERS ACCOUNTABLE FOR TEACHING PRACTICES

Our public-school system contains examples of best practice. But there are concerns the system has not monitored school practices closely enough, including schools' use of evidence-based methods and strategies for teaching. School autonomy is important because it ensures schools can respond to local student and community needs. But it must be accompanied by strong performance evaluation and accountability for results (Organisation for Economic Co-operation and Development, 2011).

Evaluation and accountability should mean more than just ensuring that schools comply with laws, regulations, policies, and procedures. The system should assess how well schools and teachers are teaching and build the evidence on how to improve outcomes.

There are also concerns that the current 'devolved' framework for improving teaching practices is ineffective. Approaches to evidence-based teaching are set by the NSW Department of Education and NESAs. Teachers, schools, and school authorities must then develop programs and structures to implement evidence-based teaching and improve teaching practices. Public schools, for example, annually self-assess their practices against the Department's School Excellence Framework. Schools use these self-assessments to develop school plans, and report on progress against these plans in their annual reports. School plans are externally validated by a panel of peers every five years.

But this framework has failed to ensure schools have the strategies and oversight they need to consistently improve teaching practices. A 2019 Parliamentary Inquiry, *Measurement and outcome-based funding in New South Wales schools*, found schools were 'rarely meeting the accountability requirements of the School Excellence Framework' (NSW Legislative Council, 2020). This finding was based on the scant information in annual school reports. The Inquiry also found that oversight by the NSW Department of Education in areas like classroom teaching methods and classroom content were minimal to non-existent. This is likely because supervisors are rarely undertaking classroom observations (see Section 2.4 below).

In response to these concerns, the NSW Department of Education has announced that by 2024 all schools must develop a new Strategic Improvement Plan, to be reviewed and approved by the Department. The new plans will include improvement measures and annual academic targets set out by the Department. Schools must then assess progress against the plan every year and report through the school's annual report. The changes also increase the focus on student growth and performance and provide new resources and tools.

The School Success Model builds on the establishment of school targets. The model will assess school performance data against Strategic Improvement Plan targets. This will strengthen accountability, and better direct support to those schools that need it the most. This support includes providing all schools with access to improved

evidence-based guidance on effective practice. For schools where improvement outcomes are more challenging to obtain, the Department will provide strengthened support and direction.

These changes take schools in the right direction. Previous experience, however, shows their impact on in-school practices and teaching quality will depend on strong monitoring, evaluation, and accountability systems.

School leaders and teachers are currently evaluated under the same generic performance and development framework. The NSW Government should develop a separate framework for principals that reflects their unique role and makes them accountable for improving in-school teaching practices (see Recommendation 2.4).

To further embed highly effective teaching across all classrooms, the NSW Government should require schools to report regularly and transparently on their teaching practices and their progress implementing proven approaches. The approach should not be one-size-fits-all. Accountability should not prevent experimentation and innovation. But where schools are not pursuing proven best practice, they should be required to explain why and provide supporting evidence. Reporting requirements should minimise the administrative burden on schools. For example, by using an annual, centrally administered survey, or existing mechanisms such as School Improvement Plans.

REQUIRE SCHOOLS AND TEACHERS TO ROLL OUT FORMATIVE ASSESSMENT

Assessment is 'a tool to establish where learners are in their long-term progress within a domain of learning' (Masters, 2014). Teachers' use of assessment is strongly linked to student outcomes (Centre for Education Statistics and Evaluation, 2013). When teachers use high-quality assessment, gains in student achievement accelerate at twice the expected rate, with greater gains for the lowest-performing students (Timperley, 2009).

Alongside traditional 'summative assessment' like exams done at the end of a course, research shows that 'formative assessment' can greatly improve student learning outcomes (Hattie, 2005). Formative assessment tells students how well they are progressing towards a learning goal.



NSW Department of Education has announced that by 2024 all schools must develop a new Strategic Improvement Plan

It aims to guide their future learning. It is more frequent and timely, less formal, and often ungraded and low-stakes (Centre for Education Statistics and Evaluation, 2020).

Summative assessment is assessment *of* learning, whereas formative assessment is assessment *for* learning. Best-practice teaching employs both kinds of assessment.

Effective classroom assessment depends heavily on school strategies for collecting and using assessment data. While there are pockets of excellent practice (see Case Study 2.1), reports have found schools vary widely in how well they do this. And reports have consistently highlighted that schools need to improve in this area (Audit Office of New South Wales, 2019).

CASE STUDY 2.1: HOW AUBURN NORTH PUBLIC SCHOOL USES DATA

Auburn North Public School focuses on using data and evidence to teach students in the ways that work best for each of them.

- Teachers work together to analyse assessment data.
- They develop strategies to respond to student needs.
- They use approaches such as strategic student groupings, targeted intervention, extension programs and explicit in-class teaching.

Teachers identify student needs by working one-on-one with students to determine their instructional reading level and numeracy capabilities at the beginning of every semester, as well as to develop their relationship. Student growth is then tracked and monitored on a five-weekly basis. Teachers use this data to refine their instruction to meet the needs of each student.

This assessment is supported by standardised assessments. These ensure consistency of teacher judgement and NAPLAN growth data, to further enable teacher reflection and program evaluation.

Consequently, Auburn North Public School students have consistently demonstrated outstanding growth in literacy and numeracy on a range of measures, including analysis of NAPLAN compared to similar schools.

Source: NSW Department of Education.

The NSW Early Action for Success initiative is one example that shows how better assessment and data practices can improve teaching effectiveness. The initiative, based on the research and early interventions set out in the NSW Literacy and Numeracy Strategy and Action Plan, targeted students from kindergarten to year 2, in disadvantaged and low performing schools. It included support, guidance and professional learning in instructional leadership, diagnostic assessment, differentiated teaching and targeted interventions.

The initiative required target schools to formally assess each student's learning needs against the NSW literacy and numeracy continuums and track each individual's progress, with evidence, every five weeks. With additional funding, instructional leaders were appointed to help establish processes for monitoring and reporting on student data. These leaders also provided professional learning and feedback for teachers.

An evaluation found the measures under the Action Plan substantially improved the proportion of students reaching the expected level of learning achievement (Erebus International, 2017). The Action Plan also improved the quality of teaching and learning. It helped integrate formative assessment and data analysis into teaching practice, and embedded evidence-based teaching as the norm.

All schools in New South Wales should be required to implement formative assessment, and to report centrally on their progress annually.

A FOCUS ON TEACHING QUALITY CAN HELP ABORIGINAL STUDENTS

Quality teaching looks different for different groups of students. Aboriginal students, for example, often have unique learning needs. Many are dealing with socio-economic disadvantage and intergenerational trauma, stemming from historical colonisation and dispossession, and compounded by ongoing discrimination and racism (Gillan, Mellor, and Krakouer, 2017; Priest et al., 2013; Atkinson, 2002). But we also know that a supportive learning environment can help Aboriginal students to thrive, learn and overcome trauma and historical disadvantage.

The evidence points to four elements of teaching that help Aboriginal students succeed:

- **Intensive, high-quality instruction:** The most important in-school contributor to improved outcomes for disadvantaged students is instruction from quality teachers (Deloitte Access Economics, 2019). High expectations and more intense and high-frequency instruction can help address disadvantage for Aboriginal students (Hammond, 2021).
- **Trauma-informed teaching:** Teachers of Aboriginal students need to have a working understanding of trauma, the ability to recognise and understand how it affects behaviour, and practical strategies to create a safe and effective learning environment for students dealing with it (Downey, 2007).
- **Culturally-competent teaching:** This can include a practical understanding of how historical colonisation and discrimination impact the way Aboriginal students and their families interact with non-Aboriginal teachers (Lewthwaite et al., 2017; Krakouer, 2015). In regional and remote settings, it can include understanding local cultural practices, and incorporating

local language into teaching so that communities have enough trust in teachers to share local knowledge that can be instrumental in improving outcomes.

- **Community-engaged teaching:** Aboriginal and Islander Education Officers (AIEOs) are Aboriginal employees who work alongside non-Aboriginal teachers to improve their understanding of the community and their culture. AIEOs have been shown to improve students' engagement and build more effective relationships between Aboriginal communities and teachers (Peacock and Prehn, 2019).

Further research and evaluation is needed on what quality teaching means for Aboriginal students in different settings. But we have clear examples where some of these principles have been applied. Boonderu Music Academy in Western Australia adopted an Aboriginal teaching theory approach, with reports of improved attendance, student engagement, and test results (Verdouw, 2015). Cherbourg State School in South East Queensland achieved dramatic improvements in both academic and other outcomes by employing some of these strategies (Commonwealth Government, 2003). Another school—Murri School in Inala, Brisbane—embedded Aboriginal pedagogies and cultural practices in its curriculum (Commonwealth Government 2001).

The new Australian Education Research Organisation (AERO) was established by the NSW Minister for Education along with other Australian education ministers and is co-funded by the NSW Government. It is well placed to build the evidence base in this area. The NSW Government should ask AERO to prioritise research on the elements of teaching quality for Aboriginal students in its forward work program.

RECOMMENDATION 2.3: SUPPORT BEST-PRACTICE TEACHING

By 2022, require schools to report their annual progress implementing evidence-based best-practice teaching and explain departures from best-practice methods.

By 2022, monitor schools' use of formative assessment practices and have them report on progress annually.

By 2022, develop further state-wide assessment resources to support all schools and teachers to more effectively use data to monitor student progress, and to inform and target teaching practices.

By 2021, the NSW Government should ask the Australian Education Research Organisation to prioritise research on the elements of best-practice teaching for Aboriginal students.



2.4 Use meaningful feedback to support continuous improvement

Teacher evaluation can be a powerful tool to increase teacher effectiveness and improve student outcomes. It works most powerfully when teacher appraisal and feedback are directly linked to the quality of classroom teaching and student performance. Studies suggest such teacher evaluation can make teachers as much as 20 to 30 per cent more effective (Jensen and Reichl, 2011).

Like any other worker, a teacher cannot improve without setting goals, striving to achieve them, and receiving insightful, timely, regular and constructive feedback on their performance. Corrective and specific feedback is highly effective at enhancing learning of new skills and tasks (Wisniewski, Zierer, and Hattie, 2020). The systems that guide the way teachers are evaluated need to ensure teachers receive this feedback.

As will be seen in this section, however, the Performance and Development Framework (PDF) for NSW teachers is not giving them the feedback they need. The State's industrial arrangements are also proving a barrier to reform. As our understanding of effective teaching and management develops, so should the framework for teacher performance and evaluation.

The first step is to identify goals more clearly. Performance should be assessed against 'SMART' goals—that is, goals which are specific, measurable, attainable, relevant, and time-based. Those goals should be related both to student outcomes and to the Australian Professional Standards for Teachers ('the Teaching Standards').¹⁰

The next step is to introduce more robust tools for measuring performance against the goals, and ensuring teachers get the regular, meaningful feedback they need if they are to improve. These measures should include:

- measures of teacher value-added
- regular classroom observations
- 360-degree feedback from students, school leaders and peers.

Together these measures provide the robust feedback teachers need to continuously improve their classroom performance. Value-added measures provide a powerful, accurate and objective measure of teacher effectiveness (Figure 2.6), while classroom observations and 360-degree feedback provide vital qualitative information that supports teacher improvement. The measures work together so that teachers not only know how effective they are, but can also identify exactly what they can do to improve.

Schools should be required to implement these measures as part of the reforms to the PDF. Implementation will need to be progressive, so schools should be required to report annually on the progress of implementation.

The PDF should mandate that where these systems have been implemented, teachers and their supervisors must use them as a central part of setting goals and assessing performance. Of course, these measures must be applied skilfully and holistically. Teachers and supervisors will need to be trained in how to use them effectively as part of their implementation (see also Recommendation 2.5).

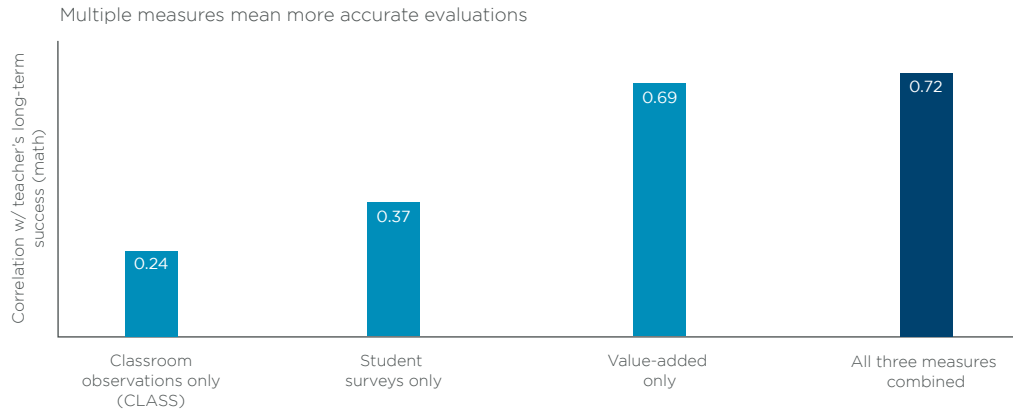
TEACHERS ARE NOT GETTING THE FEEDBACK THEY NEED

Currently, the PDF outlines a yearly cycle. That cycle is intended to evaluate and improve the performance of teachers, principals, and executives in the NSW public school system. The PDF covers:

- planning
- goal-setting
- professional learning
- self-assessment
- review.

¹⁰ The Australian Professional Standards for Teachers comprise seven standards on what teachers should know and be able to do. They run from 'know students and how they learn' to 'engage in professional learning'.

FIGURE 2.6: MULTIPLE MEASURES PROVIDE MORE MEANINGFUL FEEDBACK



Note: '0' indicates no correlation, '1' indicates a perfect correlation.

Source: Kane and Staiger.

Under the PDF, teachers negotiate Performance and Development Plans (PDPs) with their supervisors. Over the rest of the year, evidence of goal achievement is collected, and two mandatory classroom observations must be documented—although the PDF can be unclear about who is responsible for documenting what. Two formal reviews complete the process: a mid-cycle self assessment, and an annual review with written feedback.

While these arrangements sound reasonable enough, a number of reviews have found that they suffer from significant weaknesses (Audit Office of New South Wales, 2019; Clinton et al., 2019).

The Commonwealth Productivity Commission has observed that appraisal processes are often of poor quality, with teachers not receiving the feedback or support they need to improve (Murtough and Woods, 2013).

The Audit Office of New South Wales found application of the PDF varied in the quality of its goal setting, supervisor feedback and documentation. Goal setting and feedback are often not strongly linked to the Teaching Standards.

Surveys indicate many teachers find that the existing process is bureaucratic and does not help them improve their teaching practice (Organisation for Economic Co-operation and Development, 2018c). A lack of meaningful evaluation and feedback impedes teachers in identifying and addressing areas of development. It also

stymies efforts to recognise, reward and progress teachers throughout their careers (Jensen and Reichl, 2011).

These reports highlight a large gap between policy and in-school practices of teacher evaluation.

Parts of the PDF are also at odds with modern management practices. Annual written feedback must be 'agreed' with the teacher and need not be written by the supervisor. This curtails supervisors' duty to give feedback and their independence.

WE NEED MORE FLEXIBILITY TO UPDATE THE PERFORMANCE FRAMEWORK

As the employer of NSW public school teachers, the Department of Education must have the ability to update the PDF to address its weaknesses, implement modern management practices, and support continuous improvement. This would improve outcomes for students, teachers, and the community.

Unfortunately, however, there are barriers to change. In most workplaces, PDFs are developed, implemented, and updated by management, in consultation with the workforce. But the arrangements for NSW teachers go far beyond consultation. The NSW industrial award for schoolteachers refers to the NSW PDF as 'jointly developed' by the Department of Education and the NSW Teachers Federation.¹¹ In practice, this means the PDF is not adjusted without lengthy industrial negotiations. The PDF has not been updated since its inception in 2015 despite the recommendations of multiple reviews.

¹¹ Crown Employees (Teachers in Schools and Related Employees) Salaries and Conditions Award 2020.

It is unusual for a PDF to be ‘jointly developed’ with a union and then locked into an industrial award. A modern industrial award will generally set out conditions of employment such as pay, leave entitlements, working hours and the like—providing justified protections to employees—but should not be used to embed poor work practices. Development frameworks need to be updated promptly. And while consultation can be beneficial, updating a PDF should not be subject to the horse trading that takes place in industrial negotiations.

The NSW industrial relations system—which is essentially confined to NSW public sector workers—lags the federal system in this regard. Federally, industrial awards have been subject to multiple review processes over many decades. The reviews began in the Hawke-Keating era with the implementation of the ‘structural efficiency principle’ in the 1989 National Wage Case (Australian Industrial Relation Commission, 1989). This tied pay increases to measures that improve efficiency. Across the Australian workforce, these processes have progressively eliminated antiquated provisions like those seen in the NSW teachers industrial award.

The NSW teachers industrial award remains an outlier in the way it embeds inefficient and unsustainable arrangements that work to the detriment of both teachers and students in New South Wales. Overcoming this hurdle will open up the opportunity to better use the PDF so that it gives teachers the meaningful feedback they need to improve. Doing so will improve student outcomes and build the NSW teaching profession up from within.

MEASURE PERFORMANCE AGAINST SMART GOALS AND TEACHING STANDARDS

If goals and benchmarks are poorly defined, it becomes difficult to identify relevant evidence and measure performance against them.

The current PDF requires employees to work with their supervisors collaboratively to plan and set three to five career goals in their PDPs. But the guidance on goal setting is limited.

The PDF should be updated to align with modern management practices, and to focus more explicitly on improving teaching quality. The PDF should require that a teacher’s PDP includes specific, measurable, attainable, relevant, time-based (‘SMART’) goals:

- At least one of the teacher’s SMART goals should relate to student performance and achievement. This goal should be developed ‘from the bottom up’, reflecting ambitions tailored to the teacher’s specific students.
- One of the teachers’ SMART goals should also relate to implementing best-practice teaching. Again, this should be tailored to the teacher’s context and specific students.

Alongside SMART goals, the Teaching Standards provide a benchmark for teacher performance. In 2013, as part of a wave of national reforms, the Australian Institute for Teaching and School Leadership introduced the Teaching Standards to provide minimum levels of teaching quality. Teachers are required to be accredited by NESA against the Teaching Standards if they are to be employed in NSW schools. Teacher remuneration structures are also linked to progression through levels defined by the Teaching Standards. Teachers begin their careers accredited at a graduate level, then move to the ‘proficient’ level. They can then choose to attain greater levels of accreditation by applying for ‘highly accomplished’ and ‘lead’ accreditation (we further discuss this in Section 2.6).

In principle, teaching standards and accreditation should improve teaching quality. Defining standards can be crucial when you are providing a public service, because you may not be able to measure productivity directly at all, or where measures are subject to long time delays. Standards can also support more consistent and objective performance evaluation, remuneration and hiring practices, particularly across large organisations where many different people are recruiting and assessing performance. In principle, the accreditation process can help ensure that all NSW teachers meet minimum standards.



Teacher value added, 360-degree feedback, and classroom observations would let schools and supervisors better assess performance

Unfortunately, in New South Wales the effectiveness of the Teaching Standards and teacher accreditation has been hampered by weak implementation. And the evidence only shows a loose link between accreditation and teaching effectiveness (Audit Office of New South Wales, 2019). To date, there is little evidence that the Teaching Standards and accreditation have improved teaching quality across the State.

Part of the problem is that accreditation and performance evaluation are not properly integrated. NESAs are able to consider evidence gathered in teachers' performance and evaluation processes for the purposes of accreditation. Unfortunately, the PDF does not support this.

The PDF should be revised to explicitly require that supervisors must assess teachers against the relevant Teaching Standards during each performance cycle. This would give teachers and supervisors incentives to design SMART goals and gather evidence that clearly shows how they meet the Teaching Standards. Together, these measures will reduce duplication between the performance assessment and accreditation processes, reducing administrative burdens on teachers.

Ultimately, of course, the process of setting and achieving SMART goals should take teachers' development well beyond the minimum requirements in the Teaching Standards. A focus on teaching quality needs to look beyond minimum levels of performance and aim for excellence.

The other key reason why the Teaching Standards and accreditation have not translated into demonstrably higher teaching quality is the lack of robust and consistent processes for measuring performance in schools. The current PDF relies too heavily on self-assessment and evidence selected by the teacher. This can leave teachers in an echo chamber, without an objective view of their performance or the independent feedback they need to improve.

Evidence-based measures like teacher value-added, 360-degree feedback, and classroom observations would enable schools and supervisors to better assess performance against SMART goals and the Teaching Standards. These measures are discussed further in the following sections.

MEASURE THE VALUE THAT TEACHERS ADD

When setting goals and measuring teachers' performance, it is crucial to adjust for influences outside the classroom. A teacher with relatively low-performing students may be driving strong improvements, while a teacher with high-performing students may not be contributing much to their performance.

Around the world, high-performing education systems are supplementing standardised testing with indicators that help to show what teachers and schools are contributing to student learning growth. These measures can be designed to minimise statistical influences from outside the classroom. This helps to establish fair terms for comparing teachers who have students with different socio-economic backgrounds and previous learning experiences.

Such 'value-added' models are the best data-driven method to robustly estimate teachers' contributions to students' progress over time, adjusting for their initial performance and characteristics. Assessments of value-added help to identify the teachers who make larger than average contributions to learning growth, and so allow different teachers' true performance to be compared. A range of school-level value-added measures are already being used in New South Wales to identify the schools that make the largest contributions to students' learning growth (Centre for Education Statistics and Evaluation, 2014).

Overseas, value-added models are increasingly used to measure teachers' contributions to students' learning progress. One example is the Tennessee Value-Added Assessment System (see Box 2.6), which led to dramatic improvements in maths and reading in Tennessee.

BOX 2.6: HOW OTHER COUNTRIES USE VALUE-ADDED MEASURES

A growing number of international educational systems measure the value added by schools and teachers as part of their routine evaluation processes. These include the United Kingdom, Hong Kong and most US states and districts.

In Australia, Victoria and the NSW Catholic education system have incorporated value-added measures into their evaluation processes. The value-added information is used by these systems for a range of purposes including school and teacher improvement, school self-evaluation, monitoring policy initiatives, and boosting accountability.

The Tennessee Value-Added Assessment System (TVAAS) is a longstanding statistical model for measuring the value that schools and teachers add to student learning growth. It uses a statistical methodology to adjust for demographic background and starting achievement level. It increases reliability by using multi-year averages whenever possible. These considerations enable a fair comparison of school and teacher performance.

Tennessee uses the TVAAS to rate the effectiveness of individual teachers, schools, and districts. The TVAAS shows the growth in students' performance by comparing them with their peers with similar previous outcomes, over their schooling life.

Tennessee began exploring ways to measure teaching quality in the 1980s and began using TVAAS in 1993. TVAAS reporting began at the district level, shifting to school-level reporting in 1994 and finally to teacher-level reporting in 1996.

In 2011, Tennessee elevated TVAAS from an informational tool to a formal evaluation system. While controversial at the time, the 2011 transition coincided with gains on national tests. These earned Tennessee the title of America's fastest-improving state in math and reading in 2013.

TVAAS scores are not the only evidence used for evaluation of a teacher's performance in Tennessee. Classroom observations, 360-degree feedback, and notable student achievements are all considered to provide a holistic assessment.

Source: Lu and Rickard (2014); SAS Institute (2017).

New South Wales could not implement measures of individual teachers' value-added model overnight. Nevertheless, Tennessee's experience shows that measuring individual teacher value-added is both achievable and beneficial. Value-added models depend on long-term standardised testing data, which already exists in the form of NAPLAN and HSC results. These are the starting point for the measurement of value-added in New South Wales. Depending on the robustness of existing data, further standardised testing may be considered. Implementing value added measures in New South Wales will require a detailed blueprint that defines key steps and milestones, with realistic timeframes.

It is important to understand how teacher value-added measures can and cannot support performance improvement. Teacher value-added measures can be highly reliable, but only when teacher effectiveness is measured over several years. This means value-added systems cannot be used to measure whether a teacher's performance has improved over a single performance cycle.

Nevertheless, value-added measures do give both teachers and supervisors a reliable and objective measure of how effective a teacher has been over time. This can help low performing teachers to recognise the need for change, and supervisors to identify which teachers may need additional support. It can also provide objective evidence to help identify which teachers are consistently strong performers. This can support the sharing of best practice and the accurate identification of potential instructional lead teachers (see Recommendation 2.6).

Combined with measures such as classroom observations and 360-degree feedback, value-added should build a more robust approach to teacher evaluation—one that will help teachers improve continuously and will drive better student outcomes.

MAKE CLASSROOM OBSERVATIONS ROUTINE AND UNIVERSAL

When combined with student performance data, classroom observations are a crucial source of evidence for evaluating and improving teacher performance. Classroom observations typically involve a senior colleague, school leader or peer observing a lesson given by the teacher in their classroom. The Measures of Effective Teaching project involved

approximately 3,000 teachers from across the United States over seven years. It found that teachers could be given useful feedback after multiple classroom observations combined with data on student improvement and from student perception surveys. Quality Teaching Rounds are another approach to classroom observations, with a strong track record in New South Wales (see Box 2.7).

BOX 2.7: QUALITY TEACHING ROUNDS SHOW THE POWER OF OBSERVATIONS

Quality Teaching Rounds (QTRs) are a tested professional learning approach that includes peer-to-peer classroom observations.

QTRs were developed by Laureate Professor Jenny Gore and the University of Newcastle's Teachers and Teaching Research Centre. They are backed by 20 years of evidence, including randomised trials. QTRs involve Professional Learning Communities of four or more teachers and use the NSW Government's Quality Teaching model as a framework for discussion and evaluation of teaching practices.

QTRs involve:

1. a discussion based on a reading by a member of the group
2. an observation of a lesson taught to a class by a group member
3. time for each participant to evaluate their observations against the Quality Teaching model
4. a concluding group discussion of their findings and feedback.

QTRs are supported by a digital platform (QTR Digital). This digital platform lets teachers in less accessible locations take part in the initiative.

A 2014-2015 randomised trial across 24 schools found that participation in QTRs had a significant positive impact on the quality of teaching. And that impact was sustained 12 months after the intervention. Significant positive effects on teacher morale were also observed (Gore et al., 2017).

In 2019, the NSW Department of Education entered a five-year partnership with the University of Newcastle (with \$17.1 million provided by the Paul Ramsay Foundation) to scale up QTRs. Further studies are currently taking place.

CURRENT OBSERVATIONS ARE RESTRICTED AND INFREQUENT

While the PDF nominally recognises the importance of classroom observations, evidence suggests they are not being implemented effectively. The PDF requires NSW teachers to have at least two observations of practice as part of each performance and development cycle. In practice, however the current PDF places severe restrictions on supervisors' ability to observe teachers and give them feedback (NSW Department of Education and Communities, 2015). The guidelines:

- require the time and place of any classroom observation to be negotiated in advance, with supervisors having no right to observe a teacher spontaneously.

- state that observations may be 'peer to peer, supervisor to teacher, or teacher to supervisor', and teachers can elect for observation by an 'agreed colleague' instead of their supervisor.¹²

Guidelines that deny supervisors the right and responsibility to observe those they supervise are at odds with modern standards of management. They undermine accountability for both supervisors and teachers. This is especially troubling for a profession that works with children. The restrictiveness of the NSW guidelines also seems redundant given the shift to online platforms, accelerated by COVID-19. In online settings, parents and carers can readily observe teachers teaching and children learning.

12 See also NSW Teachers Federation (2018).

Even if duly performed, two observations, negotiated in advance, represents a formal, restrictive, infrequent, and artificial approach. It fails to harness the potential of classroom observations.

Given the current restrictive arrangements, it is unsurprising that classroom observations seem rare in New South Wales. A 2019 Audit Office of NSW Report found that only 10 of 130 records examined included evidence that the teacher had undertaken their two mandatory observations (Audit Office of New South Wales, 2019).

OBSERVATIONS SHOULD BE OBLIGATORY

New South Wales should replace the current approach with an obligation for school leaders and supervisors to conduct classroom observations. They should have an absolute right to do so, at times they determine. A collaborative approach will be effective in most cases. But the frequency of classroom observations should ultimately be determined by school leaders and/or supervisors, based on their assessments of teachers' developmental needs.

Observations by supervisors are essential. But driving real improvement in teaching practice and student outcomes requires a much more rigorous and consistent system of classroom observations.

New South Wales should implement such a system. It should include both supervisor and peer-to-peer observations. Observations should not just be a formality conducted under artificial conditions and/or restricted to mid- and end-of-year cycle appraisals—or worse, restricted to use as a tool for managing poor performance. They should be implemented as a universal, routine, ongoing practice, focused on generating regular low-stakes constructive feedback, building teachers' skills and confidence, and supporting continuous improvement.

The PDF should require all schools to implement a system of classroom observations and all teachers to participate. Monitoring should inform decisions on the support provided to schools.

MAKE OBSERVATIONS HAPPEN WITH SUPPORT, TARGETS, AND REPORTING

A system wide implementation will take time. So schools should be required to report centrally on their progress annually.

Stakeholders highlighted that not every teacher will have access to classroom observations by experts in their subject area, particularly in small, regional, or remote schools. This problem can be addressed by cross-school classroom observation networks, by access to a central pool of subject-expert teachers, and potentially through remote and online observation. These could all be facilitated by a Centre for Teaching Excellence (Recommendation 2.5).

Because classroom observations are a highly effective, evidence-based form of professional learning, they should form a major component of teachers' professional development (PD) requirements and hours. NESA mandates teachers to undertake a minimum of 100 hours of PD over a five-year period to maintain their accreditation. Giving and receiving observations should make up at least 50 per cent of those 100 hours.

Beyond the fact that observations are happening infrequently, there is also no system to ensure teachers and school leaders conduct them effectively. The 2019 Audit Office of NSW report called for classroom observation systems to be improved (Audit Office of New South Wales, 2019). It found a lack of guidance on effective methods of observing teaching and providing feedback. This led to large differences in the methods and quality of lesson observations.

For classroom observations to be useful, each school, supervisor, and teacher must have the capacity to conduct them effectively. This requires building the capabilities of observers, both by training them and by providing a standardised assessment tool to improve the quality of observation and reduce bias. This is another area where a Centre for Teaching Excellence could provide support (see Section 2.5).

GIVE TEACHERS 360-DEGREE FEEDBACK

For teachers to improve their teaching quality, they need feedback from everyone with whom they work. They are already evaluated by school leaders during annual performance reviews and should be collaborating with and observing peers to enhance their craft. A missing voice from this feedback is those who are directly affected by teaching quality, the students. Students should be given regular opportunities to provide constructive feedback to those who deliver their education.

Feedback from students has been found to be an accurate measure of teaching quality and consequently, student outcomes (Wilkerson et al., 2000; Kyriakides et al., 2014). Implementing a way for students to give regular feedback would provide an additional

dimension and perspective on teaching practices. The Australian Council for Educational Research is currently reviewing its Student Perception of Teaching Questionnaire. This document has been designed specifically for the purpose of gathering student insights into teaching quality. Schools could leverage this work to implement such a feedback mechanism.

Stakeholders raised the possibility that students would provide unfair criticism or non-constructive feedback. This is a risk in any feedback system. Supervisors can moderate student feedback so any criticism given to teachers is constructive. Supervisors should also be trained to interpret student feedback and to help teachers use it improve their craft.

RECOMMENDATION 2.4: IMPROVE TEACHER PERFORMANCE EVALUATION

The Government should require schools to implement systems of classroom observations, including peer-to-peer and supervisor observations, by 2023. Participation by teachers should be a mandatory part of the Performance and Development Framework (PDF).

- The Government should develop and implement a training program and standardised assessment tools to build the classroom observation capabilities of teachers and school leadership.

The Government should require schools to implement robust measures of teacher effectiveness by 2023, including classroom observations, measures of individual teacher 'value-added', and 360-degree feedback from students, school leaders and peers. The Government should:

- train teachers and supervisors to use these new measures of teacher effectiveness to genuinely support continuous improvement
- develop a blueprint for measuring individual teacher value added in NSW schools from 2023, including key milestones and timings.

By 2022, the Government should revise the PDF to require the following:

- Teachers should include specific, measurable, achievable, relevant, time-based (SMART) goals related to the Australian Professional Standards for Teachers (Teaching Standards), student outcomes, and best-practice teaching in their Performance and Development Plans.
- Supervisors should explicitly assess performance against the Teaching Standards and SMART goals at the end of each performance cycle. They should be obliged to provide an independent assessment, in writing.
- At least two classroom observations by supervisors should be mandatory each year, with supervisors obliged to observe and provide professional support whenever they deem appropriate for the teacher's development.
- Teachers and supervisors should use individual teacher value-added, classroom observations, and 360-degree feedback in teacher performance assessment.
- A separate PDF for school principals that reflects their unique role and makes them accountable for improving in-school teaching practices.

The Government should make giving and receiving classroom observations a major part of a teacher's professional development requirements. It should comprise at least 50 per cent of the 100 hours required every five years.

The Government should require schools to report annually on the implementation of the new performance measures, with monitoring to inform the support provided to schools.

Drive cultural change through a Centre for Teaching Excellence

The evidence clearly supports a tight focus on improving the quality of teaching in every classroom in New South Wales. The NSW Government's new Schools Success Model includes initiatives to share and scale best-practice teaching within the NSW public school system, including:

- the 'Best in Class' initiative, in which leading and expert teachers share their skills with others to lift teaching standards
- identifying and scaling the practices of high-performing 'Ambassador Schools' to similar schools that are underperforming.

The NSW Government could reinforce these efforts to spread best-practice teaching and embed continuous improvement in NSW schools by giving them an institutional leader.

The NSW Government should establish a Centre for Teaching Excellence (CTE) within the Department of Education. It would:

- **champion, disseminate and support best-practice teaching** in New South Wales, identified through rigorous performance measures
- be a dedicated, accountable, public-facing **institution**
- be led by a Commissioner for Teaching Excellence and represented by a team of outstanding classroom teachers.

HOW A CENTRE FOR TEACHING EXCELLENCE WOULD WORK

A CTE would fulfil a number of roles currently not performed in the NSW education system:

- It would act as a **one-stop-shop** or concierge. Individual teachers and schools could use it for practical support, coaching and resources that would drive higher performance—helping schools implement best-practice teaching, measure teacher effectiveness, and make continuous improvements in every classroom.

- A CTE would help **build the teaching profession** up from within. It would identify excellent classroom teachers using rigorous performance measures and give them a role improving teaching across the system. These teachers would be seconded part time from NSW schools, maintaining their connection to classroom teaching. They would provide NSW teachers and schools with support to improve their teaching practices, including mentoring and coaching in-school systems.
- It could **raise the status of teaching** by showcasing and championing examples of teaching excellence within the NSW education system, as well as programs, initiatives and innovations that improve teaching practice from across New South Wales and other jurisdictions. It could raise expectations across the system and show teachers evidence-based opportunities to improve their classroom teaching practice.
- It could translate data, practical experience, and research into **support and best-practice resources for classroom teachers**. This practical focus would complement and leverage the research of the Australian Education Research Organisation, newly established under the National School Reform Agreement. A CTE would leverage leading subject expert teachers to develop best-practice guides by subject areas and support classroom teachers to implement them. It could draw on expertise already within the NSW Department of Education.



The NSW Government should establish a Centre for Teaching Excellence within the Department of Education.

- A CTE would strengthen the **leadership** and **public accountability** of NSW Government efforts to improve teaching quality. To do this, it would be seated within the NSW Department of Education and led by a Commissioner for Teaching Excellence, with Deputy Secretary rank. This model has been used successfully in other areas to embed an institutional focus on key reform priorities. Examples include the establishment of the Coordinator General, Planning and Delivery Unit, within the NSW Department of Planning, Industry and Environment, and the NSW Commissioner for Productivity within NSW Treasury.
- A CTE would be accountable for **implementing** the NSW Productivity Commissioner's key recommendations for improving teaching quality across NSW schools, including the following:
 - Develop a suite of **robust measures of teacher effectiveness**. These measures would include: 360 degree feedback from students, parents, school leaders and peers; systems for classroom observations; and a blueprint for measuring individual teacher 'value added'.
 - Partner with schools to **embed these measures** of teacher effectiveness, including providing training, support, and school-ready tools and resources for administering them.
- Train supervisors and school leaders to conduct high-quality **classroom observations** and provide **standardised assessment tools** to improve the quality of feedback and reduce bias.
- Facilitate **cross-school classroom observations**, to ensure every teacher has access to constructive feedback from high-performing teachers in every subject area.
- Develop state-wide student **assessment resources** and offer **practical training** on how to use them. This would support all schools and teachers to more effectively use data to monitor student progress, and to inform and target teaching practices.
- Provide a **hub** for the new 'lead teacher' career pathway (see Recommendation 2.6 below), and co-ordinate lead teachers' efforts to drive improvement across the NSW school system.
- A CTE would also provide stronger **accountability for schools**. It would administer mandatory reporting of schools' progress in implementing systems for best-practice teaching and continuous improvement. And it would report on this progress publicly.

RECOMMENDATION 2.5: CREATE A CENTRE FOR TEACHING EXCELLENCE

Establish a public-facing Centre for Teaching Excellence within the NSW Department of Education by 2021, to be led by a Commissioner for Teaching Excellence and staffed with high-performing teachers, to:

- Be publicly accountable for leading improved teaching quality across the system.
- Champion, train and support schools and individual teachers with resources to implement best-practice teaching methods, measures of teacher effectiveness, and systems of continuous improvement, including classroom observations (as outlined in Recommendations 2.3–2.4).
- Hold schools accountable for their progress implementing best-practice teaching and administering their reporting requirements (as outlined in Recommendations 2.3–2.4).
- Provide an institutional hub for a new instructional lead teacher pathway (as outlined in Recommendation 2.6)

Keep the best teachers in the classroom

A key theme of this chapter is that in the long term, highly effective teachers can make a huge difference to the State's productivity and prosperity. Evidence shows that exposing students to highly effective teachers is the most powerful way to lift educational results. And better educational results may give our prosperity a more powerful boost than anything else we can do over the decades ahead.

To make it happen, however, we will need to make teaching careers much more attractive to the people most likely to do high-quality teaching. That in turn means creating career pathways that will recognise and reward the most effective teachers.

By attracting and retaining such teachers, we will give the education system an opportunity to leverage their insights. That will help to lift the supply and quality of teachers across New South Wales, and to raise the status of the profession.

Unfortunately, our current systems are not robust enough to objectively identify who our best teachers are, let alone attend to their career progression, professional development, and retention. As a result, we are missing a key opportunity to improve student outcomes.

REWARD AND LEVERAGE HIGH-PERFORMING TEACHERS

Numerous reports have highlighted how the current teaching career structures effectively encourage the best teachers to leave the system. Teaching progression provides little recognition for differences in performance: the most effective teachers have historically earned the same rate as low performers (Murtough and Woods, 2013). Without robust and objective measures of teacher performance, the education system cannot reward high-performing teachers. Without such measures, the NSW Government lacks any way to ensure that higher funding translates into better teaching.

Notionally, teachers progress based on performance. In practice, especially once proficient accreditation is attained,

higher pay is linked to years of service. Opportunities to advance peak relatively early, with teachers reaching the highest level within 10 years of starting their career (Goss and Sonnemann, 2019). So high-performing teachers seeking further advancement must choose between two options:

- leave the classroom for school leadership positions—which mainly involve management and administration, not teaching.
- leave the profession entirely.

International comparisons show that Australia's new graduate teacher salaries are relatively competitive. But such comparisons also show that an Australian teacher's salary peaks early and flattens out quickly relative to most OECD countries (Organisation for Economic Co-operation and Development, 2019).

The move towards a system of teacher accreditation in New South Wales, based on the Teaching Standards, has had little impact on the teaching workforce's ability to educate students. This shows in the lack of improvement in student outcomes. The school level evaluations that support accreditation are inconsistent, and the NSW Education Standards Authority has limited resources to audit them (Audit Office of New South Wales, 2019). This means that in practice, it is unclear whether teachers' performance matters more than their years of service.

The Teaching Standards include options to obtain higher levels of accreditation, notionally based on performance. But very few teachers successfully attain these higher levels—only 102 in New South Wales in 2018. The Audit Office has noted the low uptake was due to lengthy, complex, and onerous accreditation processes.

To reduce the administrative burden, we should aim for higher levels of accreditation to automatically apply to the most effective teachers. Effectiveness should be based on robust performance measures. Those measures should be embedded and applied to all teachers across the



The most effective teachers have historically earned the same rate as low performers

school system during appraisal and evaluation processes, rather than by a separate bureaucratic process. If that could be done, the uptake of highly proficient and lead teacher qualifications would be higher and more valued by teachers. Implementing a suite of more robust performance measures (Recommendation 2.4) is the first step.

The lack of sufficient reward for highly accomplished and lead teachers also likely discourages uptake. The difference in salary between a highly accomplished teacher and a long-serving proficient teacher is minimal when compared to principals and other school leaders (Figure 2.7).

DEVELOP NEW TEACHING CAREER PATHWAYS

Early in their careers, teachers' performance may be affected by the length of their service. But over a career, teaching performance has little correlation to tenure and accreditation; different methods are needed to effectively recognise and reward teachers (E. A. Hanushek, Kain, and Rivkin 1999). Several Australian reviews and reports have called for teachers to have better-designed career pathways

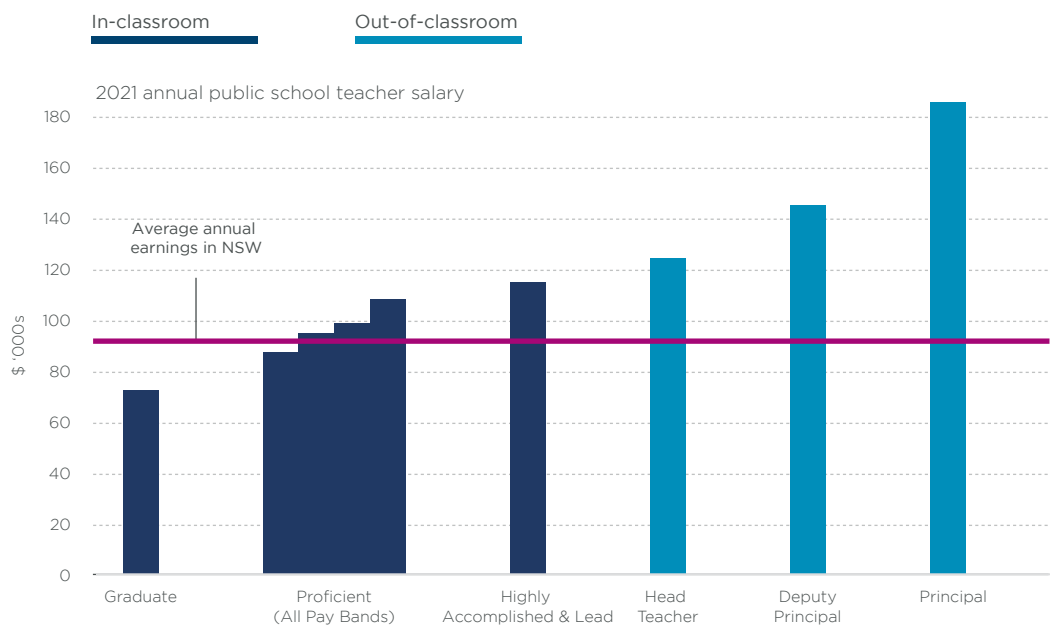
(Gallop, Kavanagh, and Lee, 2021; Gonski et al., 2018; Murtough and Woods, 2013; Goss and Sonnemann, 2019; Gordon, Kane, and Staiger, 2006). Stakeholders have also raised the lack of a defined role or additional responsibilities for those with highly accomplished or lead accreditations.

Rather than progressing through their careers on the basis of tenure and accreditation, teachers should progress on the basis of evidence that they are effective and are improving student outcomes, with a rigorous assessment process (Gordon, Kane, and Staiger, 2006). The progression must be based on two factors:

- a rigorous assessment process
- a direct link to impact on learning and student outcomes.

Research shows that progression to higher positions and remuneration does not improve teaching quality and student outcomes unless that progression is linked to measures of teacher skill, development or effectiveness (Hanushek, Kain, and Rivkin, 1999). Basing progression on the robust measures of teaching quality discussed in Section 2.4 is a good starting point.

FIGURE 2.7: OUR HIGHEST-PERFORMING TEACHERS MUST LEAVE THE CLASSROOM TO PROGRESS



Source: Crown Employees (Teachers in Schools and Related Employees) Salaries and Conditions Award 2020; ABS 6302.0.

Overseas career pathways in high-performing education systems such as Shanghai and Singapore help to show us what effective career structures look like.

In Singapore, teachers can choose from three career tracks: teaching, leadership, and senior specialist. Their progression is closely tied to the appraisal process and professional learning.

- The **teaching track** is designed for teachers who aspire to become pedagogical experts and remain within classrooms.
- Those on the **leadership track** become principals.
- The **specialist track** is geared towards curriculum research and instructional design.

To advance within their career track, teachers must meet specific competency-based criteria. They receive greater responsibilities, professional development opportunities, and remuneration as they advance. These types of professional pathways, with clear and transparent criteria for entry, promote high-quality teaching and allow the best teachers to remain in the classroom.

The foundations of a dedicated ‘instructional lead’ role is already in place but, as mentioned by stakeholders, these teachers are not being utilised. The NSW Department of Education has made some steps to provide a concrete career path. The announcement of the ‘Best in Class’ initiative utilises 50 high-performing teachers to support other teachers in underperforming schools. But this relatively small-scale initiative does not address the overall lack of a teaching career structure for highly accomplished and lead teachers. Nor does it address our inability to measure whether teacher accreditation improves student outcomes. If New South Wales is to continuously improve our teachers’ capacities and capabilities, we need deeper changes.

Any new model should include dedicated responsibilities for these teachers—supporting other teachers to improve their teaching practices—with commensurate increases in remuneration.

Developing an instructional lead teacher career pathway with defined responsibilities would better leverage our best teachers. That would allow them to stay in the classroom if they wished and would foster more effective teaching.

RECOMMENDATION 2.6: HELP GOOD TEACHERS KEEP TEACHING

Develop an ‘instructional lead’ career pathway for highly effective teachers as an alternative to an administrative career progression. Highly effective teachers should be identified using a suite of robust measures, as outlined in Recommendation 2.4.

Evaluate uptake, rollout, and effectiveness of these new pathways against implementation key performance indicators, with one instructional lead teacher in every school within three years.

Leverage instructional lead teachers to spread best practice across the school system through a Centre for Teaching Excellence (see Recommendation 2.5). Incorporate these teachers into a long-term teacher supply strategy (see Recommendation 2.1).

QUESTIONS FOR INVESTIGATION

In the course of research for this chapter, and through stakeholder consultations, the Commission has identified a number of unanswered schools policy questions:

- Are the location, resourcing and educational offerings of public schools flexible enough to meet shifts in the nature, quantity and location of demand for school education?
- What are the drivers of differences in schooling outcomes between New South Wales and other jurisdictions—including, for example, demographic and geographic drivers?

- What is the role of competition (including school choice and selective schooling) in the NSW school system?
- Beyond teaching quality, what other factors drive learning student outcomes, and which of these can government influence most effectively?

These questions still need answers. The Commission will consider them when deciding on its future work program.





03 | A modern VET system to deliver the skills we need



Recommendations

RECOMMENDATION 3.1: CONTINUE TO PROVIDE TARGETED WORKFORCE SUPPORT TO PROMOTE ECONOMIC RECOVERY

Continue the rollout of an 'earn or learn' strategy to reskill and upskill workers in priority skill areas.

Draw on the lessons of NSW JobTrainer in pursuing longer-term vocational education and training (VET) reform.

RECOMMENDATION 3.2: BUILD MORE PATHWAYS TO THE TRADES

Introduce at least two new and more flexible pathways to trades qualifications: one for HSC holders (two years or less), and one for mature-aged workers and women (18 months or less).

- Give registered training organisations incentives to develop more flexible modes of course delivery, including after-hours learning and short intensive periods of full-time study.
- Continue rolling out the Trades Skills Pathways Centre to develop and implement new training pathways, starting in the construction sector.
- Regulate to allow employment of unqualified juniors (those below 21 years of age) in a recognised trade vocation outside an apprenticeship model.
- Endorse a marketing campaign to raise the profile and awareness of new trades pathways.
- Extend government incentives and support to achieve neutrality between apprenticeship and non-apprenticeship pathways.

RECOMMENDATION 3.3: TARGET VET SUBSIDIES BETTER, AND ENCOURAGE HIGHER QUALITY

Target VET subsidies more effectively by using labour market data and National Skills Commission expertise to identify skills the economy will need.

Capture and publish data from Smart and Skilled student feedback on training provider quality, employment outcomes and overall student experience.

Redirect funding to courses with demonstrated value to industry, in skills shortage areas.

RECOMMENDATION 3.4: ENCOURAGE MICRO-CREDENTIALS

Extend Smart and Skilled program subsidies to targeted short courses and micro-credentials that provide discrete skills which employers recognise and value.

- Use economic and industry data to identify high value micro-credentials to fund.
- Prioritise courses that have better evidence of employer trust and recognition, high-quality assessment, and alignment with the Australian Qualifications Framework (AQF).
- Use a risk-management approach to funding, with the capacity to quickly freeze or withdraw funding if problems are identified.

Support the development of voluntary systems of trust and recognition for micro-credentials with, for example, alignment to AQF levels or the adoption of 'credit points' standards.

3.1 VET builds human capital

Talk of ‘human capital’ often focuses on the people who work with concepts: scientists, engineers, creators of software and entertainment. We sometimes fail to recognise the importance to the economy of the practical expertise of machinists, childcare workers, midwives, and server technicians. But a huge number of people rely on our vocational education and training (VET) system to convert their potential into just this sort of practical expertise. As technology advances, it drives rapid changes in the skills the economy needs. Many low-and middle-skill jobs are being automated. As this happens, we need to open pathways for workers to move up the skills chain.

The distinguishing feature of the VET system is its emphasis on practical and applied skills. Typically, workers can apply these skills directly in specific occupations. Universities, by contrast, traditionally focus on academic knowledge, critical thinking and problem-solving skills needed in occupations that emphasise more abstract knowledge.

VET’S IMPORTANCE IS RISING

Society at large often sends out the message that almost everyone should aspire to a university education. But labour market analysis tells a different story. Projections suggest that more than half of employment growth over the coming years will rely on VET qualifications (Department of Employment, Skills, Small and Family Business, 2019). In 2019, just over 12 per cent of VET students already had a university qualification (National Centre for Vocational Education Research, 2021). This suggests that many jobseekers are seeking to complement their university education with practical skills offered by VET, improving their job prospects in the labour market.

Employer and industry stakeholders are also signalling the increasing importance of VET. Many jobs of the future in New South Wales, driven by a shift to automation, will require workers to have

a combination of cognitive abilities, soft skills, and strong technical skills (NSW Innovation and Productivity Council, 2021). Major challenges to meeting these emerging skills needs include the overly siloed tertiary education system dominated by universities, and ongoing cultural bias against VET.

Stakeholders including registered training organisations (RTOs), industry and community groups have engaged strongly on VET issues throughout consultation on the recommendations in this paper.¹ The Australian Industry Group, among others, made the point that technological progress means existing workers need to adopt different skills and new practices throughout their working lives.

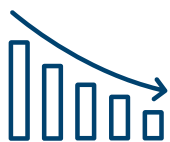
Several Green Paper submissions, including those from Business NSW and the Housing Industry Association, stressed the importance of an inclusive system that meets the needs of a diverse range of groups (such as mature workers and women).

The VET system must be transformed into a hub of ‘lifelong learning’, supporting workers to acquire skills at any stage of life, and as economic circumstances change. Many submissions supported the Commonwealth Productivity Commission’s position: ‘If we had to pick just one thing to improve ... it must be skills formation’ (Commonwealth Productivity Commission, 2017b, p. 85).

VET NEEDS REFORM

There are clear signs that the VET system needs to be reformed to meet these challenges. Fewer and fewer school leavers are considering VET as a post-secondary pathway, with preferences given overwhelmingly to universities. As a result, widespread shortages of key VET skills (especially the trades) have remained unaddressed for decades, impeding business growth and pushing up the cost of delivering services and infrastructure.

¹ Registered training organisations in New South Wales include TAFE NSW—which is the public provider—and a large number of private providers.



VET participation is in long-term decline

COVID-19 has only reinforced the case for change. Travel restrictions limit access to skilled migration and thousands have been displaced from their usual employment. By delivering the skills that workers and businesses need to be productive, the VET system will play a pivotal role in promoting economic and labour force recovery.

The recent review of the NSW VET system by Peter Shergold and David Gonski emphasises the need to achieve parity with universities (Gonski & Shergold, 2021). The Commonwealth Productivity Commission has also outlined a comprehensive reform agenda in its recent review of the National Agreement for Skills and Workforce Development (NASWD), which is due for replacement in 2021 (Commonwealth Productivity Commission, 2020c).

While funding arrangements are important, the Commonwealth Productivity Commission emphasises that broader supporting reforms are needed to maximise the benefits from training. These include reforms to improve user-choice and ensure training quality. A new intergovernmental agreement presents a timely opportunity for all governments to embark on broader reforms to improve VET quality, reduce barriers to training and better align incentives. The NSW Government is well-placed to pursue bold VET reforms. Its overarching objective should be to promote a modern and accessible VET system that meets the evolving needs of the economy while encouraging participation and a more productive labour force.

Despite many reviews of the system in the past decade, few reforms have improved skills delivery or better aligned the VET system with the needs of industry or the economy. As a result, the system has not adapted with changes in the ways we live, work, and learn. Introduction of a competitive VET market in 2015 was a major advance in providing choices for students and diversifying the range of training providers. But many critical parts of the system remain unreformed, and are no longer fit-for-purpose:

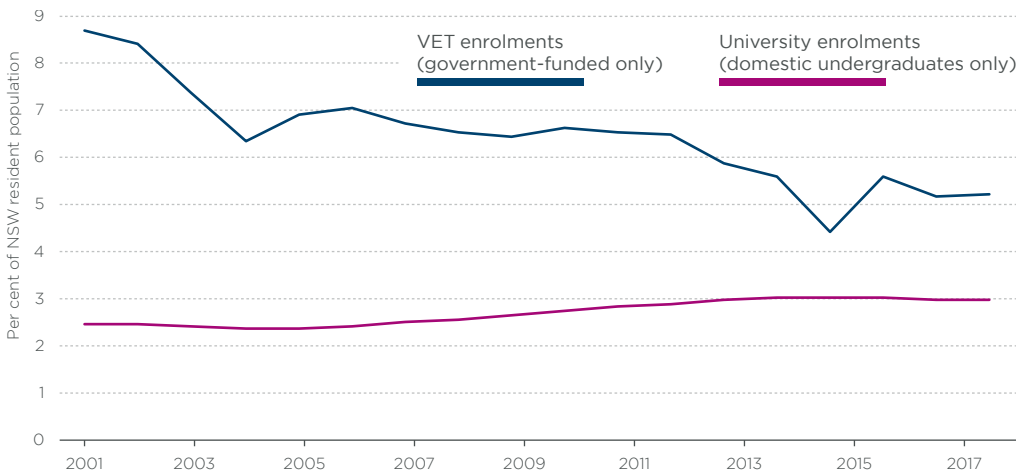
- The structure of the VET system is under pressure from **broad social changes** over the last half-century, from the rise in female workforce participation, a trend towards mid-life career changes, to higher rates of year 12 completion.
- Inflexible and outdated training pathways are among the many factors contributing to **chronic skills shortages**, particularly in the trades.
- Poorly targeted subsidies (and other incentives) have contributed to a **skills mismatch** between what the VET system delivers and what the economy needs.
- The value of some VET qualifications is questionable, largely because **course content** is too shallow, **outdated** or of **low value to industry**.
- There is scope to improve the mechanisms that uphold **VET quality**. Unlike schools and universities, students and employers selecting a VET provider lack useful and reliable information needed to make informed trade-offs between duration, location, cost, and quality of outcomes.

PARTICIPATION IN VET IS DROPPING WHILE UNIVERSITY ENROLMENTS INCREASE

Enrolment data shows participation in VET is in long-term decline. Figure 3.1 plots the proportion of the population enrolled in government-funded VET, against the proportion enrolled as domestic undergraduates in higher education.

For the past 20 years at least, the proportion of the NSW population pursuing VET has steadily declined, while university enrolments have increased. VET enrolments declined even as the VET dominated industries, such as construction, health, and aged care, have grown. So why has the VET system declined so dramatically, despite it being seemingly so well-supported by industry and government?

FIGURE 3.1: VET IS LOSING GROUND TO UNIVERSITIES



Source: National Centre for Vocational Education Research, Department of Education, Skills and Employment (Higher Education Statistics), ABS Cat. 3101.0.

Figure 3.1 reflects an issue raised consistently during consultations: universities are increasingly dominating the tertiary education sector.

Many experts believe this shift has stemmed from a cultural bias against VET, particularly among secondary school leavers. In 2019, around 48 per cent of NSW students who left school in 2018 went on to university, while only 17 per cent chose to pursue VET (Centre for Education Statistics and Evaluation 2019).

Joyce states that ‘vocational education has been steadily losing the battle for hearts and minds with the university sector’ (Joyce, 2019, p. 27). In their review of the NSW VET system, Gonski and Shergold similarly remarked that ‘many students are led to believe VET is not accorded equal status [with universities] and should only be considered by those with lower academic ability’ (Gonski & Shergold, 2021, p. 6). The recent NSW Curriculum Review echoes these findings (Masters, 2020).

Two factors are often cited as creating this bias:

- The NSW school system focuses too much on university entrance. The NSW Curriculum Review notes that the Australian Tertiary Admission Rank (ATAR) has come to be the dominant measure of school achievement (NSW Education Standards Authority, 2020). Shergold and colleagues note that ‘undue focus on the ATAR has a distortionary impact on educational expectations, in which preference for VET is perceived as “second class” (Shergold et al., 2020). Rules for applying the Higher School Certificate (HSC) to calculate an ATAR also favour academic subjects, while only partially recognising VET subjects.

- Students and job seekers lack access to adequate high-quality information on VET pathways; they do not see VET as a viable alternative to university. Business NSW surveys indicate that few high school students know of the occupations in shortage. Joyce notes that students and employers struggle to understand VET, because information is fragmented across websites and is difficult to navigate (Joyce, 2019, p. 84).

While these two factors are relevant, the VET system’s loss of ground to universities also reflects economic incentives. A major issue (discussed in the sections below) is that key VET programs such as apprenticeships have not adapted to the needs of the modern workforce. By contrast, most universities have developed flexible modes of course delivery, and programs leading directly to employment.

Both state and national policy settings have contributed to the imbalance between VET and higher education. Key examples include the uncapping of domestic undergraduate places between 2009 and 2017, and the generous availability of income-contingent loans under FEE-HELP. Until the pandemic, international demand for Australian education drove strong growth of the university system.

The demand-driven university model has recruited many students who might have been better suited to VET. The results have been poorer employment outcomes for those individuals (see Box 3.1), and chronic skills shortages that hinder economic growth.



BOX 3.1: SOME UNIVERSITY STUDENTS WOULD DO BETTER IN VET

The economy's best-paid workers still tend to be university graduates. Not everyone, however, is better off going to university. Data shows that upon leaving school, some students who are encouraged to go to university would do better to pursue a career through VET (Norton, 2019). Gonski and Shergold found that schools have failed to convince thousands of students of the value and interest in VET (Gonski & Shergold, 2021).

The Grattan Institute found that prior to 2012, less than 20 per cent of students with ATARs below 50 received university offers (Norton, 2019). In 2018, this figure had increased to more than 50 per cent.

The Commonwealth Productivity Commission has found that the student cohort who entered university because of the demand-driven system generally had lower academic ability. They also had poorer outcomes, with a dropout rate of 22 per cent, compared with 12 per cent for students who would have gone to university in any case (Commonwealth Productivity Commission, 2019).

Many low-ATAR students, particularly males, have the potential to earn higher lifetime incomes by pursuing a VET qualification instead of university. University enrolment data shows that humanities degrees are the second most popular choice for low-ATAR males. Yet these men can expect lifetime earnings of just over \$2 million if they complete an engineering VET qualification, compared with \$1.8 million if they pursue university degrees in humanities (Norton et al., 2019).

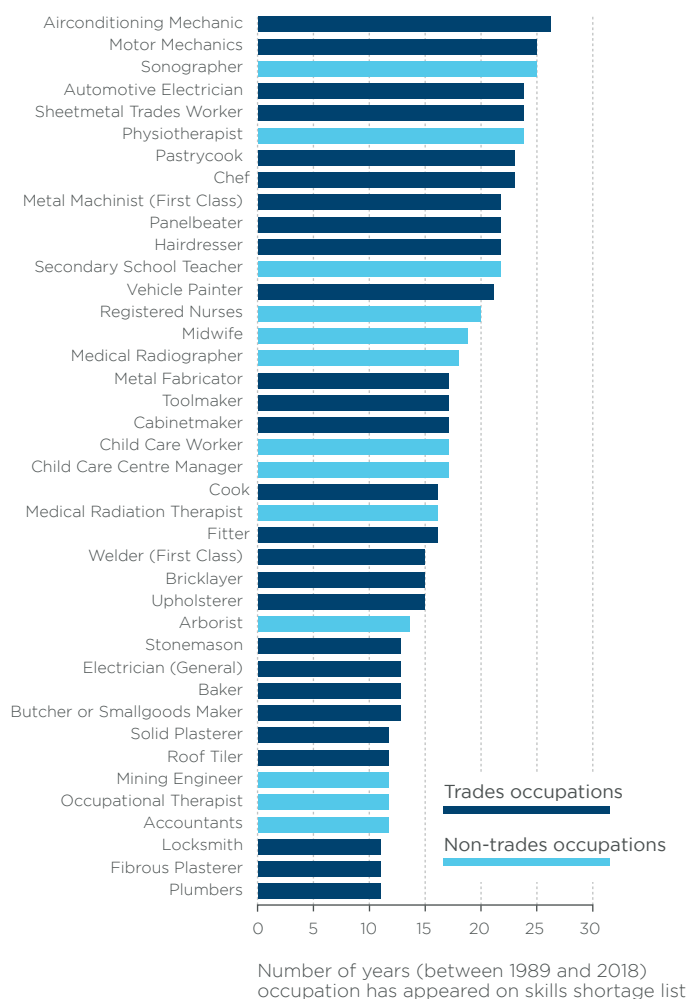


MANY TRADES SHORTAGES HAVE RUN FOR YEARS

Labour market analysis also points to an underperforming VET system. It highlights that most of Australia's longest-standing skills shortages are in occupations the VET system is supposed to supply—especially the trades. The Commonwealth Government's

skill shortages research identifies occupations where long lead times for training mean that labour market shortages cannot be quickly addressed (Department of Employment, 2017). Figure 3.2 shows the number of years in which various occupations appeared on the skills shortage list in the 30 years to 2018.

FIGURE 3.2: TRADES HAVE DOMINATED NATIONAL SKILLS SHORTAGES FOR DECADES



The horizontal axis measures the number of years in which an occupation has been on the skills shortage list. For instance, air-conditioning mechanics represent the most persistent skills shortage in Australia, having appeared on the skills shortage list for 26 of the 30 years between 1989 and 2018. Source: Department of Education, Skills and Employment (2019).

Moreover, these shortages have persisted despite significant governments' attempts directed towards addressing them. Measures taken to date have largely focused on the apprenticeship system, being the default training pathway towards the trades. Key examples include generous employer incentives to hire apprentices, and highly subsidised trades qualifications. The Commonwealth Productivity Commission says the persistence of unfilled vacancies 'raises doubts

about the effectiveness of government interventions intended to overcome them' (Commonwealth Productivity Commission, 2020c).

Trades skills shortages have far-reaching adverse impacts on the economy. In recent years, record public infrastructure investment and robust private development activity have intensified cost pressures in the construction sector and are stretching the skills base.

The Chamber's 2019 Workforce Skills Survey suggests that over half of businesses (55.4 per cent) are currently experiencing a skills shortage. Trades skills in construction and manufacturing/engineering were the most prominent skills in shortage ...

Businesses reported that these shortages resulted in reductions in productivity and output. Over 20 per cent of businesses reported that these shortages directly resulted in them losing customers or missing opportunities ...

BUSINESS NSW SUBMISSION

A recent global study found Sydney to be the most expensive Australian capital city for construction, ranking 30th in an assessment of 100 cities around the world (Arcadis, 2020).

Trades skills shortages also adversely impact the ability of the economy and government to respond to a range of local circumstances and priorities. For instance:

- Shortages of trades skills and building materials have hampered rollout of the Commonwealth's HomeBuilder grant program, announced in June 2020 (Commonwealth Government, 2020c). Some observers believe many applicants will miss out on the grant because building cannot start before the program's deadline (Smith, 2021).
- Particularly in regional and remote New South Wales, similar shortages have impeded the rebuilding effort in the wake of natural disasters such as the recent bushfires and floods.

Stakeholder submissions confirmed the shortage, and highlighted the difficulties employers encounter when attempting to recruit trades workers.

APPRENTICESHIPS ARE SUSCEPTIBLE TO ECONOMIC DOWNTURNS

COVID-19 has highlighted how the apprenticeship model makes the skills pipeline vulnerable to economic downturns, being the default training pathway. Apprentices cannot train unless they are employed (see Section 3.4). In periods of high economic uncertainty, businesses' demand for workers weakens and new hiring slows. Employers are understandably reluctant to commit to three- to four-year training contracts. The Apprentice Employment Network (AEN) submission highlights the large number of apprentices 'handed back' to Group Training Organisations in response to COVID-19. AEN also notes that apprenticeship and traineeship numbers have declined to their lowest level in 10 years.

The Commonwealth has provided substantial financial support for apprentices and their employers. Programs such as the Boosting Apprenticeships Commencements (BAC) deliver apprentice wage subsidies of 50 per cent to eligible businesses. These encourage businesses to retain apprentices and create new

apprenticeship positions. As part of the 2021-22 Budget, the Commonwealth announced extension of the BAC by prolonging payments to cover one year of wages for apprenticeships starting by March 2022.

These support measures have softened the impact of the shock. But they come at significant cost to government, and will not continue indefinitely. Longer-term modelling by the Mitchell Institute suggests a risk that apprenticeship numbers will keep falling until 2024 (Hurley, 2020).

With attrition rates already very high, COVID-19 compounds the risk that apprentices will leave the industry. Qualifications will remain incomplete. Individuals, employers, and taxpayers will not recoup their training investments. Furthermore, as industries begin to recover, they will not find the skills to meet their needs, because the training pipeline will have been disrupted. Given the long lead time required for apprentices to qualify, skills shortages and cost escalations will hinder the State's economic recovery.

COVID-19 REINFORCES THE NEED FOR VET REFORM

The pandemic has triggered and accelerated major shifts in the NSW economy. It has also highlighted the importance of skills delivery in supporting economic recovery, thrusting the VET system (and need for reform) into the spotlight. As the Housing Industry Association notes, COVID-19 has brought into focus 'some of the key issues that plague the VET sector'. The pace and scale of change risks widening the mismatch between the skills that workers have and skills that employers need in the future. Many displaced workers will never return to their old occupations, and will need to reskill or upskill to avoid becoming unemployed.

ABS data shows that between March and July 2020, New South Wales lost 132,000 jobs (Australian Bureau of Statistics, 2021b). Especially hard hit were workers who rely on tourism and large events, such as those in food and accommodation, retail trade, and arts and recreation sectors. The youth cohort (people aged 15–24) has been particularly hard hit because of its overrepresentation in these sectors (National Skills Commission, 2020).

Despite encouraging signs of economic recovery since the height of the pandemic, disruptions to work have left permanent changes to many occupations. Most notable is the accelerated transition to the digital economy, and the working-from-home revolution. These trends boost demand for digital skills and create jobs in emerging areas like cybersecurity, telehealth, and online education. A recent Royal Melbourne Institute of Technology (RMIT) study found that 87 per cent of all jobs now require digital literacy, and digital technology will represent one in four jobs created until 2025 (RMIT Online & Deloitte Access Economics, 2021). Despite these trends, less than 5 per cent of survey respondents claimed adequate competency in key skills such as coding and cloud technologies. To address these problems and seize new opportunities, many workers require further training or retraining for long-term career transitions.

Travel restrictions exacerbate the skills challenge. Border closures and uncertainty over their reopening have disrupted Australia's historical reliance on international skilled migration to meet industry needs. While migration remains disrupted, New South Wales

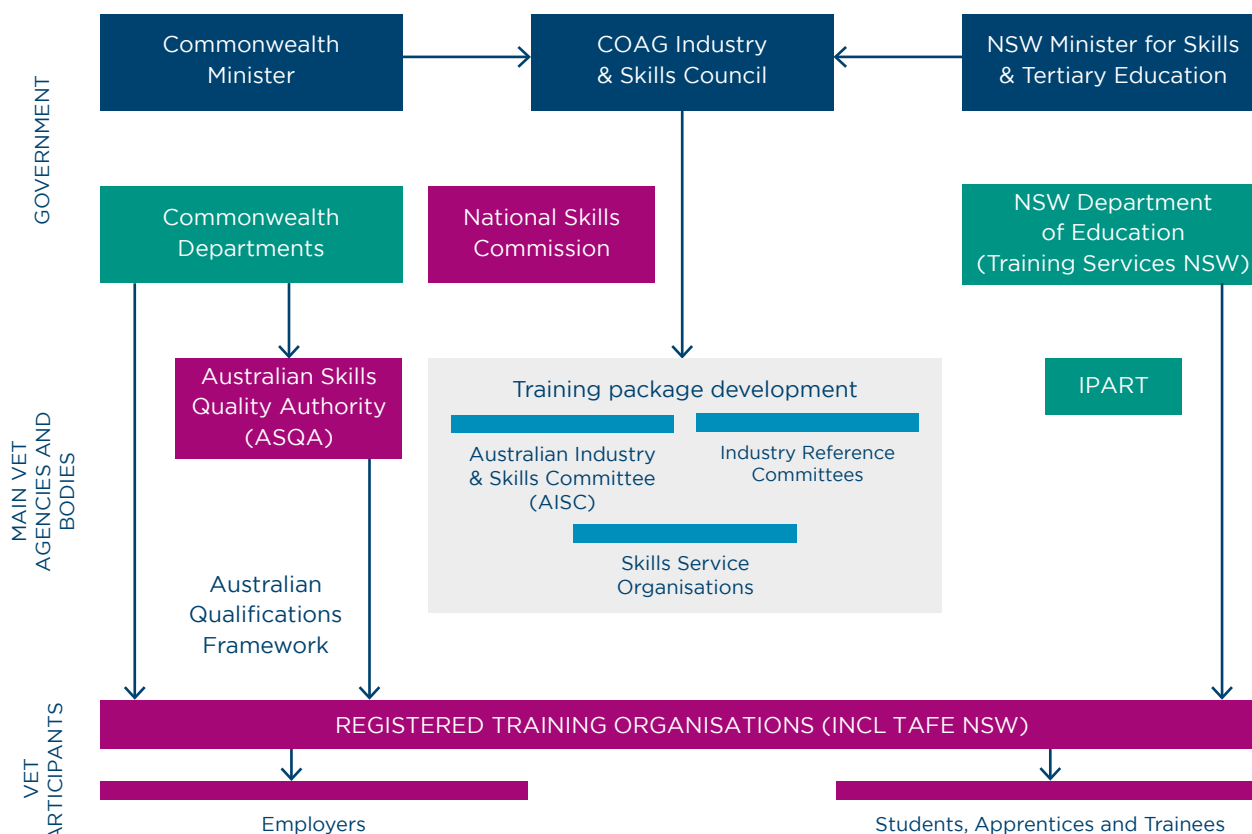
will need domestic skills in areas where it has often imported skills, such as construction and healthcare. A VET system that performs well will allow for the efficient transition to new lines of work—for instance, by recognising and building on workers' prior skills and experiences.

NEW SOUTH WALES CAN ADVANCE KEY VET REFORMS

In recent years, governments across Australia have shown encouraging signs of renewed interest in skills reform. In 2019, the Commonwealth Government announced a \$585 million skills package to address issues identified in the Joyce Review. Both the National Skills Commission (NSC) and the National Careers Institute have been established as a result.

The Commonwealth Productivity Commission concluded its review of the NASWD in January 2021. Anticipating negotiation of the new National Skills Agreement, all jurisdictions have signed the Heads of Agreement for Skills Reform. The Heads of Agreement sets out the immediate VET sector reforms, and an approach and priorities for the new Skills Agreement, which is due to be signed in 2021.

FIGURE 3.3: KEY PLAYERS IN THE NATIONAL AND NSW VET SYSTEM



Source: Adapted from Joyce (2019).

Meaningful VET reforms require cooperation between Commonwealth, state, and territory governments. This is because responsibility for VET is shared between different levels of government, and the integrity of the national VET system should be preserved.

Many of the VET system's problems stem from its overly complicated and constantly shifting governance structure and from a lack of clarity over roles and responsibilities. Figure 3.3 outlines the governance of the national VET system, and the key players in New South Wales.

The NSW Government is also progressing an important package of

VET initiatives. David Gonski and Peter Shergold have recently delivered an independent review of the NSW VET system (Gonski & Shergold, 2021). The final report makes five headline recommendations aimed at making VET a more attractive option for school leavers and boosting the State's national and international competitiveness (refer to Box 3.2 for more details). In its response, the NSW Government has supported all recommendations of the review. It has also announced immediate steps towards implementation of three of the recommendations.

BOX 3.2: GONSKI AND SHERGOLD'S NSW VET SYSTEM REVIEW

David Gonski and Peter Shergold have undertaken a comprehensive review of the NSW VET sector. The final report, *In the same sentence: Bringing higher and vocational education together*, reflects aspirations to raise the VET system to a status and prestige comparable to universities.

The review identifies challenges in the VET system, including:

- the outdated distinction between VET and higher education
- the inadequacy of careers information
- negative perceptions of VET in high school
- the financial disincentives to pursue VET.

The review makes five headline recommendations to overcome these challenges:

- Establish an Institute of Applied Technology as a new form of tertiary institution, to deliver courses that fully integrate practical skills with theoretical knowledge. The Government has committed to piloting a 'third way' model at TAFE Centres of Excellence at Meadowbank and Kingswood (NSW Government, 2021c). TAFE NSW, universities, and industry will work in partnership to design and deliver training courses.
- Establish Careers NSW to improve the quality and availability of careers advice. The Government has committed to piloting online access to careers advice via Service NSW (NSW Government, 2021a).
- Improve the breadth and quality of VET in schools. For instance, increase the role of external providers and raise the recognition of VET subjects in ATAR calculation.
- Improve VET's engagement with industry by giving employers greater roles in course design and providing training and careers advice.
- Establish income-contingent loans for Certificates III and IV that have been identified as addressing priority skill areas in New South Wales.

Acknowledging this concurrent work, this chapter focuses on VET reforms that New South Wales can pursue by itself, and are aimed at lifting economic and productivity growth. Under current arrangements, the NSW Government retains control over key VET policy levers. It can complement reforms being pursued elsewhere. Key levers controlled by the NSW Government include:

- **VET delivery**, including VET in schools and the operation of TAFE NSW, the State's largest VET provider

- **defining career pathways** through the VET system (for instance, Vocational Training Orders for apprenticeships and traineeships) and influencing the flexibility of training delivery
- **targeting funding** such as course subsidies to meet local economic priorities.

Government is already taking steps in the right direction. But the range, scale, and ambition of measures should continue to expand to meet the challenge.

Maintain momentum with an ‘earn or learn’ strategy

Governments have taken swift action to address the skills and unemployment challenge posed by COVID-19. In September 2020, the NSW Government introduced NSW JobTrainer with co-funding from the Commonwealth. NSW JobTrainer is a package of numerous skills initiatives and represents an effective ‘earn or learn’ strategy by:

- providing individuals with easier access to the VET system if they find their immediate employment prospects are limited
- targeting cohorts most at risk of becoming long-term unemployed, such as young people.

Box 3.3 provides more detail on NSW JobTrainer initiatives.

From a macroeconomic perspective, an ‘earn or learn’ skills strategy kills two birds with one stone; it assists with reducing medium-term unemployment and stabilises a weak labour market by temporarily diverting some workers from the workforce into further education and training. Largely based on analysis by the NSC, NSW JobTrainer has been oriented towards the economy’s most resilient occupations and emerging skills needs. Key skills priorities include healthcare, the trades (particularly construction), and information and communication technology. This targeted approach will set up New South Wales for a stronger recovery, lifting productivity, and overcoming capacity constraints.

BOX 3.3: NSW JOBTRAINER WAS TARGETED STIMULUS TO RESPOND TO COVID-19

In September 2020, the NSW Government launched NSW JobTrainer, a \$318 million package co-funded by the Commonwealth Government (under the JobTrainer National Partnership Agreement). NSW JobTrainer aims to encourage VET for the thousands of displaced workers requiring reskilling or upskilling due to COVID-19.

Delivered by Training Services NSW, the package comprises initiatives to provide subsidised training options as well as personalised help in navigating the NSW VET system. The initiatives include a Summer Skills program for secondary school leavers, and Skills Brokers to provide localised assistance to businesses seeking specific skill-sets.

JobTrainer’s largest initiative was the creation of over 100,000 fee-free training places in qualifications spanning more than 20 industries. The NSC has determined courses eligible for subsidised training in consultation with states, based on its identification of the economy’s most serious skills needs over the next five years.

Many people have taken up this subsidised training. Training Services NSW data shows that the most popular courses to date have been in Early Childhood Education, Individual Support, and Business Administration. Almost two-thirds of enrolments are young people (below 24 years), and around half of all students are from outside Sydney. In its recent Budget, the Commonwealth announced its intention for a 12-month extension of the JobTrainer program to further support reskilling of the workforce.

Stakeholder support for an ‘earn or learn’ strategy is strong. Stakeholders’ submissions emphasised the adverse impacts of COVID-19 on young people with less experience, and the drastic reduction in apprenticeship and traineeship numbers. Some stakeholders

also suggested expanding existing resources to displaced workers. Much of NSW JobTrainer has been built off Smart and Skilled, leveraging existing relationships with the market of VET providers.

New South Wales needs to redevelop its skills strategy quickly to ensure we don't lose a generation of young people and the key organisations that employ them.

APPRENTICESHIP EMPLOYMENT NETWORK SUBMISSION



LESSONS FROM NSW JOBTRAINER SET UP THE VET SYSTEM FOR LONG-TERM REFORM

COVID-19 is broadly considered a ‘black swan event’. But it provides many useful lessons for pursuing much-needed reforms in the VET system. Above all, NSW JobTrainer demonstrates how the Government can use the VET system to:

- quickly respond to economic circumstances
- deploy resources to priority areas
- promote labour market flexibility.

Industry engagement and a data emphasis were crucial to a measured and targeted response. To identify the right VET programs for NSW JobTrainer, the NSC identified the most resilient occupations in the pandemic, and the future needs of the economy. For example:

- The NSC combined pre-COVID employment growth projections with the employment experience of occupations as COVID-19 worsened, and as the economy started to recover. This brought to light the occupations that showed the most promising employment prospects during recovery.

- The NSC drew on ABS Labour Force Survey and developed an Internet Vacancy index to gauge recruitment activity.
- In light of international border closures, the NSC also assessed Australia’s reliance on skilled migrants, highlighting areas where it should support domestic skills supply.

The decision over which VET programs to support was ultimately a decision for state and territory governments. But it was informed by this robust NSC analysis and NSW-commissioned research into the labour market impacts of COVID-19. Lessons for longer-term VET reform are clear:

- Governments achieve the best return on VET expenditure when informed by the needs of the labour market. All VET policy decisions should be based off robust analysis of skills needs, as well as broader micro and macroeconomic indicators. The strong evidence-base can pinpoint areas the VET system should focus on.
- Post-training and employment outcomes should be determinants shaping government incentives in the VET system. Price signals and subsidies should encourage students to pursue training that is consistent with the State’s economic interest.

RECOMMENDATION 3.1: CONTINUE TO PROVIDE TARGETED WORKFORCE SUPPORT TO PROMOTE ECONOMIC RECOVERY

Continue the rollout of an ‘earn or learn’ strategy to reskill and upskill workers in priority skill areas. Draw on the lessons of NSW JobTrainer in pursuing longer-term vocational education and training (VET) reform.

3.3 Complement apprenticeships with new pathways to the trades

Trades should be attractive. Salaries often equal or even exceed those for white-collar professionals and other university graduates. For example, average weekly earnings are around \$1,750 for workers in the electricity, gas, water, and waste services industry who hold a Certificate III or IV qualification (Australian Bureau of Statistics, 2020c).

This is higher than the median earnings for all professionals, and almost on par with the earnings of managers.

Despite attractive wages, shortages in many trades areas have persisted for decades (as indicated by Figure 3.2). This is in part due to structural barriers in the VET system preventing wider

uptake of these professions—namely, the apprenticeship model. The *Apprenticeship and Traineeship Act 2001* (NSW) also prevents the employment of

anyone below 21 years of age in trades unless they are an apprentice, even under the supervision of a fully qualified tradesperson.

BOX 3.4: WHAT IS AN APPRENTICESHIP?

An apprenticeship is a VET program leading to a trades qualification typically taking three to four years. It combines paid on-the-job training with a suitable employer, with formal institutional learning. Trades qualifications are mostly Level 3 – Certificate III qualifications under the Australian Qualifications Framework (AQF). The qualification is awarded when the learner demonstrates competency in the skills outlined in the relevant training package.

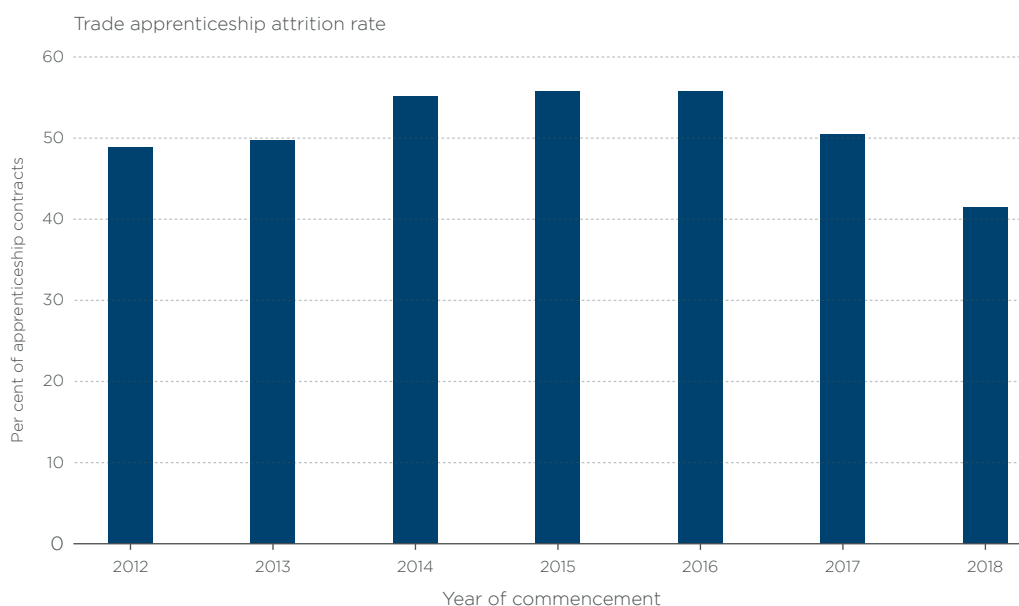
Largely for historical reasons, apprenticeships are designed around the needs of young male school leavers. Other cohorts, such as older people and women, have few alternative pathways to these occupations. As a result, many miss out on the jobs they are best suited for, while chronic skills shortages persist.

For years, governments have recognised the serious shortage of tradespeople across Australia and New South Wales. But policy efforts have focused narrowly on lifting apprenticeship uptake through employer and student incentives. In 2019, employer incentives made up 9 per cent (almost \$600 million) of total government expenditure in VET (Commonwealth Productivity Commission, 2020c). Although the market for apprentices is reasonably responsive to these incentives (which are described in Commonwealth Government, 2012), apprenticeship attrition rates remain high and skills shortages remain unaddressed (Misko, 2020).

Numerous submissions to the Green Paper pointed out that apprenticeship completion typically leads to positive employment outcomes. Business NSW stated that ‘the apprenticeship model is a long-established pathway into trades which has met with significant success since its introduction in Australia’. These views align with National Centre for Vocational Education Research (NCVER) 2019 survey findings indicating that 91.5 per cent of trade apprenticeship completions resulted in employment, and that 88.9 per cent of apprentices were satisfied with their training program (National Centre for Vocational Education Research, 2019a).

Other evidence, however, strongly suggest the need for new pathways to broaden the intake of prospective tradespeople and meet the skills needs of the economy. Enrolment data shows that apprenticeship uptake has been in steady decline over many years.

FIGURE 3.4: DESPITE A GROWING NEED, MOST APPRENTICES DROPOUT



Source: National Centre for Vocational Education Research.

TABLE 3.1: MOST ATTRITION HAPPENS IN THE FIRST YEAR

YEAR OF APPRENTICESHIP (2014 COMMENCEMENTS)	1	2	3	4	TOTAL
NUMBER OF CONTRACT ATTRITIONS	17,825	6,868	2,726	682	28,100
SHARE OF ATTRITIONS (PER CENT)	63	24	10	2	100

Source: National Centre for Vocational Education Research (2019b).

Moreover, attrition rates for apprenticeships have remained very high, at above 40 per cent, for many years (see Figure 3.3). Most apprenticeship dropouts (63 per cent) occur in the first year (see Table 3.1). The financial cost of apprenticeship non-completion in New South Wales has been estimated at \$348 million (Deloitte Access Economics, 2011).

These trends, and the persistence of trades skills shortages can be attributed to numerous aspects of the apprenticeship model. It provides uncompetitive pay, delivers training inflexibly, and takes a long time to complete. These issues are explored in the sections below.

ONE SIZE FITS ALL: HOW ASPIRING TRADES PEOPLE ARE FUNNELLED DOWN A NARROW PATHWAY

For many trades in New South Wales, acquiring an occupational licence requires a VET qualification. An apprenticeship is the default pathway leading to that qualification—there are few alternatives. The main alternative is recognition of a licence acquired in another jurisdiction.

But apprenticeships have been unable to attract sufficient numbers to meet industry demand. And attrition rates remain high, due to factors like long apprentice tenure and low wages. As that has happened, people with trades skills have more often moved into other careers. As a result, chronic trades shortages have emerged.

Under the right conditions, new mid-career entrants might replace those leaving the trades. But the standard three- or four-year apprenticeship model, combined with low wages, inflexible training delivery, and the requirement to already work in the industry, imposes a high barrier to entry. Narrowness of this pathway has also contributed to the severe gender imbalance in the trades.

An example is air-conditioning mechanics. This occupation represents Australia's most longstanding skill shortage. It has appeared on the skills shortage list for 26 of the 30 years between 1989 and 2018 (see Figure 3.2). Box 3.5 illustrates how licensing and apprenticeship requirements together limit pathways into this trade.

BOX 3.5: HOW AIR-CONDITIONING MECHANICS GET A LICENCE

Air-conditioning mechanics must be licensed in New South Wales. To get an air-conditioning and refrigeration licence from NSW Fair Trading, you must complete a Certificate III in Air-Conditioning and Refrigeration. Nearly all air-conditioning mechanics— in 2019, 86 per cent of new enrolments—complete their qualification through an apprenticeship.

The 14 per cent of new enrolments that are outside an apprenticeship face significant barriers to training as an air-conditioning mechanic. To enrol, you must already work in the air-conditioning and refrigeration industry. You face total course fees of around \$3,300 for off-the-job training. And you must pay those costs up-front because Certificate III courses do not currently qualify for the Commonwealth Government's VET Student Loan scheme.

The common pathway for most types of work is to spend a period in full-time education or training, and then to get a job in industry. No such pathway exists for air-conditioning mechanics. And because you must work in the industry before training can begin, the industry looks like a 'closed shop'.

Source: MySkills.gov.au; TAFE NSW; NSW Department of Education data.

CURRENT PATHWAYS TO TRADES ARE LIMITED AND UNATTRACTIVE

The apprenticeship model appeared in Australia during an era when it mostly served young males who left school at the end of Year 10 (Knight, 2012). Over recent decades, the proportion of young people completing Year 12 has almost doubled, rising from 45 per cent in 1984, to 84 per cent in 2019. As the maturity, education, and experience of school leavers have increased, the apprenticeship model has become less popular. Just 5 per cent of school leavers in 2018 became apprentices the following year (Centre for Education Statistics and Evaluation, 2019); many of them will drop out. As this section explains, the three least attractive features of apprenticeships are low wages, a lengthy and rigid training model, and the requirement to already be employed in the role before enrolling in training.

These factors deter not only school leavers but also women and mature-aged workers seeking a career change. The workforce is ageing, people spend longer in work, and career changes have become more common. Yet mature learners (over the age of 25) make up less than a quarter of new apprentices (National Centre for Vocational Education Research, 2020b).

LOW WAGES MAKE APPRENTICESHIPS LESS ATTRACTIVE

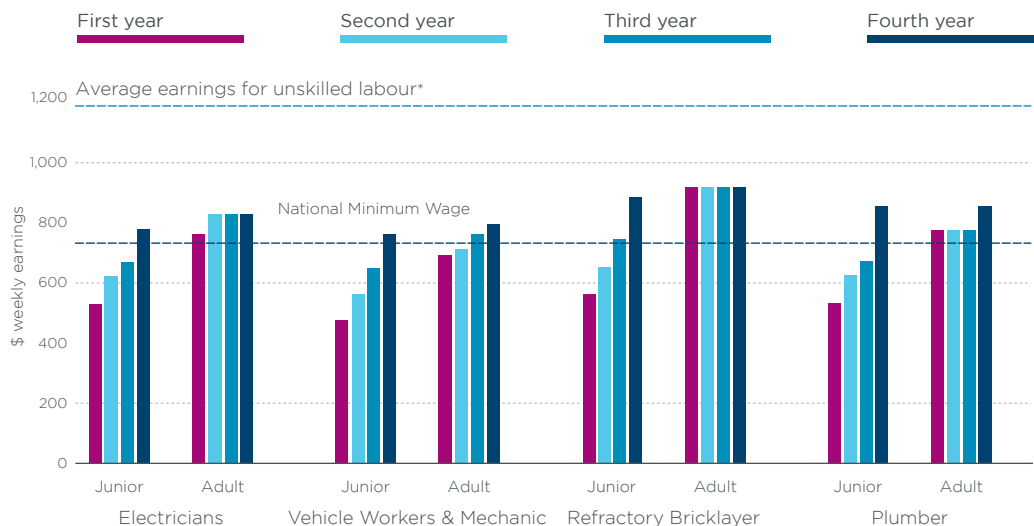
Former Commonwealth Productivity Commissioner Peter Harris has noted the

link between low apprentice wages and the declining uptake of apprenticeships, calling it a 'serious structural issue' (Bagshaw, 2020). Former New Zealand Skills Minister Steven Joyce made similar comments in his 2018-19 review of the Australian VET system.

Minimum wages for apprentices are specified by modern awards registered with the Australian Fair Work Commission. Most modern awards include separate wage scales for junior apprentices, who are under 21 years old, and adult apprentices, who are 21 years or older. Wage scales are calculated by applying a discount to the base rate of a qualified tradesperson. The typical four-year wage structure of a junior apprentice who has finished Year 12 is 55 per cent of the trades base rate in the first year, 65 per cent in the second, 75 per cent in the third, and then 88 per cent in the fourth (Fair Work Commission, 2013).

Though they receive increases as they progress, apprentices generally earn very low wages over their entire apprenticeship (see Figure 3.5). The figure shows that workers in accommodation and food services earn an average of around \$1,200 per week, more than double many junior apprentice rates. In some cases, apprentice wages may simply be too low to meet living expenses. While reduced wages partially reflect lower productivity and compensate employers for the time and resources allocated to training, they are also a legacy of an era when most apprentices began at 15 or 16 years old.

FIGURE 3.5: APPRENTICESHIP WAGES ARE LOW ACROSS INDUSTRIES



Note: Average weekly earnings statistics reported by the Australian Bureau of Statistics are average gross pre-tax earnings of employees. 'Junior' is defined as below 21 years of age. 'Unskilled' refers to accommodation and food services.

Source: Various Fair Work Commission modern awards; ABS Cat 6302.0 (table 10G).

Mature-aged workers seeking a career change are similarly put off trades by low apprentice wages. Most modern awards provide higher wages for apprentices of 21 years or older. Yet Figure 3.5 shows ‘adult apprentice’ wages are still mostly around the national minimum wage. Pursuing a trade via an apprenticeship would likely require mature-aged workers to take a significant pay cut. Lower wages can be justified, and necessary, to reflect the lower value to an employer for a worker with fewer skills. The real deterrent is the combination of lower wage and the long duration of apprenticeships—up to four years, with few options for flexible, or accelerated, learning. This is unfair for workers with existing, relevant skills, and unrealistic for those supporting dependents or already under other financial obligations.

There are also some suggestions that apprenticeship wages are inappropriately low given the skill level required to pursue certain trades. The Refrigeration and Air-Conditioning Contractors Association (RACCA) points out that refrigeration and air-conditioning is a highly technical trade, with many apprentices struggling to fulfil the theoretical components of the course in four years. Given the low wages paid during the long training period, high incompleteness rates and persistent skills shortages are not surprising. The RACCA submission also suggests the need for training pathways towards refrigeration and air-conditioning mechanic qualifications that are better suited to mature entrants or those from higher educational backgrounds.

APPRENTICESHIPS ARE TOO LONG AND RIGID

The length of time needed to complete a qualification is another major barrier to the wider uptake of apprenticeships.

Most trades qualifications are Level 3 qualifications (Certificate III) under the AQF. They typically take three to four years to complete. This duration reflects the very young age at which apprentices traditionally started. In the same time, HSC holders could complete a Bachelor’s or Honours university degree (AQF Level 7 or 8 qualifications). But with the changing workforce, this arrangement is no longer fit-for-purpose.

The length of trades qualification is also out of step with other Certificate III courses. Under the AQF, the volume of learning for a Certificate III is typically one to two years (Australian Qualifications Framework Council, 2013). Some Certificate III courses have a nominal length of just 18 weeks—for example, Beauty Services at TAFE NSW.

The length of an apprenticeship is in part, a reflection of the rigid integration of training and employment. This model of learning certainly has its benefits. But apprenticeships, with their fixed structure, lack the flexibility to meet the diverse needs of prospective students. An apprentice typically spends four days a week training on the job and one day in formal learning with a training provider. There has been some progress to make apprenticeships more flexible (such as block-release), but uptake has remained low. Opportunities for part-time completion are also limited, since apprenticeships generally require a minimum commitment of three days a week (Training Service NSW, 2012). Apprentices have minimal capacity to work in another occupation and undertake trade training outside regular business hours.

The trades remains one of the few areas of learning in which there has been little development of more flexible and modern training delivery. Other tertiary education pathways often offer online learning, after-hours learning, and block learning with its short and intensive periods of full-time study. These options in no way shrink course contents or lower training standards. Rather, they aim to deliver training around the needs of the student and encourage participation from a diverse range of backgrounds.

All VET qualifications are supposed to be ‘competency-based’. This means that students should be able to progress towards completion according to how fast they acquire competency. Some industry stakeholders have reported that apprenticeship completion appears to be based more on tenure rather than on competency.

There are probably some industries where four years is ... an accident of history.

TAFE DIRECTORS AUSTRALIA (QUOTED IN MICHAEL ATKIN, 2020)

During consultations, some industry stakeholders estimated that most apprentices acquire skills comparable to a qualified tradesperson after just two years of training. In practice, however, most apprenticeships take at least three or four years to complete. This suggests that competency-based progression is not the norm in practice.

Similarly, apprentices in New South Wales are supposed to have access to recognition of prior learning (RPL). RPL allows prospective apprentices with prior experience to demonstrate relevant skills already gained through work or study, reducing the time required to complete their qualification.

In practice, however, RPL appears to be onerous and underutilised. To achieve RPL, an apprentice must apply to a training provider for a skills assessment. If the apprentice is assessed as satisfactory, both the apprentice and training provider must apply in writing to Training Services NSW to amend the training contract to shorten training period (NSW Department of Industry, 2015). Stakeholders also often reported that RPL is infrequently granted because many RTOs lack the capability to properly conduct RPL assessments. All requests for RPL must be personally authorised by the NSW Commissioner for Vocational Education.

EMPLOYMENT REQUIREMENTS LOCK MANY OUT OF APPRENTICESHIPS AND LIMIT DIVERSITY IN THE TRADES

Before training can begin, prospective apprentices must find a suitable employer. The employer enters a training contract with the training provider and the apprentice. As well as providing relevant work experience, the employer has a role in skills development and overseeing progress towards meeting standards required by the qualification. The Commonwealth Productivity Commission notes that apprenticeships are the only part of the VET system where employers determine the number of people in training (Commonwealth Productivity Commission, 2020c). No sector except trades requires entrants to be employed before training can start. In other occupations, entrants enrol in training to signal to employers their commitment and interest, and secure employment based on their up-front effort. This inability for prospective employees to 'signal' is likely a key driver of the extraordinarily high attrition rates among apprentices (around 50 per cent), as there is no up-front filter for prospective employees.

And as discussed in Section 3.2 above, the recession caused by COVID-19 highlights how the employment requirement makes apprentices vulnerable to economic downturns. Even during normal times, the construction industry, which employs many apprentices, cycles more frequently than the economy at large. In downturns, apprentices are laid off or cannot continue their training, and many exit the industry. This both harms individual learners and disrupts the trades training pipeline. That likely leads to future skills shortages and cost pressures that in turn rapidly raises prices and ultimately strangles the construction cycle.

More generally, the requirement to be employed may lock many well-suited candidates out of apprenticeships and the trades. Young people in regional New South Wales, face higher levels of unemployment compared to Sydney, and have greater difficulty finding employment as apprentices. Since regional New South Wales also tends to have worse skills shortages (NSW Legislative Assembly Committee on Economic Development, 2014), the employment requirement to enter the industry means that shortages become self-reinforcing.

The employment requirement also contributes to the severe gender imbalance in most trades. ABS data show that women make up less than 2 per cent of the workforce in key trades including construction, electrotechnology and automotive industries (Australian Bureau of Statistics, 2018b). This in part reflects global patterns. One study found that in mature economies, women make up just 12 per cent of the construction workforce—and within construction, just 2 per cent of machine operative and tradesperson positions (Madgavkar et al., 2019).

Aspiring female apprentices are likely to have more difficulty finding an employer than males, because most licensed tradespeople are men who may, perhaps unconsciously, expect their apprentices to be male. Similarly, aspiring female tradespeople may be reluctant to become apprentices out of concern that gender bias and a male-dominated work culture will limit their career opportunities and job satisfaction. Given persistent skills shortages in New South Wales, barriers to women entering the trades are a serious economic issue (see Box 3.6).



Women's participation is less than **2 PER CENT** in key trades areas such as construction and electrotechnology

The requirement to find employment similarly represents a barrier to other 'non-traditional' cohorts (such as mature workers). The requirement may also be more difficult for those in regional areas where there are fewer employers. Employment-related problems are the most commonly cited reason for ending apprenticeships (Bednarz, 2014). They contribute to giving apprenticeships the worst non-completion rates of any educational pathway.

New pathways that address these barriers are likely to deliver substantial benefits to women, which will address the stark gender imbalance in the trades. Few women pursue apprenticeships, and even fewer end up qualified. But the few women who do qualify and work in the industry frequently report high job satisfaction (refer to Box 3.7).

BOX 3.6: UNDERREPRESENTATION OF WOMEN IN TRADES IS PARTLY DUE TO THE TRAINING SYSTEM

The trades are male-dominated. Women make up only 16 per cent of all trades and technician workers (Australian Bureau of Statistics, 2021). Women are mostly employed in food trades and 'other technicians and workers' (including hairdressers), representing 33 per cent and 46 per cent respectively of these workforces. By contrast, in key industries with major skills shortages like construction, electrotechnology, and automotive industries, women make up around only 2 per cent of the workforce.

VET data show similar patterns. Females made up around ten per cent of apprentices in 2020. But they were largely concentrated in traditionally female-dominated industries like hairdressing.

Reform and social change have greatly improved gender balance in many occupations. But the trades have been stagnant for decades. Institutional practices and workplace culture remain key barriers to women entering trades (Family & Community Services Women NSW, 2013). These factors are exacerbated by the rigid model, targeted at a single entry point best used very early in a person's working life. Women face difficulties securing the necessary employment for an apprenticeship. Many report employers are reluctant to take on female apprentices because they lack confidence in women's aptitude, physical strength, or suitability (Oxenbridge et al., 2019).

Enrolment data suggest apprenticeships disproportionately lock out younger women. A snapshot of the apprentice workforce in 2020 shows that around 38 per cent were under 20 years old. Among female apprentices, however, only 24 per cent are under 20.

More mature-aged women may be more interested in entering trades than their younger counterparts. Unfortunately, mature-aged women encounter unique challenges in pursuing trades. They are viewed as a greater 'risk' to employers: adults must be paid higher wages, and employers perceive that mature-aged women may have commitments outside work, like families or children, that make them less productive or committed to a paid job (see for instance Holdsworth et al., 2020).

BOX 3.7: BREAKING THE MOULD: WOMEN SUCCESSFULLY WORKING IN TRADES

Few women pursue the trades. The unsuitable training model and male-dominated working culture are just some of the reasons behind the huge gender imbalance.

But the women who successfully train and qualify as tradespeople consistently report high job satisfaction and career success. Their stories can inspire more girls and women to imagine themselves in the trades and to take up the many opportunities in the market.

Georgia Foley, winner of the 2020 Special Award for a Woman in a Non-Traditional Trade or Vocation, has spoken of her experience entering one of the most male-dominated trades and industries: electrotechnology in mining. Georgia has secured employment at Whitehaven Coal's Narrabri site after completing her apprenticeship there.

Often the only woman on site, Georgia acknowledges the challenges she faces working in a male-dominated sector. The experience has allowed Georgia to develop her communication skills and build her self-confidence and resilience. Despite these challenges, Georgia finds her job highly rewarding and wants to serve as a role model to encourage other women to consider a career in the trades. In the future, Georgia aspires to become a mining electrical contractor and own her own business.

Source: Training Services NSW (2020a).



Georgia Foley at Whitehaven Coal's Narrabri site. Photo supplied by Georgia Foley.

CREATE NEW PATHWAYS INTO TRADES

Past attempts to address the chronic shortage of tradespeople have focused on bolstering the apprenticeship pathway (such as generous training subsidies and employer incentives). But for reasons outlined above, these efforts have not addressed skills shortages in the economy or increased diversity in the trades. The need to innovate and develop new training models is clear.

To address skills shortages and make the trades more accessible to a broader range of entrants, the NSW Government should enable two new and more flexible pathways into trades alongside the apprenticeship model:²

- HSC holders should be able to complete a Certificate III in a trade within two years, making it competitive with alternative post-secondary school pathways.
- Mature-aged workers should be able to complete a Certificate III in a trade within 18 months, through formal recognition of their skills and previous experience.

These new pathways would remove the requirement to be employed in the industry prior to enrolment in training. They would continue to require the same competency standards, gained through experience. But these requirements would not necessarily call for an apprenticeship arrangement. Practical experience and competency can be achieved in a variety of ways. These include a mix of prior experience, unpaid work, simulated work, and paid employment outside an apprenticeship contract— for instance, employment as an unskilled worker.

Allowing younger aspiring tradespeople to gain on-the-job experience will require regulatory changes to the *Apprenticeship and Traineeship Act 2001* (NSW). The NSW Government will need to remove the restriction that currently prevents workers below 21 years of age from being employed in trades unless they are an apprentice or already qualified.

Qualifications should depend on competency, not time served. A learner with relevant industry experience should be able to have their existing competencies recognised. That will enable them to qualify for a trade

much faster. HSC holders are considerably more mature and better educated than year 10 school leavers, especially if they have already completed a school-based VET qualification. Similarly, a mature and experienced worker is likely to demonstrate competency in less time than a teenager.

To succeed, this model will require new and more flexible modes of course delivery, such as block courses, evening classes, and online learning. These will help more learners complete their qualifications in a pattern that suits their personal circumstances. Governments should support training providers to develop these new delivery modes and provide incentives. And it should tailor these new modes to support greater entry by non-traditional groups.

Governments can also work towards meeting trades shortages by treating all training pathways equally. Aligning incentives for apprenticeship and non-apprenticeship pathways ensures that students choose a pathway that best suits them. For decades, apprenticeships have been given an advantage over other pathways because of the additional resources governments have directed towards them. These include the full subsidy of fees under Smart and Skilled, payroll tax exemptions, quota requirement on government contracts, and bonus payments to employers. Governments also provide support services for apprentices, such as the Australian Apprenticeship Support Network.

While support to young students may be warranted, Government should ensure that these initiatives do not distort student choices. Government can ensure that students make the best training decision by extending support and incentives to all trades qualification pathways, not just apprenticeships.

New pathways to the trades will bring them in line with other occupations that have benefitted from broader and more accessible pathways over the last few decades. These pathways have supported lifelong learning, facilitated mid-life career changes, and encouraged entry of non-traditional groups. This is a key part of the success that has brought about a more adaptive and flexible labour force in Australia.

² A Vocational Training Order (VTO) is the legal instrument that establishes apprenticeships and traineeships in New South Wales. The VTO specifies the qualification, length of apprenticeship or traineeship, and probationary period.

Making trades careers more attractive to a broader range of entrants will help address chronic skills shortages and create new opportunities and more interesting careers. Consumers, business, and jobseekers ultimately stand to benefit from pursuing these reforms. They will help to lower costs. That will help households access more competitively priced and higher quality goods and services. And it will give businesses the ability to recruit suitably skilled staff, encouraging growth and productivity.

NEW PATHWAYS SHOULD COMPLEMENT, NOT REPLACE, APPRENTICESHIPS

After the release of the Green Paper, some stakeholders expressed concerns that the introduction of new training pathways would supplant the apprenticeship model and might compromise industry standards. These concerns came largely from trade unions and some employer stakeholders. In some cases, these concerns were founded on perceptions that the apprenticeship system would be abolished and replaced by new training pathways.

Apprenticeships are a trusted and longstanding feature of the Australian VET system and should therefore remain in place. Both data and industry feedback points to the success of this model for certain cohorts. Yet an apprenticeship is not for everyone, particularly women and more mature workers. In conjunction with the clear evidence of skills shortages, the rationale for new pathways in trades training is compelling.

The Commonwealth Productivity Commission has expressed support for non-apprenticeship pathways as a legitimate alternative to traditional apprentices, and encourages innovation in the VET system more broadly. Governments can work towards delivering more trades skills by reducing barriers to non-apprenticeship pathways—for instance, by equalising subsidies for apprenticeship and non-apprenticeship pathways. The Commonwealth Productivity Commission also suggests that non-apprenticeship institutional pathways may lift completion rates, because they avoid many of the employment-related issues that cause apprentices to drop out (for example, poor relations with the employer).

Several stakeholders raised concerns that alternative training models risk compromising standards and

occupational and public safety. Given the nature of trades work, these concerns are legitimate. Any new training pathways should remain tied to national training packages and require students to fulfil all competency units to the same standards. This ensures that existing standards are maintained, while delivering training more flexibly. And new pathways do not affect other regulations that support safety and uphold standards, such as the occupational licensing regimes.

Regardless of the pathway into a trade, the system should maintain the current high standards of competency, expertise, and safety. This is in keeping with the original intention of the competency-based system put forward in the Carmichael report. That report recommended that ‘time should only be seen as an indicative average, before or after which competency can be achieved’ (Carmichael, 1992). All qualified and licensed workers should have their skills assessed in a rigorous and comprehensive way. Assessment should focus on the endpoint, rather than the pathway.

THE TRADES SKILLS PATHWAYS CENTRE IS AN ENCOURAGING FIRST STEP

In response to the Green Paper’s draft recommendation 3.2, the NSW Government allocated \$56.7 million to establish a Trades Skills Pathways Centre (TSPC) in the 2020-21 NSW Budget. A major part of its strategy will be to design training pathways to attract ‘non-traditional’ cohorts to the trades—namely, women and mature-aged cohorts. Another target group will be the many existing construction workers who are highly experienced but remain unqualified.

The TSPC will perform an initial skills assessment and put these workers on the most suitable pathway training towards qualification completion. Training alone would greatly enhance workers’ productive capacity. A completed qualification might also make a worker eligible for an occupational licence, further expanding employment opportunities—for instance, to become a self-employed sole trader.

The TSPC will initially conduct a pilot of 750 training places per year in the construction industry (for roles such as carpenters and bricklayers). This focus on the construction sector reflects the high levels of building activity, which is expected to continue into the medium-term.



The NSW Government allocated **\$56.7 MILLION** to establish a Trade Skills Pathways Centre

Industry and community consultation will be critical to the success of the TSPC and the development of new pathways. Ultimately, it is industry that will need to recognise qualifications attained via new pathways. Industry will also play a role in providing the professional experience to qualification holders, even if they are outside an apprenticeship model.

The TSPC is an encouraging first step towards much-needed reform of trades training. While it focuses on its construction pilot, alternative training pathways can also assist other industries—for instance, automotive industries. The benefits of the pilot will be evaluated before it is scaled to other industries.

RECOMMENDATION 3.2: BUILD MORE PATHWAYS TO THE TRADES

Introduce at least two new and more flexible pathways to trades qualifications: one for HSC holders (two years or less), and one for mature-aged workers and women (18 months or less).

- Give registered training organisations incentives to develop more flexible modes of course delivery, including after-hours learning and short intensive periods of full-time study.
- Continue rolling out the Trades Skills Pathways Centre to develop and implement new training pathways, starting in the construction sector.
- Regulate to allow employment of unqualified juniors (those below 21 years of age) in a recognised trade vocation outside an apprenticeship model.
- Endorse a marketing campaign to raise the profile and awareness of new trades pathways.
- Extend government incentives and support to achieve neutrality between apprenticeship and non-apprenticeship pathways.

3.4 **Ensure the VET system delivers quality training that targets the economy's needs**

An effective VET system targets the skills needs of the economy and can be trusted to produce high-quality graduates with skills valued by industry. A review of the most highly enrolled courses in New South Wales points to a mismatch between the VET sector's outputs and the needs of the economy. Other evidence also suggests that training quality is an ongoing issue. A major underlying reason is the lack of clear information available to students about individual training providers.

Although it is the student who enrolls in a VET program, many factors shape the training decision. Businesses often require staff to undertake particular VET qualifications as part of their induction. The NSW Government also influences students' training choices while it seeks to address economic concerns such as skills shortages. The NSW Government oversees course subsidies, procurement quotas, tax exemptions, and employer incentives.



TABLE 3.2: 10 MOST POPULAR NSW VET COURSES IN 2018, BY ENROLMENT

VET COURSE	NO. OF ENROLMENTS	SHARE OF VET ENROLMENTS (PER CENT)
Certificate III in Early Childhood Education and Care	22,800	2.9
Certificate III in Individual Support	22,600	2.9
Diploma of Early Childhood Education and Care	17,700	2.3
Diploma of Leadership and Management	16,200	2.1
Certificate II in Hospitality	12,600	1.6
Certificate I in Construction	12,100	1.5
Work-Zone Traffic Control (Traffic Control Guidance Plan Skill-Set)	11,800	1.5
Certificate III in Retail	11,100	1.4
Certificate III in Electrotechnology	10,600	1.4
Certificate IV in Property Services (Real Estate)	10,400	1.4

Source: National Centre for Vocational Education Research (Total VET students and courses 2018: data-slicer).



Many popular courses attract high enrolment volumes because government regulations require them as a precondition for employment, or because they support high-growth sectors. For instance, the *National Quality Framework for Early Childhood and Care* sets minimum qualifications for staff who work in children’s education and care services.

Other popular courses, however, have little demonstrable value to industry, despite their high enrolment volumes. Examples in Table 3.2 include the Certificate II in Hospitality and Certificate III in Retail. Employers are unlikely to value these qualifications. They largely teach basic skills that most learners easily acquire in customer-facing jobs without formal instruction and are rarely or never specified as ‘required’ or ‘desirable’ in job advertisements.

Many stakeholders highlighted that students from low educational and socio-economic backgrounds benefit

most from basic VET qualifications. These qualifications often serve as an important stepping stone into the job market from school or welfare dependency. But the high enrolment volumes in these basic qualifications suggests that government’s VET support is not well-targeted.

As a general principle, qualifications should not be subsidised by the taxpayer if they cannot be shown to significantly improve learners’ employment prospects. Box 3.8 explains in more detail how little value businesses place on some of the more basic VET qualifications. It is concerning that many such courses, including those outlined in Box 3.8, are on the NSW Skills List and are so highly enrolled. That sends students misleading signals that they are in high demand by industry, while allowing them to be unnecessarily subsidised by the NSW Government under Smart and Skilled.

BOX 3.8: SOME POPULAR QUALIFICATIONS TEACH SKILLS YOU CAN PICK UP ON THE JOB

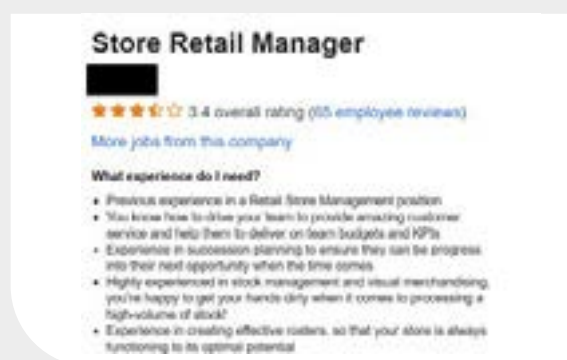
Some popular VET courses appear of little or no value to employers, including Certificate II in Hospitality and Certificate III in Retail, the fifth and eighth most popular courses in 2018, respectively. Most enrolments in these courses receive government funding—76 per cent and 89 per cent, respectively (National Centre for Vocational Education Research, 2020a). Most are completed as traineeships and provide for a discounted wage to the employee. Many students pay no fees under the NSW Government’s Fee-Free Traineeship Initiative.

These courses teach basic skills that most people can acquire through experience on the job, without formal instruction or expert assessment. Take the core competencies of the Certificate II in Hospitality:

- work effectively with others
- source and use information on the hospitality industry
- use hospitality skills effectively

It is difficult to find any evidence that business value this qualification. A broad review of job advertisements found few businesses saying it was required or desirable for jobs in the industry. Only 50.4 per cent of students across Australia reported the qualification improved their employability (Commonwealth Government, 2020a).

This is similarly the case for qualifications in retail. The following is a typical advertisement for a high-level position in the retail industry:



As this example shows, even for managerial positions, retail employers do not see VET qualifications as ‘essential’ or ‘desirable’. Employers prefer work experience and practical demonstrations of proficiency.

SMART AND SKILLED

Smart and Skilled is the NSW Government's flagship VET policy. Launched in 2015, it signalled a move towards a demand-driven and contestable VET market. Under Smart and Skilled, eligible students are entitled to:

- government-subsidised training up to and including Certificate III
- government funding for higher-level courses (Certificate IV and above) in targeted priority areas.

On average, students contribute only 10 to 45 per cent of total course costs. More generous subsidies are available to certain cohorts.

Since its introduction, the NSW Government has gradually expanded the scope of Smart and Skilled. For example, in the 2018-19 Budget an additional \$285 million for the Fee Free Apprenticeship initiative covered the student training costs for up to 100,000 new apprentices in any program. A similar Budget initiative allocating \$54.3 million for traineeships was announced in 2019-20, paying course costs for 70,000 new trainees. Across Australia, subsidies now account for around 44 per cent of total government VET expenditure (Commonwealth Productivity Commission, 2020c).

The NSW Skills List outlines the qualifications eligible for subsidy under Smart and Skilled. According to the NSW Department of Education, the Skills List is 'developed through extensive industry and community consultation and labour market research'. And it 'includes a wide range of qualifications to support the diverse skills needs of NSW employers' (Training Services NSW, 2020b).

Stakeholder nomination appears to be the primary means by which qualifications are added to the NSW Skills List (NSW Department of Education, 2020). The Department assesses requested additions against a range of eligibility criteria outlined in the NSW Skills List Management Policy. For instance, stakeholders must provide evidence that their nominated qualifications deliver skills reflecting strong industry demand, offer promising employment prospects or pathways to further study. Most nominations come from training providers, industry or government stakeholders. This contrasts

with the distribution of subsidies under NSW JobTrainer, which has taken a more analytical and data-driven approach to identifying skills needs (see Section 3.2).

Training Services NSW reviews the NSW Skills List annually to match the economy's changing skills needs. As of 2021, New South Wales has the longest skills list of any Australian jurisdiction, with more than 300 registered training providers delivering approximately 700 qualifications. The length of the NSW Skills List suggests the allocation of subsidies under Smart and Skilled is neither well-targeted nor robust. A demand-driven model, combined with poorly targeted funding under Smart and Skilled, is likely driving a mismatch between the outputs of the VET system and the needs of industry. Subsidies should give students the incentive to enrol in courses that improve their employment prospects, meeting the genuine skills needs in the economy. As Box 3.8 shows, this is often not the case.

The Commonwealth Productivity Commission acknowledges the challenges of developing and using skills lists. Across Australia, skills shortage lists are often outdated. Data issues and methodological issues hamper updating. And competing definitions of 'skills shortage', as well as different calibration of parameters, have left skills lists varying significantly across jurisdictions. As part of negotiating the new Skills Agreement in 2021, the Commonwealth Productivity Commission has highlighted the benefits of adopting a consistent methodology to identify skills shortages.

The NSW Audit Office has also questioned the NSW Government's method for distributing Smart and Skilled subsidies (Audit Office of New South Wales, 2018).

- The Office concluded that the approach 'does not always use available data to inform decisions about which skills to add or remove from the list'.³
- It recommended that the Department of Education use data more effectively and consistently to ensure the NSW Skills List only includes high-priority qualifications.
- It found that there was no robust process to remove qualifications from the Skills List. Since establishment of the NSW Skills List, new additions

³ The former NSW Department of Industry was responsible for VET policy and implementation of Smart and Skilled at the time of the Audit Office's report. These responsibilities were transferred to the NSW Department of Education in 2019.

to the list had outnumbered those removed by five to one.

- It recommended that the Department should evaluate Smart and Skilled funding strategies to determine whether they are achieving their goals.

During Roundtable discussions, stakeholders agreed that VET expenditure is not as targeted as it could be and pointed to adverse economic impacts. As well as providing low value to taxpayers and participants, untargeted subsidies lead to:

- **Continued skills shortages.** The extensive list of subsidised courses gives prospective students little direction about skills shortage or

which courses genuinely address them. Ongoing skills shortages, especially in the trades, impede business growth, push up consumer prices and result in unmet demand for services. (Senate Employment Workplace Relations And Education References Committee, 2003).

- **Trainees earning discounted wages without commensurate training outcomes.** Awards allow employers to pay discounted wages to VET students compared with regular employees. This creates an incentive for employers to hire new employees as trainees, even if a qualification offers little value beyond on-the-job learning. Box 3.9 provides a case study.

BOX 3.9: TRAINEESHIPS IN THE FAST FOOD INDUSTRY

Grill'd is a prominent Australian fast food chain, operating in more than 100 locations nationally. The company website states that 'all new Team Members undertake the same first 12-month training to ensure consistency across all our restaurants', and that '... training we provide at Grill'd, including our qualifications, are an essential part of developing our people' ("Grill'd Traineeship," 2020). Staff members in New South Wales work towards completion of a Certificate II in Hospitality.

The value of across-the-board traineeships in fast food services is questionable, for two reasons:

- Skills in this sector have long been acquired through informal on-the-job learning, even in large and respected franchises with strict and uniform service standards.
- Many new employees in the industry already have transferrable skills and experience. And unlike apprenticeships, traineeships generally do not lead to qualifications that are a precondition for employment in certain roles.

The remuneration structure of the Grill'd Enterprise Agreement, approved by the Australian Fair Work Commission, allows it to pay its trainees wages that are significantly lower than those for regular staff (Fair Work Commission, 2015). Employees and unions have alleged that Grill'd requires new staff to become trainees to cut labour costs, and that its training program is of little value to many trainees (Costa, 2019).

Businesses operating lawfully should not be blamed for responding to incentives created by government policy. This case study highlights that the current VET system does not adequately target employer incentives—such as subsidies and lower trainee wages—to ensure traineeships lead to qualifications that deliver value to industry, trainees, and taxpayers.

LEVERAGING LABOUR MARKET DATA TO BETTER TARGET SUBSIDIES

The NSW Government has scope to target labour market subsidies more effectively to deliver a better return on investment—both from students and the government—a finding echoed by the Commonwealth Productivity Commission (Commonwealth Productivity Commission, 2020c). The Skills List provides signals to students, giving them incentives and directing them to pursue VET courses in line with employment prospects and other business conditions. So this Skills List must be an accurate reflection of the economy's skills needs.

For a government seeking to improve VET budget spending, NSW JobTrainer (see Section 3.2) offers clear insights and lessons. The NSW JobTrainer package was underpinned by rigorous analysis, leveraging the expertise of the National Skills Commission (NSC). This enabled governments to target support to the VET system, and to focus on skills delivery in line with the economy's immediate needs. As New South Wales renegotiates the new National Skills Agreement in 2021, it should draw on these lessons.

The NSC is currently developing a national Skills Priority List. It is intended to help policymakers better understand the skills needs of the economy. It will also inform other streams of work, including the national skilled migration program. The methodology of the Skills Priority List is still being developed.

The NSC's significant research output already represents a major advance in skills analysis across jurisdictions. It is also an encouraging step towards more informed and targeted subsidies. The NSC skills shortage survey is also a source of market insights; for example, its *Recruitment Experiences and Outlook Survey* is distributed to more than 13,000 employers. It also has access to rich data sources through its management of the *Labour Market Information Portal*. An internet vacancy index has also been developed to gauge employers' recruitment activity.

WAYS TO IMPROVE SUBSIDY DISTRIBUTION

Renegotiation of the new National Skills Agreement may introduce significant changes to the way the VET subsidies are allocated. The Prime Minister has publicly indicated he would like to see a move to a national system of efficient pricing and activity-based funding (Morrison, 2020). Negotiation of the agreement is an opportunity to use funding arrangements to address existing shortcomings (such as subsidy allocation) as well as encourage innovation. For example, supporting the development of new trades skills pathways (as outlined in Section 3.3 above) would ensure that it better meets the economy's needs.

A number of techniques could help the NSW Skills List to more rigorously identify skills needs and thus improve the targeting of VET subsidies.

- **Incorporating broad data-inputs and stakeholder nomination.** Identifying current and emerging skills needs will rely on a wide variety of data sources. Surveys and other labour market data tend to highlight historic and current skills needs, because these sources largely focus on employers' experience in recruiting. Data is unlikely to show up future skills needs, such as those in emerging industries. Highlighting these skills needs will likely require stakeholders to nominate skills. So stakeholder nomination should remain an open channel for adding to the Skills List.

- **Regional variation.** Many industries (and therefore skills needs) are localised in certain locations—agriculture in the regions, for instance. Thin populations mean that skills shortages have historically been broader in regional New South Wales.
- **Adequate frequency.** Skills lists must retain currency by keeping pace with the changing needs of the economy. More frequent updates to the NSW Skills List would contribute to a more responsive VET system and labour market. Updating the Skills List should involve a robust process to remove skills that are no longer in shortage.
- **Quantification.** At present, skills shortage lists tend to be binary and do not provide any indication of severity or likely duration of the shortage. Severity of a skills shortage should inform the size and scale of Government's interventions aimed at addressing them.

TRANSPARENT STUDENT DATA IS A KEY LEVER TO DRIVE QUALITY AND INFORM STUDENT CHOICE

Training quality has been a longstanding issue for the VET system. The 2019 *Strengthening Skills* review highlighted concerns about the variation in quality between providers, and the ongoing presence of 'tick and flick' operators (Joyce, 2019). The issue of unscrupulous behaviour came to prominence in the early 2010s, when a small number of providers fraudulently exploited the Commonwealth VET FEE-HELP scheme, leading to its termination in 2017.

This prompted immediate reforms to improve market oversight, quality assurance, and curb rent-seeking behaviour. To date, however, reforms have not leveraged the most effective resource to drive training quality: students. Students have a unique perspective on the VET system and can offer valuable insights on the overall quality of a training provider and the courses delivered. Moreover, these insights are unlikely to be captured by current administrative approaches to quality assurance, such as compliance audits and reporting requirements (Australian Skills Quality Authority, 2021).

Improving the visibility of this information would give providers more incentive to maintain a high-quality training and student experience.

- Students would be better able to identify quality training providers. That would raise their employment prospects and generate a better return on their training investments.
- Training providers would be able to signal their strong track records in providing quality education, and attract higher enrolments.

Despite recent efforts to collect and publish data on RTO performance and student outcomes, there is scope to improve the quality of this information and its visibility to prospective students. The National Careers Institute's MySkills website publishes a national directory of training providers and VET courses—but it captures only minimal information on student feedback and outcomes. And the NSW Government provides no feedback on the Smart and Skilled website, the government program that most NSW VET students interact with. So students are unable to make an informed comparison between providers for the same course.

Key information that could be captured includes:

- the student experience
- employment outcomes
- teaching quality and style
- training contents.

In a conventional competitive market, consumers can make informed choices based on market information about price and quality. New South Wales currently operates a highly regulated fee regime under Smart and Skilled, with student fees and subsidies fixed by the NSW Department of Education.⁴ For any given qualification, all public and private providers must charge the same student fees.⁵ These arrangements hide price variations from students—and so hide quality signals as well.

If they cannot have price signals, students would benefit from at least having clear, accessible data and information on training quality. That would help them get the most out of their training investment.

Under current arrangements, providers cannot compete with each other on price. Better information on training quality would let high-quality providers reap the reward of increased enrolments. Conversely, clearer and more available information would divert students away from low-quality providers. The inability to attract students would prompt these providers to leave the market.

RECOMMENDATION 3.3: TARGET VET SUBSIDIES BETTER, AND ENCOURAGE HIGHER QUALITY

Target VET subsidies more effectively by using labour market data and National Skills Commission expertise to identify skills the economy will need.

Capture and publish data from Smart and Skilled student feedback on training provider quality, employment outcomes and overall student experience.

Redirect funding to courses with demonstrated value to industry, in skills shortage areas.

FUND VET MICRO-CREDENTIALS TO PROMOTE LIFELONG LEARNING

Businesses, students, and governments are showing a growing interest in micro-credentials. They may become prominent in training and employment markets as a preferred method of delivering, assessing, and certifying skills and training.

The definition and regulation of micro-credentials are yet to be formalised in Australia. Various definitions are in use. But the term 'micro-credentials' generally refers to certifications of assessed learning that are additional, alternative or complementary to, or a component part of, a formal qualification (Noonan et al., 2019).

⁴ Smart and Skilled pricing arrangements are based off advice provided by a Special Review by the Independent Pricing and Regulatory Tribunal (IPART) - Pricing VET Under Smart and Skilled (2013).

⁵ The notable exception applies to qualifications offered as apprenticeships and traineeships. Under Smart and Skilled, qualifications delivered as apprenticeships or traineeships are fee free. The equivalent qualifications delivered as non-apprenticeships or non-traineeships typically attract a student fee.

Among their benefits are the following:

- They can provide more efficient and targeted delivery of skills (Tehan, 2020)
- They often provide skills that traditional VET qualification pathways do not.

TAFE NSW currently offers micro-credentials to certify industry-specific skills that meet workplace and career progression needs. It also offers free short courses as part of the Government's COVID-19 response. Both the Joyce Review and the recent review of the AQF supported a greater use

of micro-credentials (Joyce, 2019, p. 64). Furthermore, in mid-2020, the Commonwealth Government provided \$4.3 million to build a National Micro-credential Marketplace to help students identify opportunities in these courses in both VET and higher education.

Micro-credentials are an ideal step towards better integration of VET, higher education, and workplace learning. The Western Parkland City Authority (WPCA) is currently investigating an innovative education model for the Aerotropolis precinct (Box 3.10).

BOX 3.10: THE POTENTIAL OF MICRO-CREDENTIALS IN THE NEW WESTERN PARKLAND CITY

Micro-credentials could help unlock the potential of the Western Parkland City (WPC) as a centre for knowledge-intensive jobs, advanced careers, and innovative new education pathways.

The catalyst for the future of the WPC is the Western Sydney International (Nancy Bird Walton) Airport—in the very centre of the City's footprint—and the \$20 billion in government investment already pouring in to realise this vision and deliver more than 200,000 jobs across the City by 2036.

Surrounding the Airport on all sides and with the 22nd Century city centre of Bradfield as its heart, the Western Sydney Aerotropolis will be an ecosystem of industry and innovation, with precincts dedicated to advanced manufacturing, aerospace and defence, agribusiness, freight and logistics, health and education, and air services and tourism.

THE AEROTROPOLIS WILL FEATURE A HUB FOR:



Advanced manufacturing
(using technologies like
3D printing, robotics,
and AI)



Aerospace and
defence



An agribusiness precinct
for high-tech food
production



Accessible training and
education



Global freight and
logistics

To support development of an advanced industry cluster at Bradfield and the Government's broader vision for a resilient, innovative economic ecosystem, a new collaborative approach to education and training is being developed to enable rapid upskilling in key industry growth areas.

The collaborative approach across education and industry will see learning designed around micro-credentials rather than a traditional qualification structure. Other priorities include:

- a focus on science, technology, engineering, and mathematics (STEM) education
- capacity for blended qualifications delivered in a partnership between industry, education institutions, and government
- an initial focus on training and skills for advanced manufacturing
- fast-tracked micro-credentialing and fit-for-purpose industry qualifications.

The Western Parkland City Authority is developing this new model, working closely with industry, TAFE NSW, and the NUW Alliance, which unites the universities of Newcastle, New South Wales, Wollongong, and Western Sydney University.

MICRO-CREDENTIALS SUIT CHANGING CAREER PATTERNS

Micro-credentials are well-suited to lifelong learning. Workers seeking skills education in New South Wales increasingly already have baseline qualifications. As mid-life career changes and market disruption caused by new technology become more common, workers are increasingly seeking to supplement established skills and qualifications. Traditional offerings require learners to undertake a full qualification or are designed primarily for learners at the beginning of their working lives. They do not always serve mid-life learners well.

Micro-credentials may offer an effective new way to invest in the skills of an ageing workforce. As the Commonwealth Productivity Commission has observed, the opportunity cost of education and training tends to rise as workers get older (Commonwealth Productivity Commission, 2017c). Older workers often have financial and family commitments that make it more costly to devote a lot of time and money to training. They also have fewer working years in which to recoup training investments. Through short, focused training opportunities, micro-credentials can allow older workers and their employers to make low-cost investments in upskilling. And older workers can focus those investments on modules of learning that offer the greatest productivity gains.

Given the strengths of micro-credentials, the Commission believes the NSW Government should systematically extend Smart and Skilled funding to micro-credentials, where economic and industry data indicate they will effectively fill a skills need.

MANAGE MICRO-CREDENTIALS' RISKS

Micro-credentials do, however, come with risks that need to be managed.

The Commonwealth Productivity Commission has argued that new forms of learning like micro-credentials need better systems for recognition and trust (Commonwealth Productivity Commission, 2017b). Systems for validating micro-credentials, it says, are 'in their infancy, subject to proliferation (hence lacking the credibility provided by large-scale uptake) and are yet to be understood sufficiently to serve as a signalling tool in the labour market'.

Recognition and trust of micro-credentials could be improved in several ways. Micro-credentials could be mapped to AQF levels. The AQF review suggested this could be done by an existing agency or one set up for this purpose (Noonan et al., 2019). It also recommended developing guidelines under the AQF, which would allow micro-credentials to be recognised for specific credit towards AQF qualifications. Professor Beverly Oliver has similarly suggested a voluntary national credit points system (Oliver, 2019).

Encouraging attempts have been made to tackle this issue by other jurisdictions:

- The South Australian Government has implemented a micro-credentials pilot program, where it will endorse micro-credentials upon request from industry. The pilot seeks to explore innovative approaches to training that mix accredited and non-accredited training. A review of this 12-month pilot at the end of 2021 will provide insight into whether a similar type of endorsement program could be considered in New South Wales.
- New Zealand introduced a process to approve micro-credentials in 2018, through an assessment process run by the New Zealand Qualifications Authority.

Approaches to improving recognition need to be designed and implemented carefully in consultation with industry and providers, with an emphasis on voluntary standards, to avoid impeding innovation.

The past decade of VET reform has shown that extensions of government subsidies into new areas can attract unscrupulous providers. This risk must be proactively managed for micro-credentials. A pilot program, extending Smart and Skilled funding to further selected micro-credentials, would be an appropriate starting point. Priority should be given to courses that have evidence of employer trust and recognition, high-quality assessment, and, where possible, alignment with the AQF. A place-based pilot, in a setting like the WPC, would be the ideal way to test micro-credentials across both vocational and higher education sectors.



RECOMMENDATION 3.4: ENCOURAGE MICRO-CREDENTIALS

Extend Smart and Skilled program subsidies to targeted short courses and micro-credentials that provide discrete skills which employers recognise and value.

- Use economic and industry data to identify high value micro-credentials to fund.
- Prioritise courses that have better evidence of employer trust and recognition, high-quality assessment, and alignment with the Australian Qualifications Framework (AQF).
- Use a risk-management approach to funding, with the capacity to quickly freeze or withdraw funding if problems are identified.

Support the development of voluntary systems of trust and recognition for micro-credentials with, for example, alignment to AQF levels or the adoption of 'credit points' standards.



04 | Forward-looking regulation supports competition and innovation



Recommendations

RECOMMENDATION 4.1: TEST OUR COVID-19 REGULATORY EXPERIMENTS

Evaluate the success of the extended COVID-19 regulatory changes and retain them unless it can be shown there is no net public benefit.

RECOMMENDATION 4.2: AUTOMATICALLY RECOGNISE OCCUPATIONAL LICENCES FROM OTHER JURISDICTIONS

Pursue automatic mutual recognition to help overcome NSW skills shortages.

RECOMMENDATION 4.3: PROMOTE MORE FLEXIBLE RULES FOR THE USE OF DRONES

Work with the Commonwealth regulator to support greater take-up of drones in industry, beginning with the agricultural sector.

RECOMMENDATION 4.4: REGULATE TO LET PERSONAL MOBILITY DEVICES AND E-BIKES FULFIL THEIR POTENTIAL

Revise laws to support use of personal mobility devices and electric bikes in an appropriate regulatory environment that manages safety risks.

RECOMMENDATION 4.5: UPDATE AND MODERNISE RULES

Amend legislation to remove outdated regulatory requirements.

Wherever possible, translate prescriptive rules to code and make them accessible.

RECOMMENDATION 4.6: REVIEW MINIMUM QUALIFICATION STANDARDS AND MANDATORY CONTINUING PROFESSIONAL DEVELOPMENT REQUIREMENTS

Review all regulatory requirements that set minimum qualification standards and mandate continuing professional development. Reform requirements where the costs outweigh the benefits.

RECOMMENDATION 4.7: USE NEGATIVE LICENSING

Remove the requirement for prior approval and adopt negative licensing for a number of low-risk home building trade occupations.

RECOMMENDATION 4.8: HAVE THE COMMISSION ASSESS PHARMACY ALTERNATIVES

Have the NSW Productivity Commission review options to make better use of pharmacists' skills, over-the-counter medicine scheduling arrangements and pharmacy ownership regulation.

Assess whether current arrangements are best placed to manage harm at least cost to the community and identify options that may improve community welfare.

RECOMMENDATION 4.9: EVALUATE NEW SOUTH WALES CHILDCARE REQUIREMENTS

Evaluate the costs and benefits of NSW childcare regulatory requirements that differ from national staff ratio and qualification requirements.

RECOMMENDATION 4.10: REVIEW CURRENT RESTRICTIONS ON THE RETAIL SALE OF PACKAGED ALCOHOL

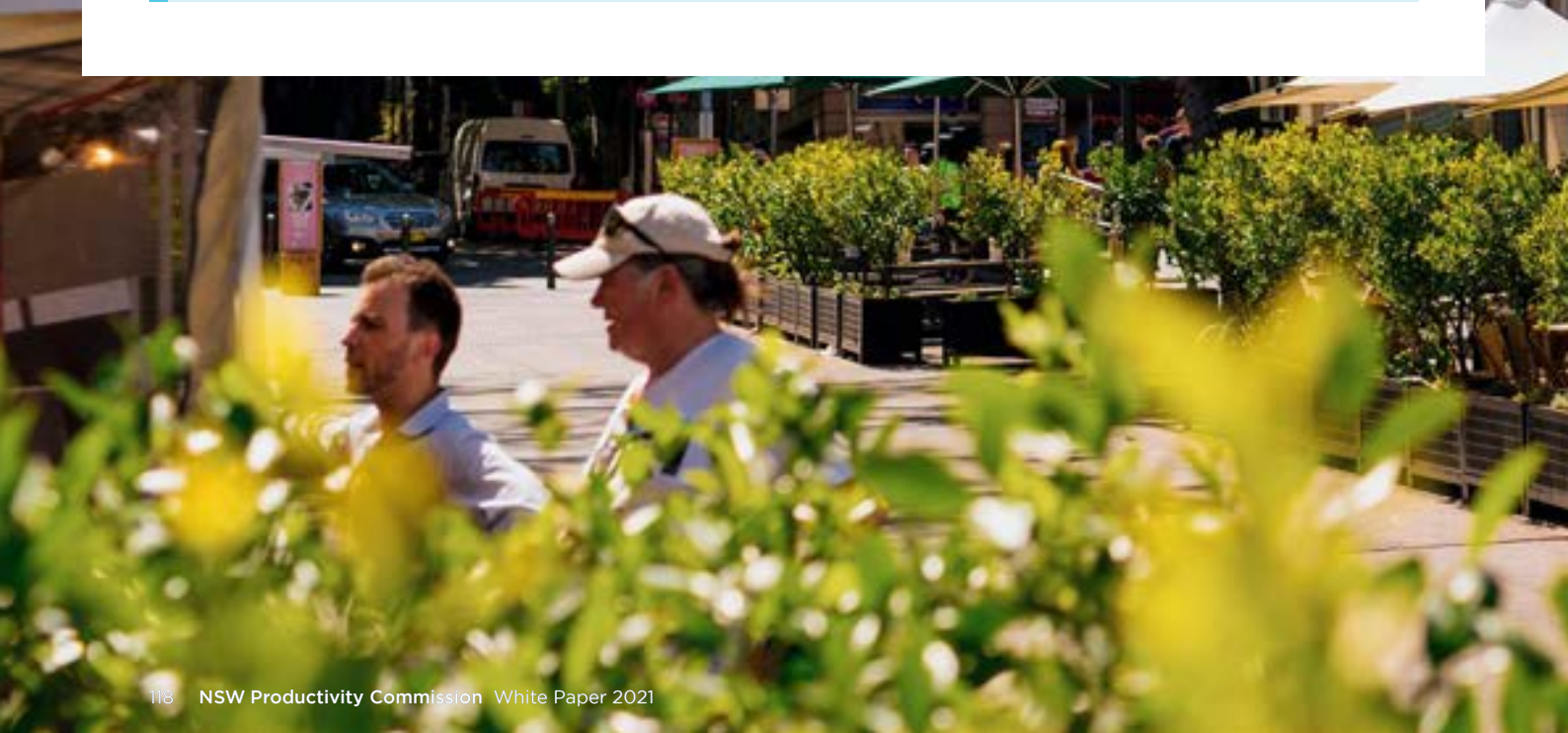
Review the restrictions on supermarkets and other retailers selling packaged alcohol for off-premises consumption.

RECOMMENDATION 4.11: REVIEW RICE VESTING EXPORT ARRANGEMENTS TO DETERMINE IF THEY PROVIDE A NET PUBLIC BENEFIT

Complete the 2021 Review of Rice Vesting Proclamation. Allow the rice vesting export arrangement to expire unless it is shown to deliver a net public benefit.

RECOMMENDATION 4.12: END SEPARATE STATE RESTRICTIONS ON GENETICALLY MODIFIED CROPS

Allow the *Gene Technology (GM Crop Moratorium) Act 2003* (NSW) to expire in 2021.



RECOMMENDATION 4.13: REVIEW NSW'S RAIL ACCESS REGIME

Have IPART review the NSW Rail Access Undertaking, including its interaction with the national rail access regime.

RECOMMENDATION 4.14: UPDATE COMPETITIVE NEUTRALITY POLICY

Have IPART update the NSW Government's competitive neutrality policy and processes.

RECOMMENDATION 4.15: MAKE E-CONVEYANCING INTEROPERABLE

Support the implementation of interoperability in the NSW e-conveyancing market as a matter of urgency.

RECOMMENDATION 4.16: IMPROVE LOCAL GOVERNMENT INFORMATION AND COLLABORATION

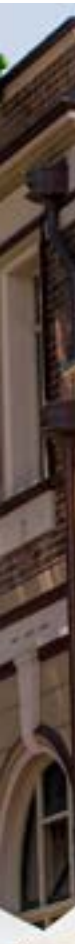
Improve regulatory practices in local government by expanding the scope of the 'Your Council Website' to include information on regulatory arrangements, fees, and charges across local councils.

Encourage greater regulatory collaboration between State Government regulators and local councils in areas including planning, building and environmental regulation.

RECOMMENDATION 4.17: INTRODUCE AN ADAPTABLE AND FORWARD-LOOKING REGULATORY FRAMEWORK

Create a best-practice regulatory policy framework, with regulatory stewardship as the cornerstone, to promote rigorous and transparent impact assessments and improve regulator performance.

Remove the five-year staged repeal provisions under the *Subordinate Legislation Act 1989* or, at a minimum, extend the lifespan of subordinate legislation from five to 10 years.



4.1 Improved regulation is a major productivity lever

Good regulation helps to protect the health and safety of the NSW community, make our economy work better and create the society we want. Good planning frameworks are an example of this. They strike the right balance between the competing objectives of:

- ensuring sustainable natural resource use
- providing certainty for housing and employment enabling investment.

During the pandemic, regulatory settings helped to maintain essential services, keep products available to fight disease, and make sure food is produced and delivered.

Done poorly, regulation can stifle innovation, create barriers to competition, impose unnecessary costs on businesses, and slow down productivity growth. But done well, regulation gives us a powerful lever to ensure the economy responds to change and supports a healthy society.

The volume of regulation in New South Wales is, however, growing faster than ever. Twice as many regulations were created between 2010 and 2019 than in the preceding decade (NSW Treasury, 2020e). More regulations mean more time spent for businesses understanding and complying with rules, and less flexibility for businesses to innovate and adapt.

Growth in regulation may be human nature. Scientific research suggests that humans have a bias towards solving problems through adding new things instead of stripping back what is already there — a tendency that applies equally to designing regulations as it does to designing engineering solutions, writing or cooking (Adams et al., 2021). All the more reason to look at the regulations we already have to ensure they are meeting their policy objective with a minimum economic burden; and as new regulatory problems arise to first think about what we may be able to alter or remove, rather than adding new regulations.

THE COSTS AND OPPORTUNITIES OF REGULATION

Regulation's economic costs fall broadly into three classes:

- **compliance costs**, incurred by businesses and individuals complying with specific regulations
- **efficiency costs**, imposed indirectly on the economy by the effects of poorly designed and poorly administered regulation on competition and incentives to invest and innovate
- **government administration costs**, incurred by governments administering and enforcing regulation.

Compliance costs alone can be a burden for businesses. Estimates of the annual cost of compliance for businesses range from \$11 billion¹ annually for businesses in New South Wales (NSW Business Chamber, 2016) to 4 per cent of gross domestic product (GDP), or \$78 billion² per annum across Australia (Commonwealth Productivity Commission, 2006).

Efficiency costs, while difficult to quantify, are likely at least as large, or even larger than compliance costs (Deloitte, 2014, p. 42). This is demonstrated by the benefits of past regulatory reforms, such as the National Competition Policy Reforms of the 1990s, which focused on minimising restrictions on competition and introducing competitive neutrality. Productivity Commission modelling of the impacts of a subset of these reforms across Australia estimated they increased real GDP by about 2.5 per cent (Productivity Commission, 1999).

As the *NSW Guide to Better Regulation* explains, regulation affects incentives and flexibility right through the economy. Good regulation will improve competition, choice, quality and innovation, strengthening both economic competitiveness and the wellbeing of people in NSW (NSW Treasury, 2019).

Among the ways we can get these gains are to:

- reduce unjustified restrictions on conduct
- remove outdated, inconsistent, or unnecessary rules
- reduce barriers to entry or price controls in network industries or occupations
- reduce compliance costs.

THE SIZE OF THE BETTER REGULATION OPPORTUNITY

Taken together, the reforms detailed in this chapter could significantly improve NSW residents' quality of life.

For instance:

- Implementing Automatic Mutual Recognition (Recommendation 4.2) would increase national GDP by \$2.4 billion over 10 years (Department of the Prime Minister & Cabinet, 2021), with \$1 billion of these benefits expected to flow to New South Wales.
- Moving toward a best-practice regulatory framework (Recommendation 4.17) would reduce the avoidable compliance and indirect efficiency costs by \$750 million³ per year by 2041.⁴ Modelling by the Centre for Policy Studies shows that by 2041 this will lift Gross State Product (GSP) by \$1.2 billion.⁵
- More permissive regulatory frameworks that support the use of drones in agriculture (Recommendation 4.3) could unlock net benefits of up to \$500 million in New South Wales over the next 20 years (Centre for International Economics, 2021b).
- Revising laws to support the use of Personal Mobility Devices (Recommendation 4.4) could provide net benefits of up to \$87 million in New South Wales over the next 20 years (Centre for International Economics, 2021c).

1 Inflated to reflect 2020 prices based on CPI.

2 Calculated based on 2019-20 GDP figures, ABS 5206.0.

3 Or 0.14 per cent of GSP.

4 Based on domestic literature, a conservative estimates of compliance costs as a result of NSW regulation is 0.6 per cent of GSP per annum, or around \$3.75 billion. We expect that a best practice regulatory framework would reduce this by at least 10 per cent. This is well below the Queensland Productivity Commission's estimate of 1 to 2 per cent (Queensland Productivity Commission, 2021) or the NSW Business Chamber's estimate of \$11 billion per annum (NSW Business Chamber 2016). Literature also suggests the efficiency costs of regulation are at least as large as compliance costs (Deloitte, 2014). A conservative estimate suggests efficiency gains of \$375 million; assuming they are as large as the compliance and administration costs.

5 Victoria University (VU) was commissioned to estimate the economy-wide impacts of some of the final recommendations using a computable general equilibrium (CGE) model. The Victoria University Regional Model (VURM) was used, a CGE model that analyses the short-run and long-run impacts of policy changes affecting Australia and its states.

Improve flexibility to support our COVID-19 recovery

LEARN LESSONS FROM OUR COVID-19 REGULATORY EXPERIMENTS

The pandemic has highlighted a central theme of this report: the shape of our regulations helps determine how quickly and how well we can adapt as the world changes.

The NSW Government responded to the onset of COVID-19 with temporary regulatory changes to protect citizens while allowing businesses to provide consumers with critical products and services by overriding existing regulatory hurdles. Often a key to this was greater flexibility.

Such regulation will help the State with its recovery from COVID-19 too. Many stakeholders agreed that smart, flexible regulations help the economy to support innovation, competition and economic growth over years and decades. The COVID-19 crisis is a reminder that flexibility matters.

The NSW Productivity Commission recommended in its 2020 Green Paper that the NSW Government should look at COVID-19 regulatory relaxations as experiments, assess their results, and keep the ones that work. Following this, the NSW Government announced in the 2020-21 Budget that it would complete a coordinated evaluation of COVID-19 regulatory relaxations. Since the Budget, the NSW Government has passed legislation to extend reforms, and has started evaluations.⁶ Extended measures include:⁷

- allowing supermarkets and pharmacies to operate 24 hours a day
- allowing licensed venues to sell takeaway and home delivery liquor

- allowing food trucks to operate on any land at any time, with landowner's consent
- allowing restaurants and other commercial kitchens to operate as 'dark kitchens' that prepare food for delivery
- allowing home businesses to run 24 hours per day and to employ two to five staff
- allowing digital display of planning documents
- allowing compulsory interviews and questioning to be conducted by telephone or video conferencing
- allowing community associations, strata scheme and incorporated associations to meet and vote electronically
- allowing signatures on deeds, affidavits, and statutory declarations to be witnessed electronically
- allowing digital execution and certification of conveyancing documents
- using audio and audio-visual links more often in courts, and allowing pre-recorded evidence in criminal proceedings
- giving workers more flexibility in using their long service leave.

All stakeholders supported:

- evaluating the measures
- basing final decisions on stakeholder consultation and evidence.

Council and business stakeholders strongly supported measures to digitise

⁶ Where legislative change was required, extensions were contained in the *COVID-19 Recovery Act 2021 and the COVID-19 Legislation Amendment (Stronger Communities and Health) Act 2021*.

⁷ An additional measure which permitted construction sites to operate with weekday hours on weekends and public holidays was initially extended, however the measure was revoked in May 2021 by the Environmental Planning and Assessment (COVID-19 Developmen – Construction Work Days) Order (No 1) 2021. Public infrastructure projects may continue to operate with extended hours.

Clear and compelling evidence should inform any decision to reverse a temporary arrangement. In these circumstances, alternative options should also be considered before restoring prior arrangements.

BUSINESS NSW



processes. The Insurance Council of Australia highlighted that more permanent flexibility to take advantage of modern technology lowers costs and saves time for business. The Law Society of NSW noted, however, the need to consider risks such as fraud and duress, and the need for access to appropriate technology.

Property development and retail groups were also particularly supportive of measures around construction site operating hours and supermarket operating hours.

The NSW Government has commenced evaluation of the measures. This should be completed before the end of 2021 to allow businesses to build their changed business patterns, adapt to changes in consumer preferences, and recover faster. We should not reverse temporary regulatory relaxations unless there is clear evidence that the costs outweigh the benefits. In particular, there is a strong case to retain measures which let regulatory and legal formalities be completed digitally.

RECOMMENDATION 4.1: TEST OUR COVID-19 REGULATORY EXPERIMENTS

Evaluate the success of the extended COVID-19 regulatory changes and retain them unless it can be shown there is no net public benefit.

IMPROVE LABOUR MOBILITY THROUGH AUTOMATIC MUTUAL RECOGNITION

To work in some occupations, Australia's states and territories require you to hold a licence or a registration (*Mutual Recognition Act 1992*). For example, you need a licence to work as an electrician in New South Wales. Each state and territory operates its own occupational licensing scheme.

MUTUAL RECOGNITION

Having different occupational licensing schemes can deter people from taking on interstate jobs or moving between states to find work, since requalifying in a new state or territory might take months or years. To address this, in 1992 the Commonwealth Government established a national 'mutual recognition scheme'. Under this scheme, people licensed or registered in one state or territory can apply to be licensed or registered in another state or territory for the equivalent occupation (*Mutual Recognition Act 1992*).

Mutual recognition has eased the free flow of labour, goods and services between participating states and territories. Australia's mutual recognition scheme also now extends to most occupational licences issued in New Zealand.⁸

The recurring challenge is determining what is an 'equivalent' occupation across jurisdictions. Regulators and licence holders refer to Ministerial Declarations that specify licences in each jurisdiction and the conditions to achieve equivalence between them. But the declarations are complex, cumbersome, and have not been updated fully since 2009. That leaves them well behind today's qualifications and licences and robs the current mutual recognition scheme of substantial power.⁹

For example, the declarations refer to business agents' licences and real estate agents' licences. Business agents' licences no longer exist in New South Wales; they were rolled into the real estate agents' licence category. And the real estate agents' licence has itself been split out in to three licence types, further compounding the problem. Such changes pose difficulties for regulators, who are legally required to implement the declarations even when they are out of date. Such changes can also confuse licensees.

These issues aside, mutual recognition involves a time cost for licence holders—as much as two hours depending on the licence—and paying fees (COAG National Licensing Steering Committee, 2013).

⁸ *The Trans-Tasman Mutual Recognition Act 1997* (Cth) and the 1998 Trans-Tasman Mutual Recognition Arrangement set out this scheme.

⁹ The Commonwealth Productivity Commission concluded (Commonwealth Productivity Commission, 2015, p. 12): '[T]he effectiveness of the declarations has been constrained by a failure to keep them up to date.'





In its 2015 study into mutual recognition schemes, the Commonwealth Productivity Commission recommended governments expand the use of automation to improve the efficiency of mutual recognition arrangements. This is particularly important when a state suddenly needs large numbers of skilled workers. For instance, after the catastrophic 2020 summer bushfires, New South Wales faced acute shortages in trades required for rebuilding.

AUTOMATIC MUTUAL RECOGNITION

Automatic mutual recognition is an alternative that addresses the shortcomings of the existing mutual recognition system.

In December 2020, the Premier signed an intergovernmental agreement committing to implementing a national automatic mutual recognition (AMR) scheme for occupational registrations by 1 July 2021. All other first ministers (except the ACT's) also signed. The Commonwealth Government has introduced legislation into Parliament to implement AMR.

The core principle of AMR is that a person can automatically perform the same activities they are registered to perform in their 'home' jurisdiction in a second jurisdiction, without seeking permission or paying additional registration fees. For example, an ACT-registered plumber will save \$320 over three years in fees to work in a nearby border town in regional New South Wales. This will also benefit businesses with interstate operations: for example, under AMR an architecture firm based in New South Wales could save around \$600 per worker when their architects design structures located in Victoria and South Australia.

AMR will make it easier, faster, and less expensive for occupational licensees to take up job opportunities wherever they arise, assisting the state's economic recovery from the pandemic. In New South Wales, AMR will let industries address long-standing skills shortages more easily in licensed building occupations such as air conditioning and refrigeration mechanics, bricklayers and plumbers. AMR can also support recovery in the event of disasters like the 2019-2020 bushfires and the 2021 floods.

PwC Australia estimates AMR will lead to an increase in national GDP by \$2.4 billion over 10 years. The GDP boost comes from savings to workers and businesses, productivity improvements and extra surge capacity in response to natural disasters (Department of the Prime Minister & Cabinet, 2021). Given New South Wales' relative population and economic share, NSW Treasury estimates that around \$1 billion of these benefits will likely flow to New South Wales.¹⁰

Under AMR, consumers and businesses will benefit from a more diverse labour supply and greater competition between local and interstate licence holders. Regional border communities, which have been hard-hit by COVID-19 border closures, will particularly benefit.

Data from NSW agencies indicates that at least 1.16 million occupational registrations are held in New South Wales.¹¹ Data also suggests that 8.4 per cent of new occupational registrations in 2018-19 were made under mutual recognition.

OTHER KEY FEATURES OF AMR

Under AMR:

- A registered person will still only be able to commence work in the second state if they have met requirements designed to protect consumers and the community. These include requirements for insurance, fidelity funds, and trust accounts or the like, as well as vulnerable person character tests. While jurisdictions want to keep paperwork requirements to a minimum, they also require some minimal information for certain occupations.
- Local laws will apply to interstate registration holders, so that local regulators can take the necessary enforcement action to maintain protections for businesses, employees, and consumers.
- The scheme will apply automatically to all licensed occupations unless exempt or subject to an existing national registration scheme or state-based automatic recognition scheme.

¹⁰ The estimate takes into account the significant border populations between New South Wales and other jurisdictions.

¹¹ This number includes interstate licences recognised by NSW agencies.

- To implement a uniform scheme with widespread coverage, states and territories will only be able to exempt registrations where those registrations present a significant risk to consumer protection, the environment, animal welfare or the health and safety of workers or the public.
- These exemptions will be on a public register, will last for up to five years, and will be subject to review by the state if they are renewed. Exemptions from the scheme should, where possible, be limited to maximise the economic benefits of automatic mutual recognition.
- New South Wales, along with the Commonwealth and other state and territory Governments, is working to implement the necessary governance, compliance and enforcement, and information sharing arrangements for AMR. The proposed legislation will impose new information sharing obligations on regulators and licensees, especially regarding disciplinary and compliance matters. Jurisdictions should prioritise agreeing a minimum set of data-sharing requirements which builds on existing networks and does not increase the overall burden on interstate registration holders or regulators.

RECOMMENDATION 4.2: AUTOMATICALLY RECOGNISE OCCUPATIONAL LICENCES FROM OTHER JURISDICTIONS

Pursue automatic mutual recognition to help overcome NSW skills shortages.

4.3 | Modernise regulation

Emerging technologies create opportunities for us to live, play, work and do business in new and better ways. From planes to smartphones, they have often disrupted society as they have arrived. Yet over the course of decades, they have ultimately enhanced the lives of New South Wales' people.

Well-designed regulation can and should complement and encourage emerging technologies, rather than constraining them. But regulation also plays an important role protecting the safety and privacy of our citizens, as well as the productivity and amenity of our cities and regions. The speed of change often creates challenges in balancing these two needs.

In the field of transport, emerging technologies such as drones and personal mobility devices may offer large potential productivity gains in the near future. They hold the promise of major transformation to the movement of people and goods. They also challenge regulators to adapt to the changes they bring.

An analysis of the benefits and costs of an improved regulatory environment for PMDs and drones in New South Wales suggest they could lead to total gains of up to \$587 million over 20 years (Centre for International Economics, 2021b and 2021c). Flexible and fit-for-purpose regulation should support consumers and businesses to adopt the technology that best serves their needs.

These sophisticated tools will enable farmers to manage ever larger areas of land and assist them with decision-making ... In turn, farmers will spend less time driving through paddocks as they will be able to manage larger areas of land by analysing data.

NATIONAL FARMERS' FEDERATION SUBMISSION

The pandemic has shown how New South Wales can seize on the opportunities offered by new technology. As the pandemic arrived, we quickly updated our regulations to reflect the new normal.

We can now build on this momentum and adapt other regulations to reflect the way we live and do business in New South Wales today.

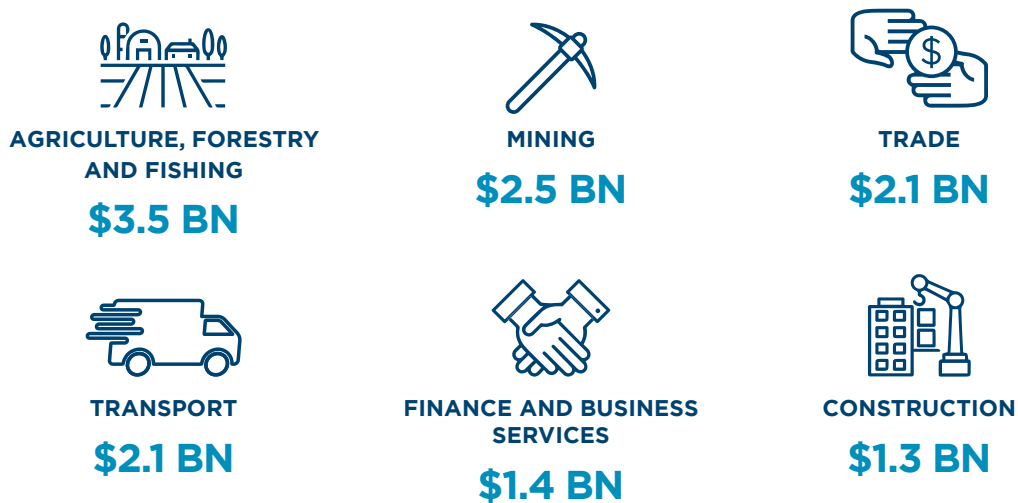
AVIATION REGULATION: REALISE ECONOMIC BENEFITS FROM DRONES

Drones—small remotely piloted aircraft—now play important roles in several industries.

Increased drone use offers New South Wales productivity gains in sectors such as logistics, agriculture and utilities. Across Australia, drones' economic impact has been forecast to grow to \$14.5 billion by 2040 (Deloitte Access Economics, 2020). The agricultural sector is forecast to see some of the strongest economic benefits.

In agriculture, drones will help with tasks from weed treatment to land surveying and fire monitoring to stock management. Their activities will increase yields and lower costs. Stakeholders have confirmed that drones can let farmers better and more quickly monitor farm conditions and gather valuable data. And drones' lower safety, noise, and privacy problems in sparsely populated rural areas will drive drone uptake on farms.

FIGURE 4.1: INDUSTRY IMPACT FROM DRONES, AUSTRALIA, 2020 TO 2040



Source: Deloitte Access Economics (2020).

On farms, drones can support day-to-day farm activities such as checking water troughs, fencing and silos. In the livestock industry, drones already support mustering of cattle. For example, drones are more efficient at identifying the location of livestock in a field to enable more 'targeted' mustering. Some drones also include speakers, which can be used to command dogs used for mustering. More targeted high-value applications of drones, include spraying and mapping.

Novel and ad-hoc uses of drones are constantly emerging:

- Airseed Technologies is using a drone to help restore land after 2020's bushfires. An Airseed drone carries a customised spreading system that disperses seed encapsulated in a nutrient-rich pod.
- Queensland firm Drone Commander Australia provides drones to the agricultural sector. The NSW Environment Protection Authority (EPA) has recently approved it to fly drones which drop poison bait designed to slow the NSW mouse plague.

Drones reduce the risk of on-farm accidents, particularly injuries that occur in more steep or rugged terrain. Increasing the uptake of drones may cut the injury rate from farm motorcycles, quad bikes and horses.¹²

Quad bikes in particular cause a high number of on-farm fatalities. To that end, a SafeWork NSW program aims to reduce quad bike fatalities and serious injuries by promoting drones as a safe alternative. The program helps farmers buy drones to monitor conditions and stock; it offered rebates of up to \$500 to support a drone purchase.

The Commonwealth Civil Aviation Safety Authority (CASA) regulates drone use. It administers national rules¹³ containing:

- a range of standard operating condition requirements, including height and distance limits and weather conditions for flight
- a requirement for drones weighing more than 250 grams to be registered with CASA
- a requirement for people flying drones commercially to either hold a remote pilot licence or complete an online training course to achieve accreditation.¹⁴

In September 2016, CASA simplified the regulatory requirements for recreational and commercial use of drones. Among the changes was a new 'landholder' category of drone use for people such as farmers who fly small drones over their own land. Such individuals do not need an operator's certificate or a remote pilot licence.

Some stakeholders have suggested governments consider further reforms. AgriFutures Australia stated that certain regulatory requirements may be 'excessive' or 'not appropriate' in the agricultural context. For example, it noted that developing an operations manual with processes for training, compliance, maintenance and route designation 'appears to be excessive' for farm use (ACIL Allen Consulting, 2018).¹⁵

Reducing regulatory barriers to the uptake of drones for agriculture use could have significant benefits. Analysis by the Centre for International Economics (the CIE) found that a more permissive regulatory framework for drone use in agriculture could unlock up to \$500 million in New South Wales over the next 20 years (Centre for International Economics, 2021b). Figure 4.2 shows estimates of the benefits of greater drone use in the NSW agriculture industry.

¹² Between 2010 and 2015, Australia recorded 1,408 hospitalised incidents relating to farm work—803 incidents on motorcycles, 389 on quad bikes and 216 on horses Centre for International Economics, 2021b).

¹³ The Civil Aviation Safety Regulations 1998.

¹⁴ Accreditation must be renewed every three years.

¹⁵ From the AgriFutures Australia submission: '[T]he requirements for a commercial operators' certificate include a requirement to develop an operations manual and an operations library. The operations manual must set out how the commercial operator (in this case, the farmer) plans to safely manage the risks inherent in operating a remotely piloted aircraft. It includes training, compliance, maintenance, route designation and other key obligations. For operations on farmland, all this appears to be excessive. A standard operational manual should be developed by the Department of Agriculture and Water, in consultation with CASA, for use in agriculture'.



FIGURE 4.2: NET BENEFITS OF DRONE USE IN NSW AGRICULTURE

CATEGORY	LOW SCENARIO (\$M)	HIGH SCENARIO (\$M)
BENEFITS (PV 20 YEARS)		
Reduced quad bike fatalities	49	74
Reduced farm injuries	66	199
Increasing efficiency of routine farm work	94	157
Yield increase from increasing efficiency of spraying	37	79
TOTAL BENEFITS	245	508
COSTS (PV 20 YEARS)		
Drone costs for routine farm work	4	4
Drone costs for spraying	2	4
TOTAL COSTS	6	8
NET BENEFIT	239	500

Source: Centre for International Economics.

Increased drone use has prompted safety, privacy and noise concerns. Some stakeholders, such as the NSW Farmers' Association, have raised concerns about trespass and nuisance issues arising from drone use in rural areas.¹⁶ Analysis of the proximity of NSW farmland to airports and high-density locations, however, suggests agriculture drone use poses minimal safety risks.

The vast majority of drone use in the agriculture sector occurs in sparsely populated areas and away from airports. Centre for International Economics

analysis indicates only 2.4 per cent of agriculture land in New South Wales is located within 10km of an airport. Farms also often have very little surrounding population; just 0.7 per cent of agricultural land has a population density of more than 10 people per square metre. Data on drone incidents collected by the Australian Transport and Safety Bureau also suggests a very low risk of accidents on farms: just three incidents were reported in the past five years.¹⁷

¹⁶ From the NSW Farmers Association submission: 'Our Farmers' members have recounted stories of narrowly escaping serious injury to their cattle and themselves when drones have flown above paddocks and hovered over a herd of cattle. Due to the noise, the cattle become distressed, running away from the drone they head towards hazards such as electric wire fences and in some cases, towards the farmer if they are among the cattle at the time. This situation can cause serious injury and can lead to fatalities for both the livestock and farmer' (NSW Farmers' Association 2018).

¹⁷ Given the possible number of flights happening NSW over the past five years, the number of recorded incidents appears very small, even accounting for the fact that drone incidents in the agricultural sector may not be recorded.

Providing farmers with greater flexibility to adopt useful new technologies provides a positive societal benefit, while only minimally increasing risk for aircraft, people and property.

Regulatory responsibility for drones sits with CASA and the Commonwealth Government. The Commonwealth Government's recently released National Emerging Aviation Technologies Policy Statement sets out a national approach to managing and developing the sector. Initiatives to be developed in collaboration with state and territory governments include:

- A Drone Rule Management System to coordinate and manage operating rules for drones from different agencies across all levels of government.
- A new enforcement framework to allow state and territory police to issue infringement notices and enforce minor breaches of rules and regulations related to drone rules.

- An outcomes-based noise framework for emerging aviation technologies, including drones.

The National Emerging Aviation Technologies Policy Statement acknowledges the need for a whole-of-government approach to reforming the regulatory framework of the drone sector. The design and implementation of drone regulation has wide implications for NSW businesses and community. And multiple layers of interconnected drone regulations show the need for collaboration across federal, state and local government to effectively regulate the emerging technology of drones.

The NSW Government should work with the Commonwealth Government (as the regulator) to revise regulatory controls, or provide a targeted exemption to let NSW farmers use drones more easily. CASA can then help put that in place, as it has done with drone delivery systems in Canberra and Queensland, alongside the initiatives outlined in the National Policy Statement.

RECOMMENDATION 4.3: PROMOTE MORE FLEXIBLE RULES FOR THE USE OF DRONES

Work with the Commonwealth regulator to support greater take-up of drones in industry, beginning with the agricultural sector.

TRANSPORT REGULATION: SMOOTH MICROMOBILITY'S PATH

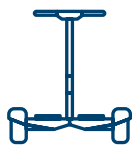
PERSONAL MOBILITY DEVICES

Personal mobility devices (PMDs) are small and portable devices designed to carry one person up to speeds of 25km/h by using an electric motor (see Figure 4.3). They are growing

rapidly in popularity in Australia and internationally, as technology evolves and consumer transportation preferences shift. Electric scooters (e-scooters) are the most prominent example. The global e-scooter market is expected to grow by an average 7.7 per cent per year to 2030 (Grand View Research, 2020).

FIGURE 4.3: EXAMPLES OF MICROMOBILITY DEVICES

EXAMPLES OF PMDs INCLUDE:



Segway-like devices



Electric scooters



Electric Skateboards



Self-balancing devices

OTHER TYPES OF MICROMOBILITY DEVICES INCLUDE:



Electric bikes



Mopeds



Mobility scooters & motorised wheelchairs

FIGURE 4.4: FIRST AND LAST MILE



FIRST MILE

TRANSIT

LAST MILE

PMDs offer new ways to travel. They have the potential to

- better connect people with public transport
- reduce congestion
- change how urban landscapes are designed.

PMD trips include not just commutes of up to 10 kilometres, but also the first and last portion (the so-called ‘first and last mile’) of longer journeys such as rail commutes. This has encouraged many countries to adapt their road safety regulations to safely include PMDs in their transport networks.

Better laws can encourage micromobility innovation and more effective use of these devices.

New South Wales, however, lags behind other states and territories. It forbids use of PMDs on public roads, cycling paths or footpaths, while other states and territories permit their use (see Figure 4.5 for a comparison of current e-scooter requirements in Australia).

FIGURE 4.5: SUMMARY OF CURRENT REQUIREMENTS FOR E-SCOOTERS ACROSS AUSTRALIAN JURISDICTIONS

JURISDICTION	E-SCOOTER LEGAL STATUS	MAXIMUM SPEED
New South Wales	⚠ Only on private property	N/A
South Australia ¹⁸	⚠ Only on private property	N/A
Western Australia	✔ Permitted	10km/h
Victoria	✔ Permitted	10km/h
Northern Territory	✔ Permitted	10km/h
Queensland	✔ Permitted	25km/h
Australian Capital Territory	✔ Permitted	25km/h

Note: Victoria, Western Australia, Tasmania, and the Northern Territory permit the use of e-scooters with a maximum speed of up to 10km/h and power output of up to 200 watts. The information in this figure is current as of 27 May 2021.

Source: NSW Treasury.

¹⁸ South Australia permitted e-scooters for shared use under a trial in Adelaide, which ended in October 2020. E-scooters could travel up to 15km/h in restricted areas. Privately owned e-scooters were not permitted during the trial.

Increased mobility enhances economic activity, particularly in a local context, as it becomes easier for people to move around. On top of this, the regulation of PMDs will create new employment as the introduction of shared services will then become possible.

NEURON MOBILITY SUBMISSION

Council staff support this recommendation to provide more transport choice and help encourage more people to change transport mode (modal shift) with subsequent environmental, asset, congestion, air quality benefits.

LAKE MACQUARIE CITY COUNCIL SUBMISSION

The Australian Road Rules have not kept pace with the growth of PMDs either. The National Transport Commission has undertaken extensive consultation and analysis to develop a national regulatory framework (National Transport Commission, 2020). In November 2020, Ministers agreed to recognise PMDs in the Australian Road Rules. Drafting of amendments is currently underway. New South Wales, however, is yet to support adoption of the changes.

Stakeholders overwhelmingly back integrating PMDs into New South Wales' transport network to provide greater mobility.

Stakeholders also emphasised the importance of safety in any regulatory framework. The absence of a regulatory framework for NSW PMDs may encourage people to use these devices with less attention to safety. Anecdotal evidence suggests e-scooter sales in New South Wales are growing, despite their illegality in public areas (Dye, 2021).¹⁹ A lack of standards for device safety features and enforcement may heighten the risk of serious accidents and injuries and promote a lawbreaking mindset among users.

Research suggests unenforced laws can be problematic as non-compliance may undermine the rule of law. When individuals observe lawbreaking without consequence, the perceived lawlessness may weaken the authority of the law and respect for legal rules in general

(Depoorter & Tontrup, 2017). The lack of enforcement of illegal PMD use creates a sense that authorities are not enforcing the law and can promote a culture of rule breaking. For example, if an e-scooter user is already breaking the law by riding such a device, there may be less of an incentive for them to comply with other rules, such as wearing a helmet. This will likely result in accidents and injuries that could have been prevented if appropriate standards and safety regulations were imposed and enforced.

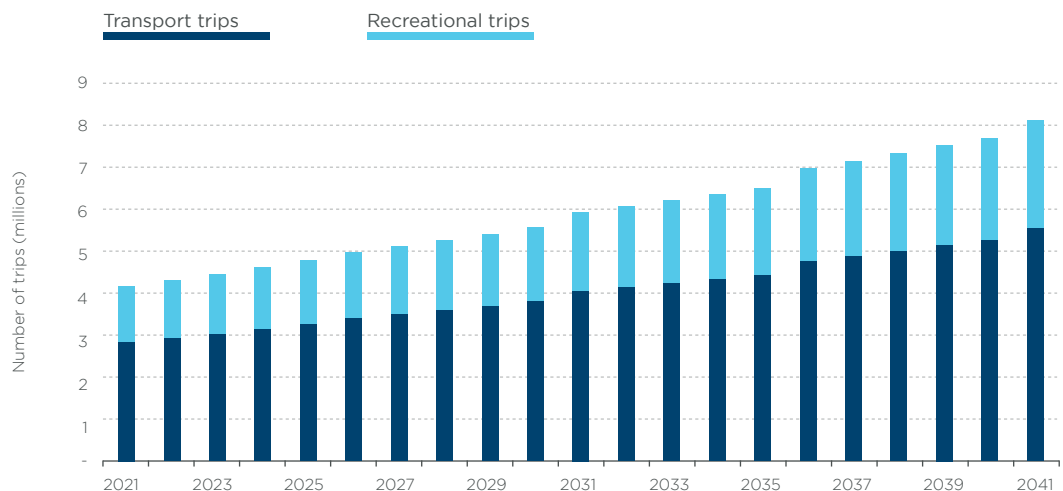
Stakeholders highlighted changing transportation patterns during the pandemic. PMDs can provide an alternative transport option with fewer points of contact. And PMDs make physical distancing easier during the COVID-19 recovery period.

Better infrastructure will also encourage PMD take-up. This infrastructure could include more cycling/PMD lanes, better connections between cycling/PMD paths, and cycle/PMD parking.²⁰

PMDs CAN PROVIDE SIGNIFICANT BENEFITS

Analysis by the Centre for International Economics (the CIE) found that permitting PMDs in New South Wales could enable around 4 million trips per year in 2021, increasing to 8 million trips per year by 2041 (Centre for International Economics, 2021c). Figure 4.6 depicts this.

FIGURE 4.6: FORECAST ANNUAL PMD TRIPS IN NEW SOUTH WALES 2021-2041



Source: Centre for International Economics.

¹⁹ There are no restrictions on the supply of e-scooters in New South Wales. One major retailer noted its e-scooter sales have increase five-fold over the past year, driven by significant consumer demand.

²⁰ Respondents to the 2019 Cycling Survey identified infrastructure that could encourage bicycle riding, and much of this would also apply to PMDs (Munro & Australia, 2011).

BOX 4.1: BENEFITS OF PMDs

1. Travel time savings

PMDs can reduce travel times for those who switch from walking, by providing faster average speeds. PMDs can also reduce travel times for those who switch from short car trips (of less than 5 km), mainly by reducing the need to find parking associated with the 'last mile' of car journeys.

2. Better access to public transport

Since PMDs reduce first and last mile transport problems, some users may take to public rail transport, with its lower access costs. The induced demand for rail would primarily replace car journeys. A survey of e-scooter users in San Francisco found that 39 per cent of e-scooter trips were combined with public transport (Lime, 2018).

3. Reduced congestion and vehicle operating cost savings

PMDs can replace short car trips, effectively reducing the number of cars on the road, and leading to improved car journeys for other road users and less demands on existing infrastructure. An estimated 54 per cent of weekday car trips in Greater Sydney cover less than 5 km (Transport for NSW, 2019). This suggests PMDs are well suited to replace a number of these trips.

PMDs can also reduce vehicle operating costs, such as fuel costs and vehicle wear-and-tear, for users who stop using cars for these trips.

These forecasts are informed by uptake in Brisbane after it legalised e-scooters in 2018. Higher levels of usage, of up to 10 million trips per year by 2041, could be supported depending on the broader policy environment; for example, greater levels of supporting infrastructure investment and supportive attitudes towards micromobility (Centre for International Economics, 2021c).

Higher PMD use may also increase demand for new infrastructure—for example, additional cycling lanes—while reducing the use of more expensive road infrastructure.

The benefits of PMDs need to be balanced against potential costs, including those associated with health, safety, and enforcement. Increased PMD usage can reduce active transport outcomes overall, as PMD trips mainly replace walking trips and are less physically demanding than walking. They can also increase accidents for users. There are some safety benefits in the form of avoided road accidents, but these need to be balanced against the risk of injury from increased PMD usage.

Analysis of the benefits and costs of regulating PMDs in New South Wales by the CIE suggests the net benefits of legalising PMD use outside private property exceed \$58 million in the 20 years to 2041.²¹ Higher levels of usage could be achieved with more policy support, with estimated net benefits of around \$87 million by 2041 (Centre for International Economics, 2021c). Doing nothing represents a significant opportunity cost to the economy.

While the uptake will be stronger in large metropolitan centres, it is likely that PMDs can provide viable transport options in smaller regional centres where alternative public transport services may be less frequent.

21 Estimate in net present value terms, assuming PMDs are permitted in New South Wales in 2021.

FIGURE 4.7: NET BENEFITS OF REGULATING PMDS

CATEGORY	STATUS QUO (\$M)	CENTRAL GROWTH (\$M)	HIGHER GROWTH (\$M)
BENEFITS			
Travel time savings	3.7	49.5	70.8
Vehicle operating cost savings	1.2	16.8	23.8
Decongestion benefits	0.6	7.8	11.0
Environmental impacts	0.2	2.3	3.4
Health benefits	-1.0	-13.7	-18.1
Safety impacts	-0.2	-2.4	-1.5
Total benefits	4.5	60.4	89.3
COSTS			
Enforcement costs	-0.2	-2.1	-2.7
NET BENEFITS	4.3	58.3	86.5

Source: Centre for International Economics.

ELECTRIC BIKES

The electric bike (e-bike) is a type of powered micromobility device that is legal in New South Wales for both private and shared use. The current regulation permits electronically power-assisted cycles (also called pedelecs)²² with a maximum power output of 250 watts and speed of 25 km/h while being assisted by the motor. This means the motor must cut off when:

- the rider stops pedalling, or
- the bike reaches a speed of 25 km/h.

Human effort is required to go any faster. This can be frustrating for certain riders as the added weight of the battery and motor makes it difficult to maintain a

speed over 25 km/h for a period of time. E-bikes that do not meet the current requirements are illegal under NSW law and may only be used on private property (NSW Centre for Road Safety, 2021).

Current NSW law restricts the use of many more capable e-bikes. Speed pedelecs are a type of power-assisted e-bike capable of travelling up to 45 km/h and typically with a higher power output. Many governments classify them as mopeds or motorcycles and subject them to the same rules. Belgium and California have progressively adapted their road rules to include speed pedelecs within a separate category (see Box 4.2).

²² Pedelecs require the rider to be the primary driving force while the motor helps the rider maintain speed with less effort. On January 2021, the Commonwealth Government updated the requirements for e-bikes to replace the term 'pedelec' with electronically power-assisted cycle.

BOX 4.2: SPEED PEDELEC RULES IN BELGIUM AND CALIFORNIA

The European Union has defined speed pedelecs as mopeds—that is, vehicles with a maximum speed of up to 45 km/h and a continuous power assistance of 250 to 4000 watts (International Transport Forum, 2020). Pedelecs are banned from cycle paths and are subject to numerous technical regulations mainly designed for mopeds.

Belgium

Belgium splits e-bikes into two categories (Royal Decree Laying down General Regulations on Road Traffic and the Use of Public Roads 2021):

- Motorised bicycles (pedelecs) can provide the rider with assistance only when pedalling at speeds up to 25 km/h, and their maximum power output must not exceed 1000 watts.
- Mopeds Class P (speed pedelecs) can provide the rider with assistance only when pedalling at speeds up to 45 km/h, and their maximum power output must not exceed 4000 watts.

Speed pedelecs are subject to adapted traffic rules and the same financial incentives as traditional e-bikes (LEVA-EU, 2020). Riders can use cycle paths and any roads with a speed limit of 50 km/h or less, must be over 16 years of age, must have a valid driving license for a moped, and must wear a helmet, and the device must be registered and insured (European Transport Safety Council, 2021).

California

The State of California recently revised its Vehicle Code to define three classes of e-bikes, each with a maximum power output limit of 750 watts (AB-1096 Vehicles: Electric Bicycles 2021).

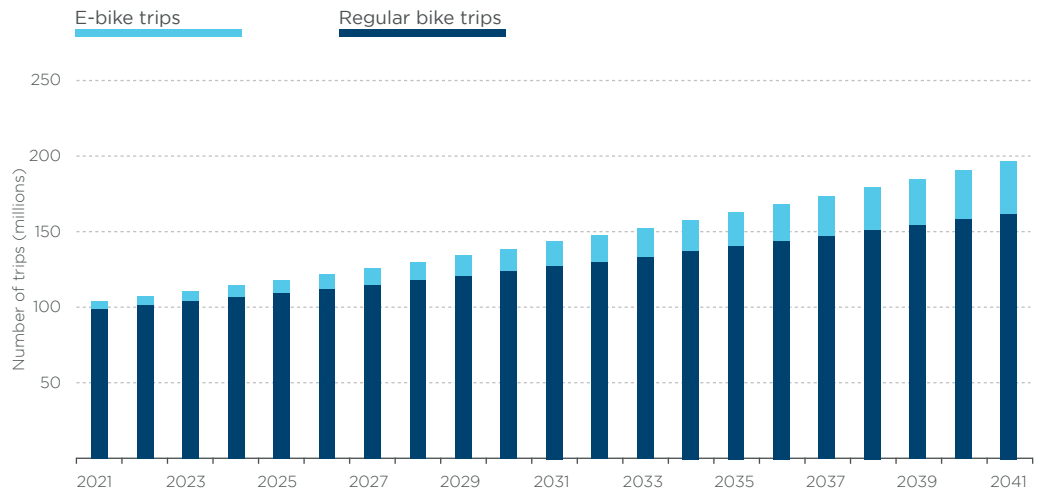
- Class 1 pedal-assisted electric bicycles can provide the rider with assistance only when pedalling at speeds up to 32 km/h.
- Class 2 throttle-assisted electric bicycles can provide continuous power, without the rider needing to pedal, up to speeds of 32 km/h.
- Class 3 pedal-assisted bicycles, or speed pedelecs, can provide the rider with assistance only when pedalling at speeds up to 45km/h.

Speed pedelecs are not required to be licensed or registered. They can be ridden on roads as far to the side as practical or on cycle paths that run within or adjacent to roadways. Riders must be over 16 years of age and wear a helmet (Evelo, 2021).

The CIE estimated the take-up of e-bikes in New South Wales could grow from 4.8 million trips in 2021 to around 34 million trips in 2041, or 17.6 per cent of total bicycle trips (Centre for International Economics, 2021c) (see Figure 4.8). Revising the current laws to allow riders to access a wider range of e-bikes with greater speed and power output limits could encourage a stronger take-up.

There is evidence to suggest speed pedelecs are quickly becoming popular. Recent data from the Netherlands found the number of registered speed pedelecs almost doubled in the three years up to July 2020, reaching a total of 21,100 (Dutch Central Bureau of Statistics, 2020). In Belgium, the number of registered speed pedelecs grew by 44 per cent over 2019 (LEVA-EU, 2020).

FIGURE 4.8: NSW BICYCLE AND E-BIKE TRIPS FORECAST



Source: Centre for International Economics.

Speed pedelecs can provide a range of benefits:

- Travel time savings:** Commuters using speed pedelecs can reduce travel times if they replace pedelec, bicycle, and walking trips. Speed pedelecs can travel at faster average speeds with less effort compared to regular e-bikes and bicycles.²³ A German study found that speed pedelec riders maintained an average speed of 23.2 km/h compared to pedelec riders' 17.4 km/h and cyclists' 15.3 km/h (Woolsgrove, 2016).
- Replace longer-distance car trips:** Speed pedelecs have the potential to replace hillier and longer-distance car trips where the use of bicycles, pedelecs, and PMDs may not appeal to riders. The added benefits of reduced car use include vehicle cost savings and reduced congestion.
- Support logistics:** Speed pedelecs can provide a new option for carrying light cargo. This can help businesses get their products to customers quicker by reducing delivery times.

We have limited data or in-depth research on speed pedelecs and their safety. But enabling faster maximum speeds on e-bikes could lead to worse safety outcomes. The current regulatory settings may already heighten speed pedelec risks, as the limits for e-bikes do not apply to private property. This means that there is no restriction on the supply or modification of e-bikes in New South Wales. Anecdotal evidence suggests that riders are illegally modifying their e-bikes to travel at speeds greater than 25 km/h.²⁴ An appropriate regulatory framework and design standards for these devices would help mitigate these safety risks.

²³ Network conditions and infrastructure can significantly influence the reliability and duration of a journey (Centre for International Economics, 2021c). This means average speeds could be lower due to stop-start patterns and disconnected cycle infrastructure.

²⁴ Mechanics at a Sydney bike shop reported 10 per cent of e-bikes serviced at their workshop had been illegally modified to travel at speeds greater than 25 km/h (Else Kennedy, 2019).

Regulation should adapt and respond to technological advancements and shifts in consumer preferences. The Government should consider options to authorise greater maximum speed and power output limits for e-bikes, subject to appropriate safety regulations and design standards. International experience suggests the Government should consider:

- different categories for e-bikes, based on speed and power
- whether speed pedelecs should be registered
- licensing of speed pedelec riders

- the age of speed pedelec riders
- whether speed pedelecs are restricted to use on certain roads.

It is also important that whatever standards are adopted are appropriately enforced, otherwise a culture of lawlessness is likely to continue to develop, with consequences for public safety. It will only take one or two high profile incidents to lead to calls for bans, or greater restrictions on the use of such devices, to the detriment of the economy.

RECOMMENDATION 4.4: REGULATE TO LET PERSONAL MOBILITY DEVICES AND E-BIKES FULFIL THEIR POTENTIAL

Revise laws to support use of personal mobility devices and electric bikes in an appropriate regulatory environment that manages safety risks.

USE TECHNOLOGY TO IMPROVE THE REGULATORY EXPERIENCE

COVID-19 prompted the NSW Government to let people use digital solutions to meet regulatory compliance and legal formalities. It temporarily relaxed several rules in recognition of the extraordinary circumstances of the pandemic.

Beyond evaluating and retaining these reforms (Recommendation 4.1), New South Wales has other opportunities to further modernise regulation. The NSW Government should identify other updates to regulatory or legal formalities that can cut costs and improve services for people and businesses. As Box 4.3 shows, data analytics can help with this task.

BOX 4.3: POST NOTICES SOLELY ON THE WEB

The world wide web is the most appropriate medium for legally required public notices. It is easily searched, can trigger alerts and is available on most phones and at libraries.

RegData analytics indicate that NSW regulations contain 85 sections with requirements for written notices to be published in print newspapers. Newspapers' reduced circulations and increased cost compared to government websites suggests these requirements should be abolished (Roy Morgan Research, 2018).²⁵

²⁵ Approximately 25 per cent of Australians source their news from traditional print newspapers, down from 31 per cent in 2018. More Australians obtain their news from newspaper-based apps (29 per cent), or social media (38 per cent) than from newspapers (Roy Morgan, 2020a).

Stakeholders raised the need for greater innovation in regulatory practices. For example, the Housing Industry Association expressed a view that government is 'slow in embracing technological change' and 'virtually myopic' in its use of technology.

Digital technology offers many opportunities to modernise regulation, and progress is being made in New South Wales and internationally. Some examples:

- **Machine-learning algorithms** can identify complex patterns, anomalies and regulatory breaches in real-time. For example, Las Vegas health officials identified likely food poisoning hotspots two-thirds more often using food poisoning-related tweets than using random inspections (National Science Foundation, 2016).
- **Virtual assistants and apps**, powered by digital rules, can help regulated entities and citizens navigate complex regulatory requirements. For example, the New Zealand Government uses a digital 'life event service' to help new parents determine their eligibility for financial support.
- **Recycling information** gained through regulation can shed light on the market being regulated. For example, the Australian Tax Office provides small business benchmarks on key financial ratios based on information provided from Business Activity Statements and tax returns. This may result in more timely compliance, behaviour changes arising from benchmarking and a lower perception of regulatory burden.
- **Writing rules as code**—that is, converting regulations into digital code—lets programs read them. This allows private parties to design software to interpret and comply with regulation. When the rules change, the system can update automatically, simplifying compliance and lowering costs for business. It also helps government agencies and private providers in designing web portals and software to support compliance.
- **Co-drafting of human and machine**—readable rules—that is, concurrent drafting by legislative drafters and engineers—can allow for coded rules to be connected to demographic and other data and tested through scenario modelling. This means rules are encoded digitally at the same time they are being drafted as legislation, rather than afterwards. This can allow for more testing and iteration, getting closer to regulations which have their intended effect and maximise benefits.

Writing rules as code makes rules available to people and organisations through multiple channels and lets them be automatically updated. This saves money and time in compliance. Making application programming interfaces (APIs) available can also let the private sector innovate to create software solutions which enhance productivity and the user experience. The concept has gained traction in Australia and internationally in recent years. For example, the US District of Columbia makes its legislation available in XML format for software developers. In New South Wales, the Department of Customer Service has commenced translation of some NSW regulations into machine-readable rules (see Box 4.4) and has plans for a further roll out.

BOX 4.4: RULES AS CODE IN NEW SOUTH WALES

The Department for Customer Service is developing a rules-as-code component of the NSW Digital Strategy. This aims to provide guidance for developing regulations in a way that can be converted into machine-readable code.

The Department has coded parts of the new Community Gaming Regulation and launched a digital version. The platform features a smart questionnaire that allows customers to check if their planned gaming activity can be conducted. This helps charities, not-for-profits and other users understand how the regulation applies to them.

RECOMMENDATION 4.5: UPDATE AND MODERNISE RULES

Amend legislation to remove outdated regulatory requirements.

Wherever possible, translate prescriptive rules to code and make them accessible.

4.4 Other specific regulatory reforms

Several temporary regulatory changes introduced in response to COVID-19 have already demonstrated the benefits to consumers from more flexible regulation. Further changes should be evaluated in the same way—on the sale of alcohol, on the operations of pharmacies and in many other areas.

OCCUPATIONAL REGULATION: REVIEW MANDATORY REQUIREMENTS FOR CONTINUING PROFESSIONAL DEVELOPMENT

In many licensed occupations, licensees must satisfy continuing professional development (CPD) requirements to renew their occupational licences. These rules aim to ensure that licensees stay up to date with the business practices, technologies, and compliance obligations of their profession.

BOX 4.5: MANDATORY CPD FOR CONVEYANCERS

A person who wishes to carry on business as a conveyancer must hold a conveyancer's licence. Licences expire on 30 June each year.

To renew the licence, a conveyancer must complete CPD each year—five points of professional development activity, as approved by NSW Fair Trading (NSW Fair Trading, 2006). A licensee typically receives one point of CPD for each hour they spend in a training course that is 'significant intellectual or practical content and ... relevant to conveyancing work'. In a year, CPD costs a typical conveyancer around \$590 in time and course fees.²⁶

²⁶ Time cost based on ABS average weekly ordinary time earnings for professional services and average course fees of \$337.50.

MANDATORY REQUIREMENTS SEEM QUESTIONABLE

In many cases, mandatory CPD requirements have been found to be unnecessary, out of date, and not directly related to the reasons that occupation was licensed in the first place. The Independent Pricing and Regulatory Tribunal (IPART) has found that:

- CPD is not a guarantee that learning takes place—or, if it does, that the learning will improve practice.
- When CPD is mandatory, the focus can become course attendance, rather than the individuals' learning needs.
- Allowing CPD to be voluntary encourages licence holders to take initiative and direct their own learning. Voluntary initiatives enable market participants to differentiate themselves from others (Independent Pricing and Regulatory Tribunal, 2014).

Public consultation for the NSW Government's Better Business Reform in 2018 found the same issue. Industry stakeholders suggested that business practices and compliance obligations change little from year to year. Licence holders advised that they generally undertake the same courses each year to comply with annual CPD requirements. This takes time away from more productive activities, imposes a cost on businesses and offers little community benefit.²⁷ The Commonwealth Productivity Commission has also suggested there is little evidence of CPD affecting competence or performance (Commonwealth Productivity Commission, 2015).

BOX 4.6: MANDATORY CPD FOR REAL ESTATE AGENTS

A Class 2 agent in real estate or strata management must complete at least six hours of CPD activity each year, including three hours of compulsory CPD topics and three hours of electives (NSW Fair Trading, 2021). That CPD typically costs around \$740 per year in time and course fees.²⁸

In 2012, the COAG National Licensing Committee found that removing the CPD requirements that applied at the time would create a net annual benefit of \$25.57 million in New South Wales (COAG National Licensing Steering Committee, 2012). This figure does not reflect more recent changes to CPD requirements for agents.

CPD COSTS SHOULD BE JUSTIFIED

Some stakeholders have suggested that mandatory CPD requirements are an important element of licensing schemes for achieving quality assurance and consumer protection.²⁹ The Building Designers Association of Australia, for instance, argued in its submission that **embedding mandatory compliance 'supports an ongoing process of learning and upskilling'**.

A 2018 report also recommended imposing compulsory CPD requirements on building practitioners to ensure a sufficient understanding of the National Construction Code (Lamster & Benson, 2017).

There are undoubtedly benefits to CPD. Less clear is whether requirements should be mandatory in all cases. An analysis of CPD requirements for home builder licenses found that it generally costs between \$100 and \$500 to complete the 12 mandatory points each year. Moreover, IPART has found that the annual benefits of removing mandatory CPD for home builder licenses and certificates would be \$8.1 million, mainly in the form of reduced licence costs and time savings (Independent Pricing and Regulatory Tribunal, 2014).

27 In its submission to the Productivity Discussion Paper, the Housing Industry Association notes: 'There is no evidence that mandatory CPD raises on-site building standards or delivers a significant net public benefit, with those states operating mandatory CPD schemes still encountering a similar level of building disputes and defects'.

28 Time cost based on ABS average weekly ordinary time earnings for rental, hiring and real estate services. On average, a 3-hour course costs approximately \$145 (sample of courses on offer by the Real Estate Institute of NSW in March 2021).

29 A submission from the Building Designers Association of Australia states: 'Best practice arrangement for CPD is simple. Mandatory compliance. With this approach incorporated into the labour market, its embedding supports an ongoing process of learning and upskilling'.



Licensing results in a **10 TO 15 PER CENT** wage premium. Because training and accreditation requirements restrict market entry, they often leave fewer workers and less competition

If mandatory CPD requirements were removed, many licensees would likely still choose to participate in voluntary training. There could also be scope to redesign schemes to provide additional flexibility—for example, mandating requirements only where there are concerns about compliance with standards, or where there have been significant innovations in the field.

CPD should be reviewed to ensure it continues to remain relevant, provides the intended benefits and is consistently applied across different licence categories. Mandatory CPD requirements should be changed or abolished where it cannot be demonstrated that the benefits of compliance outweigh the costs.

OCCUPATIONAL REGULATION: REVIEW MINIMUM QUALIFICATION STANDARDS

Many occupations are subject to minimum qualification requirements through regulation. Minimum qualification standards are necessary in some sectors to ensure practitioners have appropriate skills and training to ensure service quality and safety. Not all occupations pose the same risk, however.

Many occupations have qualification requirements in some Australian jurisdictions and not others. For example, hairdressers in South Australia and New South Wales are required to complete

a vocational education certificate. Similarly, New South Wales, South Australia, Victoria and Western Australia impose qualification requirements on beekeepers managing 50 or more hives.

Training and accreditation requirements can create significant up-front costs for those seeking to enter the market. This can act as a barrier to employment in low-risk sectors. The impact is greater on poor and unskilled workers in disadvantaged population groups, including low-income earners, immigrants, and young people (Australian Chamber of Commerce and Industry, 2018, p. 4).

Empirical studies have found that qualification standards can also create a wage premium for those who hold qualifications. An Obama administration 2015 report found that occupational licensing conferred a wage premium of up to 17 per cent (Department of the Treasury Office of Economic Policy et al., 2015). Similar studies suggest that licensing results in a 10 to 15 per cent wage premium (Wild, 2018). Because training and accreditation requirements restrict market entry, they often leave fewer workers and less competition. That raises the wages of incumbent licensed workers. Ultimately, this leads to higher costs for businesses and higher prices for consumers.

BOX 4.7: MINIMUM QUALIFICATIONS FOR NSW HAIRDRESSERS

In Australia, only New South Wales and South Australia require hairdressers to hold an industry qualification. Under the Hairdressers Act 2003 (NSW), hairdressers are required to complete a Certificate III in Hairdressing. A review of the Act found that it imposed additional regulatory burden on hairdressers, without delivering any significant benefits that were not already conferred by other legislation (NSW Department of Customer Service, 2016). The full fee on a non-subsidised Certificate III in Hairdressing at TAFE NSW can be up to \$12,000, a significant cost for those seeking to enter the profession. NSW hair salons cannot employ an experienced interstate hairdresser if they do not possess a Certificate III (TAFE NSW, 2021).

RECOMMENDATION 4.6: REVIEW MINIMUM QUALIFICATION STANDARDS AND MANDATORY CONTINUING PROFESSIONAL DEVELOPMENT REQUIREMENTS

Review all regulatory requirements that set minimum qualification standards and mandate continuing professional development. Reform requirements where the costs outweigh the benefits.

OCCUPATIONAL REGULATION: NEGATIVE LICENSING

Traditionally, entry into occupations has been regulated through licensing regimes which authorise industry participants to engage in certain activities or offer particular services. The Harper Review found that such licensing regimes can pose a barrier to market entry, and can restrict competition (Harper et al., 2015).

Alternatives such as ‘negative licensing’ can lower industry barriers and foster competition, while still protecting consumers.

A negative licensing system involves no prior approval but businesses that breach certain standards can be prohibited from trading. The ability to exclude persons from trading protects consumers above that offered by general consumer protection legislation.

Negative licensing regimes have been used across jurisdictions in several occupations including:

- debt collection, real estate sub-agency and finance broking in Victoria
- remote debt collection (that is, without face-to-face contact) in Queensland
- tattooing, hairdressing, and land valuation in South Australia
- hawkers who move location every 30 minutes in the ACT.

Work is also underway to introduce negative licensing schemes for commercial agents and private investigators in New South Wales.

For occupations where there is low risk of consumer harm, regulators should evaluate using negative licensing to address information failures. Negative licensing reduces financial and administrative costs for industry participants. It lowers barriers to entry by removing the need to apply for and constantly renew licences. It also benefits regulators, who can reallocate resources from applicant screening to enforcement. Consumers can also benefit from lower prices if cost savings are passed on, and in some cases may gain new supplier and service choices.

New South Wales may have scope to apply negative licensing to a number of home building trade occupations (Box 4.8). These trades were identified in the 2018 Better Business Reforms as presenting lower risk to workers and consumers, as they involve activities that are unlikely to present major safety risks or significant financial detriment (NSW Department of Finance Services and Innovation, 2018). Many of these occupations are not licensed consistently across jurisdictions. For example, fencing is only licensed in New South Wales, Queensland, and South Australia. Likewise, splashback installation is only licensed in New South Wales and in Victoria.

Under such a scheme, selected tradespeople could pursue their trade without a licence. They would continue to be subject to the requirements to hold relevant qualifications or abide by an industry code of conduct. This would save them time and money. A decorator, for example, could save up to \$2,600 in licence fees over a five-year period (NSW Fair Trading, 2020).³⁰

Licensing is a way for societies to deal with the problems of spillover effects and information failures. For instance, we license truck brake repairers because poorly-repaired brakes can cause an accident that not only injures the truck driver but ‘spills over’ to hurt random drivers and pedestrians—and all without the truck driver having any realistic way to know the repair was inadequate.

But licensing of products and services may best be reserved for situations in which at least one of the following applies:

- The identity of the source of a spillover is important.
- Spillovers are difficult to reverse.
- Risk must be reduced to an absolute minimum.

Occupational regulation creates entry barriers that restrict competition and penalise job mobility, earnings and productivity growth. We should use it only where it provides a net benefit to the community.



³⁰ Based on NSW Fair Trading home-building fees for a five-year individual trade licence from July 2020 to June 2021.

BOX 4.8: LOW-RISK HOME BUILDING TRADES



Decorating



Painting



Fencing



Glazing



Kitchen and
bathroom benchtop
installation



Splashback
installation



Paving



Shower screen
installation



Ducting and
mechanical
ventilation



Shade sails and
shade systems
installation



Dry
plastering



Wet
plastering



Minor maintenance/
cleaning

Source: NSW Department of Customer Service.

RECOMMENDATION 4.7: USE NEGATIVE LICENSING

Remove the requirement for prior approval and adopt negative licensing for a number of low-risk home building trade occupations.

[A]llowing pharmacists to work to their full scope of practice is fundamental to improving health outcomes ... pharmacists can administer basic healthcare services to drive down costs to patients and the health budget, reduce waiting times, and increase accessibility.

**PHARMACY GUILD
(PHARMACY GUILD OF
AUSTRALIA, 2019)**

PHARMACY REGULATION: USE PHARMACISTS' SKILLS BETTER

Pharmacists play a vital role in achieving public health outcomes. They are highly trained, highly trusted (Roy Morgan, 2017) and easily accessible in communities throughout New South Wales. For rural and remote areas, in particular, community pharmacies often act as primary health care destinations, with the highest patient contact rates (Sheshtyn Paola, 2019).

While pharmacists are recognised as valued members of the healthcare workforce, there are suggestions that their skills and expertise are underutilised. The Pharmacy Guild of Australia and Pharmaceutical Society of Australia suggest that the role of pharmacists should be enhanced. Both groups suggest giving pharmacists a greater level of responsibility and services to deliver benefits to patients and the community.

Capitalising on the untapped potential of the pharmacy workforce can also deliver substantial benefits to rural and remote communities, where there are shortages of general practitioners (GPs). The number of GP services per person in the lowest-access rural areas is less than half that of the major cities (Duckett & Breadon, 2013). People in rural, regional and remote communities generally have worse health than people living in cities. They have higher rates of many diseases, more health risks, and higher death rates in every age group (Australian Institute of Health and Welfare, 2008). The Grattan Institute suggested that expanding the role of pharmacists can help improve health outcomes in rural and remote communities.

The NSW Government has seen firsthand from past initiatives the potential benefits of making better use of pharmacists' skills (see Box 4.9).

With additional training, we estimate that pharmacists could take on five per cent of the workload of GPs in the lowest-access rural and remote areas... Many rural pharmacies have scope to provide more services. Industry statistics show that rural pharmacies dispense 150 fewer prescriptions a week compared to metropolitan pharmacies.

GRATTAN INSTITUTE (DUCKETT & BREADON, 2013)

BOX 4.9: PHARMACY HEALTH CHECK PROGRAM

The NSW Government invested \$7.4 million over four years (2011-12 to 2014-15) to support 1,700 community pharmacies to participate in the Pharmacy Health Check Program. The program offered free health checks at pharmacies to help identify customers at risk of developing a chronic disease. Depending on the level of health risks, pharmacists referred their customers to GPs for further advice and healthy lifestyle programs and/or provided risk modification advice on topics including weight loss, diet and exercise (NSW Health, 2017a).

The evaluation of the program found that allowing pharmacists to undertake health checks provided useful pathways for customers at risk of a chronic disease to be identified and referred to their GP for appropriate follow-up care and advice (NSW Health, 2017b). The program operated as a complement (i.e. not an alternative) to comprehensive and robust health checks by GPs. The program identified more than 70,000 customers at high risk. Most of these high-risk customers were then referred to GPs. The program reached many customers living in disadvantaged or rural and remote areas, where there are relatively fewer GPs available. The evaluation found:

- 28 per cent of health checks occurred in the most disadvantaged areas
- 40 per cent of checks occurred outside of major cities
- 17 per cent of checks occurred in outer regional, remote and very remote areas.

The RACGP does not support the expansion of pharmacists' scope of practice beyond their core function ... The provision of medical services by health professionals lacking the necessary medical training or registration is an inappropriate and unsustainable solution to address the health needs of Australians ...

THE ROYAL AUSTRALIAN COLLEGE OF GENERAL PRACTITIONERS (RACGP BOARD, 2013)

On the other hand, there are concerns among doctors' groups regarding the expansion of the role of pharmacists due to the potential public health and safety risks and the quality of healthcare services provided to patients.

We need to find the appropriate balance between these two considerations—on the one hand maximising the use of pharmacists' skills to provide more services to the community, and on the other hand managing public health and safety risks.

A ROLE FOR PHARMACISTS IN PRESCRIBING MEDICINES

Potential reforms include allowing pharmacists to prescribe Schedule 4 (prescription-only)

and Schedule 8 (drugs of addiction) medicines. Under current NSW law, pharmacists cannot prescribe or supply Schedule 4 (except in limited circumstances) and Schedule 8 medicines without a prescription (Poisons and Therapeutic Goods Act 1966 No 31 -, 2018).³¹ Medical practitioners (such as GPs) generally write prescriptions for between six to twelve months' supply of medicines. After this time, patients are usually required to return to obtain a new script, even if their needs have not changed. For patients with long-term needs that are being successfully controlled by medication, these visits may not require the advanced skills of a GP. It is estimated that at least four million visits per annum to GPs across Australia involve repeat prescriptions (Duckett, 2019).

³¹ There is a limited subset of vaccines (Schedule 4 substances) that a pharmacist can supply and administer without a prescription. The Chief Health Officer has also issued a special temporary authority during COVID-19 for emergency supply of Schedule 4 substances without a prescription if certain requirements are met. Notably, the substance must have been previously prescribed to the person by a doctor and it is not practicable for the person to obtain a prescription.

Using pharmacists' skills better – by allowing suitably prepared pharmacists to prescribe – will improve people's access to health care, facilitate better medication management, reduce costs, and ease the burden on general practice ... Evidence shows that pharmacists can safely provide repeat prescriptions to people with simple, stable conditions, and work with GPs to help patients manage chronic conditions.

**GRATTAN INSTITUTE
(DUCKETT, 2019)**

Allowing pharmacists to prescribe can deliver benefits to patients and improve the productivity and efficiency of the healthcare sector. It also enables GPs to focus their efforts on more complex cases in primary care, where their expertise in diagnosing and treating illness is most needed.

Many international jurisdictions already allow pharmacists to prescribe or dispense medicines without a prescription. They include the United Kingdom, Canada and the United States. Evidence suggests a properly implemented expansion of pharmacists' roles into prescribing can be safe, convenient and cost-effective. In the United Kingdom, for example, around 3 per cent of pharmacists are qualified to prescribe medicines independently. A review of pharmacist prescribing in the United Kingdom suggests that it is safe and clinically appropriate, with 98 per cent of pharmacists identifying and prescribing effective medication for the patients' conditions (Latter et al., 2010).

Reform can also build on previous reviews of non-medical prescribing in Australia and available options for implementation. As part of the 2013 Health Professionals Prescribing Pathway project (HPPP), non-medical prescribing was extended to dentists, nurse practitioners, midwives, podiatrists and optometrists applying different prescribing models. The HPPP project identified three options for non-medical prescribing:

- a structured prescribing arrangement (under certain conditions, guidelines or limited authorisation)
- prescribing under the supervision of other authorised health professionals
- prescribing autonomously within a specific area of clinical practice, with appropriate education and training requirements for specific practice areas (Cormack, 2012).

These three options formed the basis for the Pharmacy Board of Australia's public consultation on options to implement pharmacist prescribing in March 2019 (Pharmacy Board of Australia, 2019).

Other areas of potential reform include allowing pharmacists to provide additional vaccinations. The list of vaccines and age ranges that community pharmacies can vaccinate has been widening in New South Wales. This relatively new practice by pharmacists is closely monitored by the NSW Chief Health Officer for safety and impacts on immunisation rates.

A GREATER ROLE FOR PHARMACISTS IN MENTAL HEALTH

The Commonwealth Productivity Commission has estimated that mental ill-health and suicide cost the Australian economy up to \$70 billion in 2018-2019 (Commonwealth Productivity Commission, 2020b).

Pharmacists are already exposed to mental health issues in their capacity as front-line workers. In a survey of community pharmacists across Australia and Canada, 85 per cent of respondents reported interacting with someone they thought was at risk of suicide (Murphy et al., 2020). And 66 per cent said a patient had voluntarily told them about their suicidal thoughts. The survey also revealed that many pharmacists do not feel equipped to respond to these situations. Sixty per cent of respondents reported feeling "uncomfortable to very uncomfortable" about their involvement.

Programs have been launched to involve pharmacists in providing support to at-risk individuals, often before they reach a crisis point (see Box 4.10).

BOX 4.10: PHARMACIST PROGRAMS TO IMPROVE MENTAL AND PHYSICAL HEALTH OUTCOMES

The PharMIbridge program is an Australian collaboration between Griffith University, the University of Sydney, the Pharmacy Guild of Australia and the Pharmaceutical Society of Australia. The program seeks to address the physical health concerns of patients with severe and persistent mental illness, alongside their mental health needs.

It follows evidence that common health conditions, such as respiratory and heart conditions, are the main causes of the estimated 9,000 premature deaths per year among patients with severe and persistent mental illness (Pharmibridge, n.d.).

Pharmacists work with patients over a six-month period to manage their medication for both mental and physical illnesses. They also direct patients to other health and professional services.

There are similar programs overseas. The Bloom Program in Nova Scotia, Canada gives individuals with mental and addiction issues access to six months of free, one-on-one time with their pharmacist (The Bloom Program, 2019). Pharmacists help individuals navigate the Nova Scotian mental health and addictions system. They also help with managing medication-related issues. The government-funded program began as a pilot in 2014 and has remained since. In one evaluation of the program, four in five medication issues were fully resolved or improved (Pharmacy U, 2021).

It is vital to build capability and knowledge across workforces and within communities to ensure a shared understanding about suicide distress, and the criticality of a consistent and compassionate approach.

NATIONAL SUICIDE PREVENTION ADVISER, 2020

In its submission to the Commonwealth Productivity Commission's Mental Health Review, the Pharmaceutical Society recommended integrating pharmacists in suicide prevention strategies, training pharmacists in mental health first aid and supporting pharmacists to incorporate early identification, triage and support for people with mental ill-health (Pharmaceutical Society of Australia, 2020). The submission pointed to research showing that pharmacists can:

- identify people at risk of depression and refer them appropriately for diagnosis and therapy
- manage mental health medication-related problems
- work within multidisciplinary mental health care teams.

The Australian Medical Association described the Pharmaceutical Society's recommendations as 'very sensible' (Judd, 2021).

The Commonwealth Productivity Commission subsequently recommended that the Commonwealth, state and territory governments incorporate mental health stigma reduction programs into the initial training and continuing professional development (CPD) requirements of all health professionals (Commonwealth Productivity Commission, 2020b).

A Commonwealth Government investigation has also found that workforce capability around mental illness could be improved (National Suicide Prevention Adviser, 2020).

The Commonwealth Government is still considering these recommendations.

The NSW Government should work with its counterparts in other jurisdictions to:

- trial the Commonwealth Productivity Commission's recommendation on mental health stigma reduction training for health professionals, including pharmacists
- evaluate other opportunities for pharmacists to play a greater role in patient's mental health. For example, it should consider integrating pharmacists into suicide prevention strategies.

Stakeholder submissions supported an evaluation of reforms to make better use of pharmacists' skills. One stakeholder noted that, in addition to the health and safety considerations, an evaluation should consider:

- how pharmacist prescribing will avoid conflicts of interest, given that pharmacists derive a direct income from the sale of medicines
- financial costs to the healthcare system, including any supervision costs
- upholding the holistic healthcare of patients, with overseas models indicating the benefits of collaborative practice with medical practitioners.

The costs of maintaining OTC schedules for consumers relate to the limitations on accessibility – that is, these products can only be obtained from pharmacies and it may be inconvenient, particularly in rural locations for consumers to visit a pharmacy. Consumers may also pay higher prices as a result of the lack of competition that non-pharmacy retail outlets could be expected to provide if there were no restrictions on access to OTC products.

2001 COAG REVIEW (GALBALLY, 2001)

Pharmacies claim that as this service is not offered by other outlets, they should be entitled to recoup its cost. Since not all consumers may value this advice, not all of them may be willing to pay for it ... Furthermore, there is doubt as to whether professional intervention and guidance are always needed... It is reported that many pharmacists simply 'do not get involved in OTC medication sales.'

THE CENTRE FOR INDEPENDENT STUDIES, 2008 (GADIEL, 2008)

PHARMACY REGULATION: SIMPLIFY ACCESS TO BASIC TREATMENTS

Consumers can buy simple over-the-counter (OTC) medicines for self-treatment without needing a prescription from a doctor. Examples of OTC medicines include cough and cold remedies, non-steroidal anti-inflammatories, anti-fungal treatments, sunscreens, and non-prescription painkillers such as aspirin and paracetamol.

The Commonwealth Therapeutic Goods Administration (TGA) regulates these OTC medicines. It requires all OTC medicines to be registered or listed on the Australian Register of Therapeutic Goods. Registered OTC medicines carry lower risks than prescription medicines, but still require appropriate scrutiny. OTC medicines can be supplied as:

- 'pharmacy medicines', included in Schedule 2 to the Poisons Standard administered by the TGA (these are medicines that are only available at pharmacies)
- 'pharmacist-only medicines', included in Schedule 3 (these are behind-the-counter pharmacy medicines)
- 'open-seller medicines' or 'general sales medicines' not included in any of the schedules.

OTC medicines play an important role in the Australian healthcare system. It has been estimated that more than 80 per cent of adult consumers and 40 per cent of children use an OTC medicine in any given month (Koslow et al., 2014). Consumers' self-treatment through OTC medicines saves the Australian economy \$12.5 billion per annum by reducing visits to doctors, saving Medicare and health insurance payments and avoiding indirect costs of delayed treatment and lost productivity in the healthcare sector (Koslow et al., 2014). Faced with the unavailability of OTC medicines, approximately 50 to 72 per cent of the current self-treating consumers will visit doctors instead, adding to the burden on our healthcare system.

Given OTC medicine's substantial benefits, it makes sense to ensure that OTC medicine regulation is fit-for-purpose and maximises its intended benefits—improving consumers' access to low-risk medicines and driving down healthcare costs by enabling self-treatment.

REVISITING THE NUMBER OF SCHEDULES FOR MEDICINES

One area of potential reform is the scheduling of medicines, which restricts where consumers can purchase different types of OTC medicines. Schedule 2 (pharmacy-only) and Schedule 3 (pharmacist-only) medicines can only be purchased from pharmacies, while open-seller medicines are also available in supermarkets, health food stores and other retail outlets. That said, Schedule 2 and Schedule 3 create two intermediate classes of drugs between prescription-only (Schedule 4) and general sale status. New South Wales could consider abolishing or relaxing restrictions applying to Schedule 2 and Schedule 3 medicines. This will allow consumers to buy a greater variety of medicines at local supermarkets and other shops.

The current restrictions for Schedule 2 and Schedule 3 medicines were introduced on the basis that pharmacists would give professional advice and counselling. The Pharmacy Guild, a body representing pharmacy owners and employers, conducted a cost-benefit analysis of these rules in 2005. It evaluated the social, health and economic impacts of restrictions for Schedule 2 and Schedule 3 medicines, and professional advice and counselling from pharmacists. This analysis stated that for the two additional schedules "[O]ur epidemiological model suggests a central estimate of some \$2.75 billion in benefit annually ... This is the benefit derived from preventing cases of temporary disability and death. This outweighs the costs required to deliver these benefits." (Benrimoj, 2005)

On the other hand, there is a body of research suggesting that the current restrictions hinder consumers' choices as to where they buy their OTC medicines and reduce retail competition that can deliver cost savings for consumers.

The potential savings to consumers and the greater convenience of access suggest we should consider abolishing or relaxing restrictions applying to Schedule 2 and Schedule 3 medicines. A 2017 Commonwealth review of the scheduling policy framework examined processes and principles but did not consider whether the schedules could be simplified (Therapeutic Goods Administration, 2017).

A new evaluation would be consistent with the best-practice regulation principles of both the Commonwealth and New South Wales governments. Both require regular reviews of regulations to ensure they remain fit-for-purpose and in the public interest.

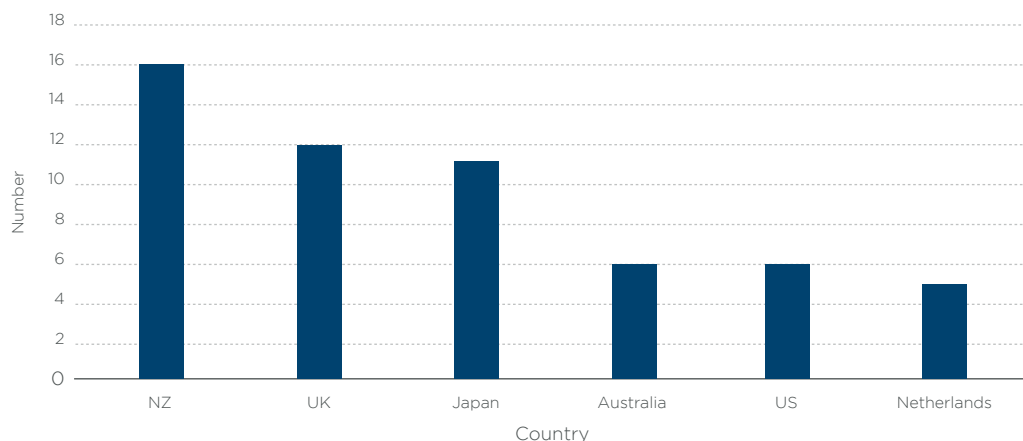
Such a review needs to consider lessons from international jurisdictions. For example, evidence from 2014 indicates that there were more prescription to non-prescription reclassifications ('switches') that increased consumer access to medicines in New Zealand and the United Kingdom than in the United States (Gauld et al., 2014). New Zealand and the United Kingdom both have a pharmacist-only category of non-prescription medication. The United States has a simpler regulatory framework model, with no pharmacy-only category of medication (see Figure 4.10). This suggests that having fewer non-prescription tiers may not promote greater access to medication.

Any review would best be undertaken in conjunction with the Commonwealth and other states and territories, to maintain the benefits of consistent approaches to scheduling across jurisdictions. Any departure needs to factor in the costs and benefits of the loss of uniformity across jurisdictions.

REVIEWING THE ACCESSIBILITY OF MEDICINES

Regardless of the number of non-prescription tiers, Australia can make medicines more accessible to consumers. Australia lags the United Kingdom and New Zealand in 'progressive switches'—that is, where a medicine is moved from prescription to non-prescription and the move provides incremental benefits to consumers (see Figure 4.9).

FIGURE 4.9: PROGRESSIVE MEDICINE SWITCHES 2003-2013



Source: Gauld et al.



FIGURE 4.10: INTERJURISDICTIONAL COMPARISON OF NON-PRESCRIPTION MEDICINE TIERS

JURISDICTION	NUMBER OF NON-PRESCRIPTION TIERS
Australia	3 (pharmacist-only, pharmacy-only and general sales)
New Zealand	3 (pharmacist-only, pharmacy-only and general sales)
United Kingdom	2 (pharmacist-only and general sales)
Japan	2 (pharmacist-only, and supply by a registered person or pharmacist)
United States	1 (general sales)
Netherlands	3 (pharmacist-only, pharmacy-only and general sales)

Source: NSW Treasury.



NSW laws currently adopt the national Schedules, although our laws permit departures from the national classification of medicines in the Schedules.

Any reclassification of medicines should weight the costs and benefits of improved access. Australia did this extremely thoroughly when it moved the painkiller codeine to Schedule 4 (prescription-only) in 2018. It held three separate public consultation processes, and economic modelling found an overall net benefit of \$5.2 billion over 10 years (KPMG, 2016). That benefit came from accidental death prevention and improved quality of life.

But Australia's processes sometimes fall short of this standard. For example, neither a regulatory impact statement nor independent economic modelling occurred before certain quantities of the anti-cold medication pseudoephedrine were moved from Schedule 2 to Schedule 4 in 2005 by the then National Drugs and Poisons Schedule Committee.³²

Pseudoephedrine is used in the manufacture of methamphetamines, so its sale raises substantive issues. But a US study found that requiring prescriptions for pseudoephedrine could cost \$US 59 million in its first year from extra doctors' visits, and an unknown amount from greater absenteeism (Brill, 2013). Similar to the reviewing of scheduling, a review of the classification of specific medicines would best be undertaken in conjunction with the Commonwealth and other states and territories. Any departure from a consistent national approach needs to factor in the costs and benefits of the loss of uniformity across jurisdictions.

PHARMACY REGULATION: OPEN UP OWNERSHIP AND LOCATION

Pharmacies play an integral role in delivering high-quality, affordable, and accessible healthcare. But we have scope to improve the regulation of pharmacies, to drive greater efficiencies and boost competition in pharmacy services. This in turn can lead to lower prices, greater convenience, and better health outcomes for consumers.

With few exceptions, NSW law lets just three types of entity own a pharmacy business:

- a registered pharmacist
- a partnership of registered pharmacists
- a pharmacist's body corporate.

These entities can hold a financial interest in no more than five pharmacies in New South Wales, although they can own pharmacies outside the state. Other states use similar rules, restricting who can own a pharmacy and how many they can own.

NSW law also stops supermarkets having co-located pharmacies. And federal laws restrict the location of pharmacies that dispense medicines subsidised under the Pharmaceutical Benefits Scheme (PBS). For instance, you cannot set up a new pharmacy within 1.5 kms of another pharmacy (Commonwealth Department of Health, 2020).

Federal laws also set out the PBS remuneration arrangements for pharmacies, based on average rather than best-practice costs.

EXISTING REGULATIONS LACK GOOD JUSTIFICATION

The location and ownership regulations restrict people's ability to buy, easily and at the best prices, the medicines and other pharmacy supplies they need.

Existing regulations make pharmacies an oddity in Australia's healthcare sector. General practitioner (GP) medical clinics have no such rules, and 2015's Harper Review found no evidence that this was harming 'high professional standards of care and accountability' (Harper et al., 2015). The National Competition Policy reforms of the 1990s unwound other ownership restrictions on medical professions. Rules limiting ownership of an optometry practice to optometrists were removed after a review by NSW Health found those rules generated no net public benefit (NSW Health, 1999).

The rules governing ownership and location of pharmacies are highly contested.

On the one hand, the Pharmacy Guild and Pharmaceutical Society of Australia argue that the current system makes pharmacies more professional and prevents concentration in the supply of dispensing services.

³² Pseudoephedrine is a popular anti-cold medication under several brand names, including 'Sudafed'.

Red tape controls who can own pharmacies. These rules are more effective in protecting the commercial interests of pharmacy owners than in serving the public interest. They lock pharmacists into inefficient business models which contribute to high dispensing costs.

GRATTAN INSTITUTE (DUCKETT, 2017)

When a pharmacy is owned by pharmacists, it is grounded in its owners' obligation as registered health professionals and highly trained medicines experts to put their patients' interests first.

PHARMACY GUILD (PHARMACY GUILD OF AUSTRALIA, 2018)

Council staff believe that, from a strategic planning perspective, pharmacies are a type of retail premise. Therefore, pharmacies are permitted where retail is permitted. The market should drive the decision behind co-locating pharmacies with supermarkets.

LAKE MACQUARIE COUNCIL SUBMISSION

On the other hand, the rules restrict competition, prevent investment from flowing into pharmacy, and restrict incentives to innovate and improve efficiency. Chemist Warehouse has claimed that the restrictions may create financial instability, and that they threaten the industry's medium term ability to provide equitable access to medicine (Chemist Warehouse, 2014).

The Commonwealth Government has considered this issue in two reviews, 2014's National Commission of Audit (National Commission of Audit, 2013) and 2015's Harper Review (Harper et al., 2015). Both reviews recommended the removal of state rules on pharmacy ownership and supermarket co-location and federal location restrictions. They noted that restrictions on where pharmacies can be located (including the prohibition on locating a pharmacy in a supermarket) limit the ability of consumers to choose where to buy pharmacy products and services.

The OECD also considers that "[p]rovided that safety standards can be met, [ownership] restrictions are harmful to competition and economic efficiency" (Organisation for Economic Co-operation and Development, 2000).

All stakeholder submissions support removing restrictions, although one stakeholder observed that any changes should maintain public confidence in the pharmacy profession and ensure community pharmacies remain viable health services.

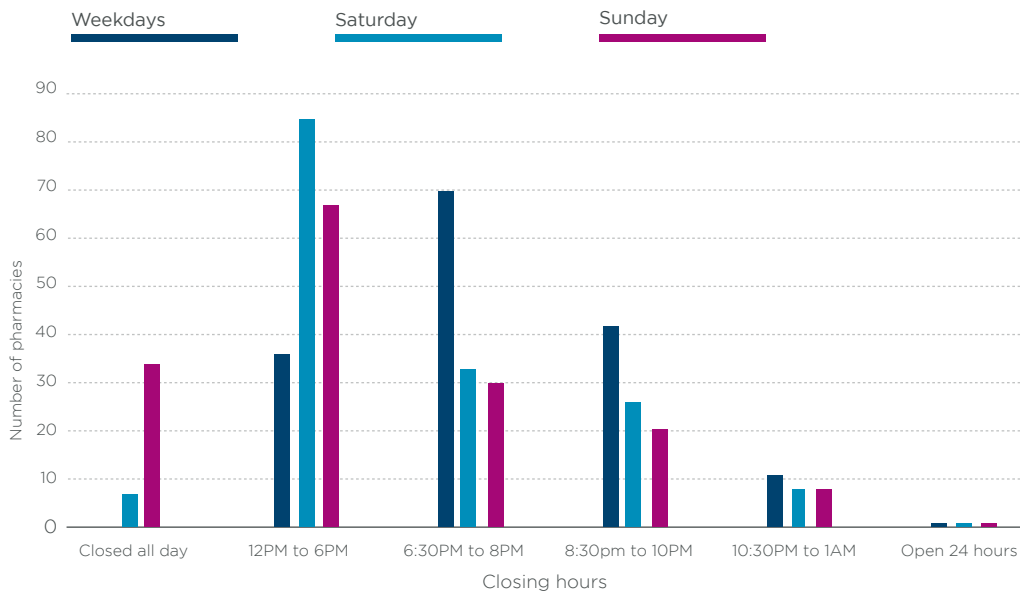
Lake Macquarie considered pharmacies and supermarkets are both types of retail premises, and so should be able to co-locate from a planning perspective.

Having pharmacies located in supermarkets may also increase consumer convenience, as many supermarkets operate with longer hours, closing at 10pm or later. This contrasts with current pharmacy opening hours (see Box 4.11).

BOX 4.11: PHARMACY OPENING HOURS IN SYDNEY

A review of the operating hours of 160 pharmacies across Greater Sydney revealed a drop off in the number of pharmacies open from 8pm onwards on weekdays and Saturdays, with few open after 10pm (see Figure 4.11). This review also found weekend closing hours varied greatly: nearly a third of pharmacies either stayed closed or shut before 5pm on Saturdays. One in five pharmacies were closed entirely on Sundays.

FIGURE 4.11: PHARMACY CLOSING HOURS ACROSS GREATER SYDNEY



Note: NSW Treasury collated the operating hours of 160 pharmacies across Greater Sydney. The pharmacies were randomly identified at yellowpages.com.au, while the operating hours were obtained from Google Search. The weekday closing hours reflect a pharmacy’s standard weekday operating hours, not including extended hours on certain weekdays, such as Thursdays.

Source: NSW Treasury.

OTHER JURISDICTIONS HAVE OPEN OWNERSHIP AND FREEDOM OF LOCATION

More flexible ownership and location models exist in other jurisdictions (see Figure 4.12).

Overall, Australia’s pharmacy sector is highly regulated compared to its OECD peers. The OECD’s 2018 Product Market Regulation indicator placed Australia 31st out of 36 OECD countries for regulation of the retail sale of medicines (see Figure 4.13). Australia’s score of 3.88 was below the OECD average of 2.35, with the top five best-performing (that is, most competition-friendly) OECD countries scoring an average of 0.23 (Vitale et al., 2020). Norway, Sweden, Mexico, the Netherlands and Czech Republic were the top five least regulated countries, with almost no restrictions on the number, location, and ownership of pharmacies in Norway, Sweden and the Czech Republic.

The OECD’s research paper noted that reconsidering the level of regulatory protection provided to pharmacies could lead to welfare gains for consumers (Vitale et al., 2020).

Figure 4.14 summarises how medicine availability and price changed when several European countries removed most restrictions on pharmacy ownership and opening hours.

These nations can still use their competition laws to address concerns about market dominance and inappropriate market conduct. Conversely, jurisdictions that heavily regulate pharmacies reduce patients’ access to pharmacy services. In Belgium, for instance, one study estimated that pharmacy quotas based on population size reduced the number of pharmacies in the country by 50 per cent (Montreal Economic Institute, 2014).

LEARN FROM OTHER JURISDICTIONS

To secure maximum benefits for consumers, any reform to pharmacy ownership and the prohibition on locating a pharmacy in a supermarket would ideally occur alongside other pharmacy regulation reform, notably the Commonwealth pharmacy location rules. Like the ownership rules, this once-common restriction on competition is now unique to pharmacies.



FIGURE 4.12: JURISDICTIONS WITH MORE FLEXIBLE OWNERSHIP AND LOCATION RULES

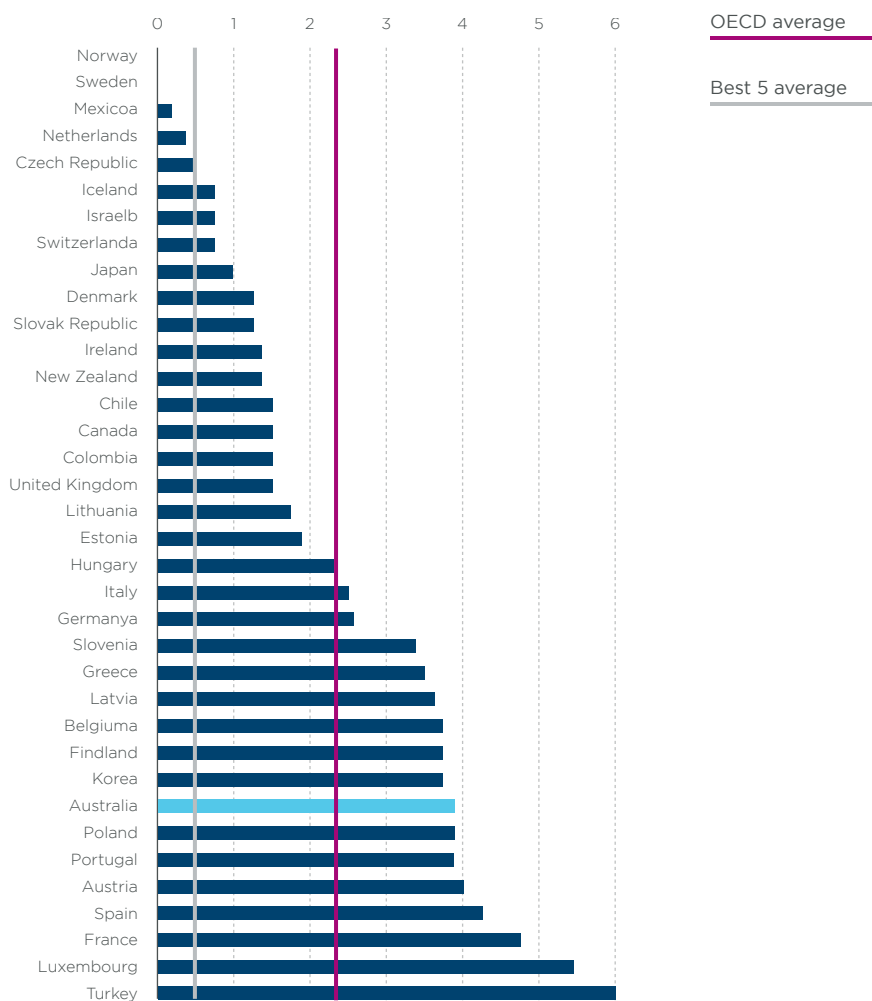
JURISDICTION	OWNERSHIP RESTRICTIONS	LOCATION RESTRICTIONS
New Zealand	Partially open: Joint ownership is allowed between pharmacists and non-pharmacists (although pharmacists must hold a majority stake in the business). ³³	✔ No restrictions
Canada	Nine out of 10 provinces have no or partial restrictions. Six have no restrictions on ownership (although a pharmacist must manage the pharmacy), and three permit joint ownership between pharmacists and non-pharmacists.	✔ No restrictions
United Kingdom	Almost no restrictions: A non-pharmacist-controlled company can own a pharmacy, with qualified pharmacists supervising the dispensing of prescription-only medicines.	✔ No restrictions
Norway	Almost no restrictions: Only doctors and pharmaceutical companies cannot own pharmacies.	✔ No restrictions
Sweden	Almost no restrictions: Only doctors and pharmaceutical companies cannot own pharmacies.	✔ No restrictions
Iceland	Almost no restrictions: Only doctors and pharmaceutical companies cannot own pharmacies.	✔ No restrictions
United States	Almost no restrictions: Only doctors and pharmaceutical companies cannot own pharmacies.	✔ No restrictions

Source: NSW Treasury.



³³ The New Zealand Government is considering a model that would permit open ownership. In this new model, licence requirements would enforce appropriate systems and practices within the pharmacy.

FIGURE 4.13: HOW OECD COUNTRIES REGULATE RETAIL SALE OF MEDICINES



Note: Countries ranked from most (0) to least (6) competition-friendly. Source: Vitale et al. (2020).

As noted in the Harper Review, revisions to state laws on pharmacy ownership and co-location should take account of:

- the emergence of different business models, including specialist and online pharmacy models, and discount groups that operate under loose ‘partnership’ arrangements, such as Chemist Warehouse
- how other primary healthcare providers such as GPs and optometrists operate without ownership restrictions
- experiences in other jurisdictions (Harper et al., 2015).

There are two key options for pharmacy ownership regulation reform:

- Allow mixed ownership, modelled on New Zealand’s regulation.
- Use outcomes-focused regulation that permits open ownership and regulates quality and practices through

licensing. This is like the model in the United Kingdom, Canada and Norway, where a pharmacy must be still managed by a pharmacist.

Open ownership is preferable to mixed ownership. Mixed ownership encourages joint ventures and investment in pharmacy businesses. For instance, it has allowed Woolworth’s New Zealand subsidiary, Countdown, to offer in-store pharmacies with long opening hours. This model could help improve access to pharmacies in less populated areas of New South Wales.

Mixed ownership does not, however, attract other businesses to operate pharmacies outside a joint venture. One New Zealand supermarket has noted that the New Zealand model, which still requires pharmacists to hold a majority of shares, makes it relatively unattractive for other businesses to enter the pharmacy market (Hodd, 2017).

Pharmacist corporate bodies can currently control many more than five pharmacies by using different combinations of pharmacist directors. In effect, pharmacists may own pharmacies but have no involvement in or supervision of day-to-day operations. On the other hand, outcomes-focused regulation could ensure that standards are met, and appropriate oversight is provided, irrespective of ownership arrangements.

Neither option is incompatible with pharmacy services remaining accessible to the public, including in small NSW rural communities. Pharmacy services could continue to be funded via

community service obligations where it is commercially unviable for pharmacies to operate in an area. The NSW Government's *Guide to Better Regulation* promotes the adoption of outcomes-focused regulation, noting the benefits for efficiency and innovation (NSW Department of Finance Services and Innovation, 2019).

Since ownership restrictions exist across all states and territories and supermarket location prohibitions exist across all states and the ACT, consistent reform across jurisdictions could be pursued through intergovernmental forums.

FIGURE 4.14: IMPACTS OF DEREGULATION IN EUROPE

JURISDICTION	IMPACTS OF DEREGULATION
United Kingdom	<p>30 per cent drop in the price of over-the-counter (OTC) medicines sold in supermarkets</p> <p>Improved efficiency of the pharmacy sector</p>
Iceland	<p>41 per cent increase in the number of pharmacies in the country and 67 per cent increase in Reykjavik in the two years following deregulation</p>
Norway	<p>34 per cent increase in the number of pharmacies from 2000 to June 2004</p>
Sweden (liberalisation accompanied by the privatisation of 615 pharmacies belonging to a government monopoly)	<p>6 per cent increase in the number of pharmacies from 2009 to 2013</p> <p>76 per cent increase in the total number of opening hours from 2009 to 2013</p> <p>19 per cent drop in retail prices and 35 per cent drop in wholesale prices</p>

Source: Montreal Economic Institute.

RECOMMENDATION 4.8: HAVE THE COMMISSION ASSESS PHARMACY ALTERNATIVES

Have the NSW Productivity Commission review options to make better use of pharmacists' skills, over-the-counter medicine scheduling arrangements and pharmacy ownership regulation.

Assess whether current arrangements are best placed to manage harm at least cost to the community and identify options that may improve community welfare.

**CHILDCARE SECTOR REGULATION:
CUT PRICES BY ADOPTING NATIONAL
STANDARDS**

Regulation of the childcare sector in New South Wales operates in the context of the National Quality Framework for Early Childhood Education and Care. The National Quality Framework sets national benchmarks for regulation and licensing of early childhood education and care. It includes a national law and national regulations that apply to preschools, kindergartens, long day care centres and outside school hours care services across Australia.

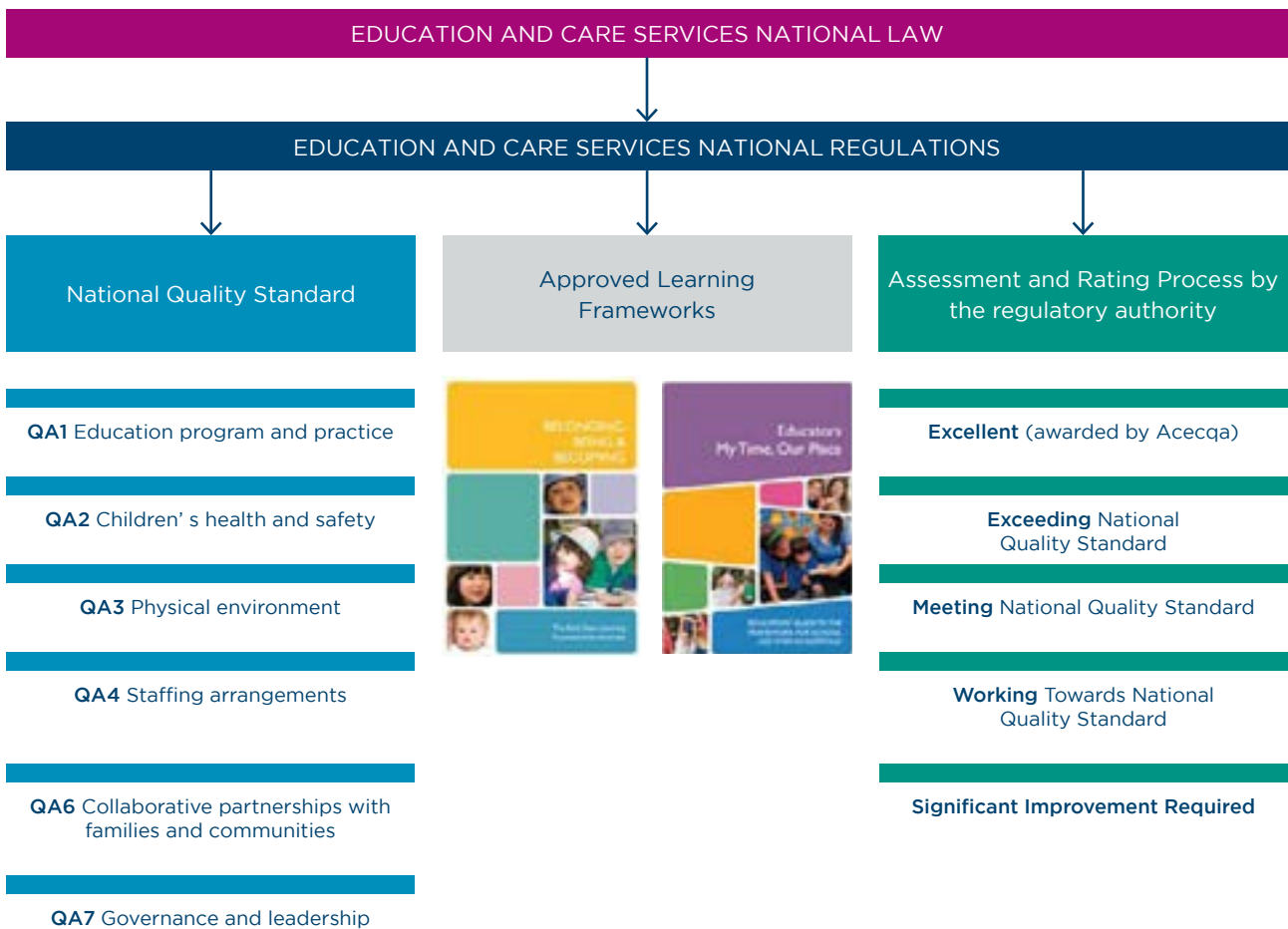
Among other things, the National Quality Framework sets out the minimum educator qualification and educator to

child ratio requirements for children’s education and care services. The NSW Government, however, retained the staff ratios and qualification rules that were in place prior to the National Quality Framework, rather than adopting the national standards.

**IMPLICATIONS FOR NSW PRESCHOOLS,
KINDERGARTENS AND LONG DAY CARE
CENTRES.**

NSW preschools, kindergartens and long day care centres must employ more degree-qualified early childhood teachers than centres in other jurisdictions (see Figure 4.16).

FIGURE 4.15: NATIONAL QUALITY FRAMEWORK FOR EARLY CHILDHOOD EDUCATION AND CARE



Source: Australian Children’s Education & Care Quality Authority’s *Guide to the NQF*.

FIGURE 4.16: CENTRE-BASED REQUIREMENTS FOR EARLY CHILDHOOD TEACHERS (ECTS) COMPARED

APPROVED PLACES	NATIONAL REGULATIONS	NSW SPECIFIC PROVISIONS
Under 25	Access to 1 ECT for at least 20 per cent of operating hours. This can be through an information technology solution.	Consistent with National Regulations
25-29	1 ECT for 6 hours per day, when operating for 50 hours or more per week <i>or</i> 60 per cent of the time, when operating for less than 50 hours per week	Consistent with National Regulations
30-39		1 ECT in attendance at all times
40-59		2 ECTs in attendance at all times
60-79*	1 ECT for 6 hours per day, when operating for 50 hours or more per week <i>or</i> 60 per cent of the time, when operating for less than 50 hours per week. <i>and</i> 1 second ECT or suitably qualified person for 3 hours per day, when operating for 50 hours or more per week <i>or</i> 30 per cent of the time, when operating for less than 50 hours per week.	3 ECTs in attendance at all times
80+*	1 ECT and a second ECT or suitable qualified person, each working for 6 hours per day, when operating for 50 hours or more per week <i>or</i> 60 per cent of the time, when operating for less than 50 hours per week.	4 ECTs in attendance at all times

*There are minor differences in the national and NSW-specific thresholds. The national standards apply thresholds 60-80 children and 81+ children, NSW regulations apply thresholds 60-79 children and 80+ children.

Source: Education and Child Care Services National Regulations 132, 135 and 272.

NSW centres also do not have the option to use a 'suitably qualified person' in lieu of a second early childhood teacher.

In contrast, centres in other jurisdictions have access to a broader market of employees and the ability to lower wages costs. They can replace an early childhood teacher with someone who:

- is qualified as a primary or secondary school teacher; or
- is 'actively working towards' an early childhood teaching qualification and has completed at least 50 per cent of the qualification or holds an approved diploma-level qualification.

In addition, all NSW early childhood centres operate with staff-to-child ratios of 1:10 compared to the national standard of 1:11 for children 3-6 years. Ratios for other age groups align with national standards.

The additional staff ratios and qualification requirements have impacts on the workforce, on service providers, on parents and on service accessibility.

- Childcare workers face a substantial time and financial commitment to obtain qualifications, with diploma-level qualifications taking up to two years and costing as much as \$10,000 (Joseph, 2018).

- Childcare providers incur higher wage expenses from employing more staff at higher rates of pay. New South Wales has more than 4000 long day care or preschool services. The impact is felt primarily by larger centres that are approved for 60 or more children. These costs must be absorbed by providers or passed on to parents in the form of higher fees.
- Parents often find higher fees prevent their children accessing early childhood education and care and the associated development benefits.

New South Wales' specific requirements can deepen the challenge facing centres to attract and retain appropriately qualified staff. The number of students completing teaching qualifications in the state has decreased, while the number of early childhood education and care enrolments has increased (Commonwealth Productivity Commission, 2014a). Educator workforce shortages can mean fewer places offered by providers, to the detriment of children and families.

If a childcare service is unable to find additional degree-qualified teachers, it may be granted a waiver in relation to the requirement to employ additional teachers. Waivers are intended to operate in exceptional circumstances or where unexpected events occur. They are used to help providers maintain their service to families in exceptional or unexpected circumstances. The NSW Department of Education reports waivers are presently in place for 272 services.

The evidence indicates that children, particularly disadvantaged children, benefit from quality early childhood education and care. In particular:

- International research suggests that robust staff-to-child ratios:
 - enable safe environments for young children
 - support regular, warm and stimulating interactions between staff and children
 - enhance cognitive, language and socio-emotional outcomes (Papic, 2014).

- Studies have found that higher teacher qualifications are positively correlated with positive social, emotional, educational, health, economic and behavioural outcomes for children (Manning et al., 2017). These benefits are attributed to better process and structural quality as a result of having more qualified teachers.

But we do not know for sure the optimal staff ratios and qualifications that will deliver positive developmental outcomes while still keeping childcare both affordable to families and accessible for children.

Childcare costs more in Australia than in many OECD countries. On average, Australian households spent 19 per cent of their income on childcare, compared to the OECD average of 10 per cent (Organisation for Economic Co-operation and Development, 2021).³⁴ Between 2019 and 2020, childcare fees rose by 5.6 per cent, to a national median of \$523 a week (based on a 50-hour week). In New South Wales, the median weekly cost of centre-based care reached \$535, approximately \$107 per day before subsidy (Commonwealth Productivity Commission, 2021b). Half of Australian parents with children under five struggle with the cost of childcare (Wood and Griffiths, 2020).

Access to affordable childcare supports workforce participation by parents. In 2020, 296,000 people were not in the workforce because they were caring for children, up from 279,000 in 2019. The number of people who cited high childcare cost as the reason for not working grew by 23 per cent (Commonwealth Productivity Commission, 2021b).

³⁴ Note this is based on the percentage of household income spent on childcare for a couple on an average wage according to the OECD's net childcare costs data for 2019.



Reducing barriers to workforce participation ensures we make the most of our existing pool of human capital. Government has a role to ensure that childcare is affordable by minimising unnecessary regulation that imposes compliance costs.

NSW BUSINESS CHAMBER



Any costs whether hours or monetary linked to compliance with high quality outcomes are ultimately an investment in the quality of a service in the short term and investment in increased economic and social output in the longer term.

AUSTRALIAN COMMUNITY CHILDREN'S SERVICE

The impact of higher childcare fees particularly affects women, who are often secondary earners. Greater female workforce participation benefits individuals and the community. It gives individuals greater income, facilitates career progression, and can provide personal satisfaction. The continued employment of skilled and educated individuals improves workforce productivity. Society gets higher measured economic output and tax revenues, and lower government spending on social welfare.

The Commonwealth Government will increase childcare subsidies from July 2022 for families with two or more children, and remove the subsidy cap for high income earners (Frydenberg et al., 2021). Its stated goals are to make childcare more affordable and boost workforce participation.

A review of the National Quality Framework and its regulatory settings is underway. It is equally important to review NSW regulatory policy settings to ensure they remain fit for purpose and balance competing policy objectives:

- child developmental outcomes
- affordability
- workforce participation
- productivity
- social outcomes.

Stakeholders hold diverse views on how such a balance should best be achieved. Small business childcare centres support making NSW standards consistent with national standards. The Australian Childcare Alliance expressed similar views: **[T]he NSW Government's regulation of the early childhood education and care sector has imposed additional, unnecessary compliance costs, compared to other Australian jurisdictions. ... This has needless and negative impacts on the sector including: driving up prices; barriers to new providers entering the market; unlevel playing field between NSW and neighbouring jurisdictions, particularly in border regions; and barriers to vulnerable children accessing early childhood education and care.**

The Australian Childcare Alliance (2021)

In contrast, a joint submission from a cohort of stakeholders to the National Quality Framework Review highlighted their concerns about **'the far-reaching consequences of diluting existing regulations related to the educator workforce'** (Big Fat Smile et al., 2021). The not-for-profit sector of children's services has previously opposed the reduction or removal of regulatory frameworks (Australian Community Children's Services, 2018).

Further work should be undertaken to understand the impacts of NSW-specific regulatory requirements on service quality, on prices paid by families and children's ability to access early education and care.

RECOMMENDATION 4.9: EVALUATE NEW SOUTH WALES CHILDCARE REQUIREMENTS

Evaluate the costs and benefits of NSW childcare regulatory requirements that differ from national staff ratio and qualification requirements.

RETAIL REGULATION: REVISIT PACKAGED ALCOHOL LAWS

NSW packaged alcohol regulation involves three broad types of competitive restriction:

- barriers to entry
- discrimination between sellers
- market conduct requirements about the types of facilities and products that may be offered.

These three types of regulation are intended to minimise the risks to consumers and society associated with harmful use of alcohol.

The 2015 Harper Review highlighted the importance of ongoing regulatory review in all areas, including packaged liquor, to ensure they are meeting their stated objectives at least cost to consumers. Such a review would ensure liquor licensing restrictions are not ‘more about competitors than public safety’, a view expressed by the former Commonwealth Productivity Commission Chair, Peter Harris (Harris, 2015).

Health organisations, government agencies and councils have highlighted the need for such a review to appropriately consider the health, social and economic costs of any changes to existing alcohol restrictions. Excessive alcohol consumption may erode productivity by affecting factors such as workplace absenteeism.^{35 36} It can contribute to chronic health conditions, road traffic injuries and social harm that affects families, bystanders, and the broader community.

A review of packaged alcohol regulation would evaluate the costs and benefits of current regulatory requirements, whether they are the best way to address complex issues around managing harm, and whether alternative arrangements would offer societal benefits.

REVIEW RESTRICTIONS THAT DISCRIMINATE BETWEEN RETAILERS

It is appropriate for liquor retailing laws to focus on the public interest in minimising alcohol’s harms. But when such laws preclude entry by responsible sellers and favour some sellers over others, this creates distortions that adversely affect consumer amenity and opportunities for existing and potential new businesses.

In New South Wales, packaged alcohol laws discriminate between sellers. A packaged alcohol licence permits premises such as bottle shops, supermarkets, and delivery services to sell alcohol to the public, to be consumed off-premises. Small general stores and other retailers are not permitted to obtain a packaged liquor licence.³⁷

The major supermarket chains dominate Australian packaged alcohol retailing. Their 76.1 per cent 2020 market share reflects a 4.4 per cent increase from the prior year.³⁸ Independent retailers account for 10.7 per cent of the total packaged alcohol market, hotel bottle shops for 7.8 percent, wine clubs for 5.1 per cent and duty-free sales for 0.3 per cent (Roy Morgan, 2020b).

One retail body, the Australasian Association of Convenience Stores, has advocated for convenience stores to be allowed to stock a limited range of alcohol products. This is based on its view that convenience stores’ record of verifying the ages of tobacco buyers ‘more than proves its ability to be able to responsibly sell alcohol, especially on [a] small and regulated scale’ (Allen, 2021). It estimates that this regulation costs the Australian convenience store industry more than \$500 million in annual sales (Australasian Association of Convenience Stores, 2018).

35 The total cost of alcohol-related problems on Australian productivity was estimated at \$6.04 billion in 2010 (Manning et al., 2013).

36 Australian estimates of the extent of absenteeism attributable to alcohol use run as high as 7,402,341 work days lost; monetary losses are estimated at \$1.2 billion (Pidd et al., 2006).

37 These laws apply to stores with a floor area of 240 square metres or less that are used primarily for the sale of groceries.

38 Supermarket chain market share in the packaged alcohol market includes both supermarket retailers and supermarket-owned standalone retailers (Roy Morgan, 2020b).

While the Authority recognises the economic and social value of the liquor industry, the risks of alcohol-related harm such as violence, health problems, criminal behaviour and social disturbances can be significant and require adequate regulation and control.

THE INDEPENDENT LIQUOR AND GAMING AUTHORITY SUBMISSION

Allowing general stores to sell packaged alcohol for off-premises consumption could improve access for people who live outside of large cities, particularly in areas where packaged alcohol outlet density is relatively low. The design and implementation of such approaches would need to be led at the local community level to best reflect their specific circumstances and reduce the harmful effects of alcohol on the broader community.³⁹

Restrictions also apply to licensed supermarkets. They must keep the alcohol sales area and a designated cash register separate from the main part of the supermarket (Liquor & Gaming NSW, n.d.), reducing convenience for consumers. They can also impose additional costs on the licensed retailers, who must establish detached liquor shops or dedicated liquor zones, along with dedicated cash registers, separate to the main premise used as a supermarket.

Some stakeholders support the maintenance of separate alcohol sales areas on the basis that the measure may:

- assist licensees in supervising and controlling the sale of liquor in their main grocery premises
- reinforce the message of responsible sale of alcohol and reduce the exposure of vulnerable persons, such as children, to alcohol and related advertising.

Removing the requirement for a separate sales area would not oblige licensees to remove separate sales areas if such practice enhanced their ability to supervise and control liquor sales. There is, however, evidence to suggest increasing exposure to alcohol marketing can hasten the onset of drinking and increase the volume of alcohol consumed by those already drinking, particularly for young people (Palmer et al., 2010).

Harms related to excessive alcohol consumption are an important consideration.

Stakeholders have raised concerns that relaxing restrictions on packaged alcohol may contribute to increased violence rates in New South Wales, particularly in residential settings. There is evidence to support these concerns that a review would evaluate:

- A study in Melbourne found that changes to the number of liquor outlets within a community were positively associated with changes in the rate of violence experienced by the community (Livingston, 2008).
- A panel survey by Deakin University found that people were six times more likely to report their partners had been violent towards them if they reported their partners engaged in heavy binge drinking (Miller et al., 2016).

Regulating alcohol outlet density in a geographic area may be an effective strategy for reducing excessive alcohol consumption and related harms (Middleton et al., 2010). Other research suggests that it is the volume of alcohol sold, rather than the number of retail outlets, that influences harm rates (Livingston et al., 2016). A study in Perth found that areas with greater sales per off-premises outlet were positively associated with alcohol-related injuries, while the number of off-premises outlets indicated a negative association. In other words, the study found that increasing the number of off-premises outlets in an area did not appear to increase alcohol-related injuries in that area (Hobday et al., 2015).

CONSIDER PRACTICES IN OTHER JURISDICTIONS

Other jurisdictions apply different regulatory approaches to retail sale of alcohol. For example:

- Licensed supermarkets in the Australian Capital Territory can display alcohol for sale in a designated area within their premises (ACT Government, 2011, p. 26).
- Some Victorian supermarkets have a remote checkout approval on their licence, which allows customers to take the alcohol containers away from the liquor section and pay for them at the normal checkout (Victorian Commission for Gambling and Liquor Regulation, 2018).
- Internationally, many developed markets in Europe, North America and Asia permit the sale of packaged alcohol in general stores, service stations and supermarkets. See Figure 4.17 for a comparison.

³⁹ The decision by Liverpool Council to block the development of a liquor store near a school and community facility in Moorebank in 2013, and recent community opposition to a liquor outlet near Darwin Airport, both give weight to the importance of local decision-making in this area (Liverpool City Council, 2013).

FIGURE 4.17: INTERNATIONAL COMPARISON OF RULES FOR THE RETAIL SALE OF PACKAGED ALCOHOL

JURISDICTION	GENERAL STORES	SERVICE STATIONS	SUPERMARKETS
Japan	✔ Permitted	✔ Permitted	✔ Permitted
South Korea	✔ Permitted	✔ Permitted	✔ Permitted
United Kingdom	✔ Permitted	✔ Permitted	✔ Permitted
Germany	✔ Permitted	✔ Permitted	✔ Permitted
California (US)	✔ Permitted	✔ Permitted	✔ Permitted
France	✔ Permitted	Not permitted	✔ Permitted
Italy	✔ Permitted	Partially permitted Allowed to sell low-alcohol beverages only	✔ Permitted
New York (US)	Partially permitted Allowed to sell beer and cider only	Partially permitted Allowed to sell beer and cider only	Partially permitted Allowed to sell beer and cider only
Ontario (CA)	Partially permitted Allowed to sell low-alcohol beverages only	Not permitted	Partially permitted Allowed to sell low-alcohol beverages only
New Zealand	Not permitted	Not permitted	Partially permitted Allowed to sell low-alcohol beverages only

Note: Low-alcohol beverages include beer, cider and wine. Australian jurisdictions are more restrictive than these international jurisdictions, though some are marginally less restrictive than New South Wales.

Source: NSW Treasury.

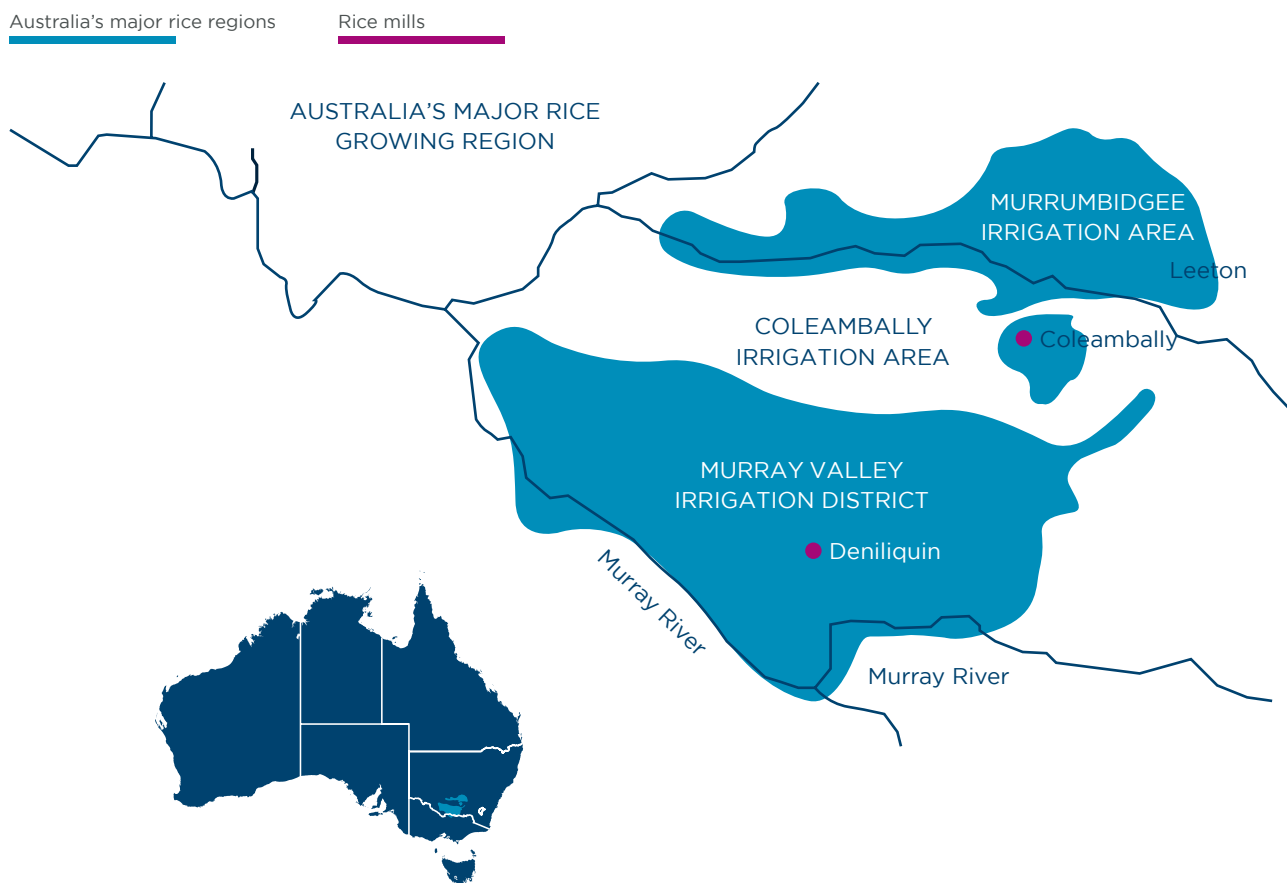
Some jurisdictions limit general retailers to the sale of low-alcohol beverages such as beer, cider, and wine. This approach offers greater consumer convenience and business opportunities, while lowering the risks of harmful alcohol consumption. Display of alcohol for sale could also be restricted to a defined location within a store.

A comprehensive review of the alternative regulatory arrangements surrounding the sale of alcohol would allow the options to be assessed in detail.

RECOMMENDATION 4.10: REVIEW CURRENT RESTRICTIONS ON THE RETAIL SALE OF PACKAGED ALCOHOL

Review the restrictions on supermarkets and other retailers selling packaged alcohol for off-premises consumption.

FIGURE 4.18: AUSTRALIA'S MAJOR RICE GROWING REGIONS



Source: Ricegrowers' Association of Australia Inc. (2019).

AGRICULTURAL REGULATION: REVIEW RICE VESTING EXPORT ARRANGEMENTS

The rice industry matters to the NSW economy. We produce almost all of Australia's rice, mostly in the Murray and Riverina regions, and export up to 80 per cent.⁴⁰ A small amount (less than one per cent) of Australia's rice is also grown in non-traditional areas such as the New South Wales Northern Rivers.

All rice produced for export in New South Wales is the legal property of the NSW Rice Marketing Board by law (Rice Marketing Act 1983 (NSW), 1983). The Board decides who can deal in NSW rice produced for export.

At present, it issues one sole and exclusive export licence. This licence was granted to SunRice in 2006 and renewed in 2011, 2015 and 2016, but is due to expire on 30 June 2022. There are no restrictions on the number of entities that can deal in NSW rice for the domestic market.

The Board is Australia's only remaining example of a statutory single-desk marketing board,⁴¹ an organisation that pools the output of many producers, markets it as a single product, and gives growers a single pool price. The Board aims for the best possible price for Australian-grown rice sold outside of Australia.

A single desk can be economically efficient if the Board has market power in international markets. New South Wales had a 5 per cent share of global medium and short grain rice exports and 0.4 per cent of total global rice exports in 2019 (Australian Bureau of Agricultural and Resource Economics and Sciences, 2021). Market power might exist in limited circumstances, for instance, where transport costs and storage costs create barriers to competition.

40 2017-18 figures record that 98.9 per cent of Australian rice was produced in New South Wales (Australian Bureau of Statistics, 2020a).

41 Western Australia deregulated its potato industry marketing in September 2016.

But even if export premiums exist, it does not automatically follow that a single desk is required to capture them. And even if a single desk works for some types of rice, it may not work for others.

A 2016 review recommended that single-desk marketing arrangements continue (NSW Department of Primary Industries, 2016) because:

- single-desk marketing lets New South Wales extract price premiums for our rice exports
- the benefits are highly likely to outweigh the costs.

But that same review warned that the vesting arrangements now in place are discouraging growth in the rice industry in northern New South Wales. This is largely due to the high costs of transportation from northern New South Wales to SunRice's export storage facilities in the Riverina (around \$135 per tonne). This could impose a substantial future cost from lost export earnings.

At the same time, the Commonwealth Productivity Commission found that deregulating the marketing of Australian rice exports would bring significant benefits (Commonwealth Productivity Commission, 2016):

- marketing costs would fall
- incentives to innovate would rise
- competing companies would have an incentive to retain grower loyalty by maximising price premiums
- growers would be likely to receive higher returns.

The NSW Government needs to make sure that rice marketing regulation continues to deliver a net public benefit. In 2016, the NSW Department of Primary Industries (DPI) recommended a review of rice vesting arrangements in 2020, two years before the single-desk arrangements expire.

The recommended review, being undertaken by DPI, has now commenced and will be completed by the end of 2021. The review has a focus on assessing whether the benefits of the vesting arrangements outweigh the costs, and whether any net benefits are a result of rice vesting alone (NSW Department of Primary Industries, 2021).

The NSW Productivity Commission supports the review and its focus on ensuring any vesting arrangements deliver a net benefit. Issues to consider in answering this question should include:

- Does New South Wales possess market power in international rice markets?⁴²
- If export premiums exist, is the rice vesting export arrangement required to capture them, or do other options exist?
- If there are benefits to the rice vesting export arrangements powers for some types of rice, do those benefits extend to all the types of rice produced in New South Wales?

Industry stakeholders raised concerns with the NSW Productivity Commission about the need to ensure decision-making is informed by detailed analysis and stakeholder consultation. A consultation process and detailed quantitative analysis is being undertaken as part of the rice vesting review.

RECOMMENDATION 4.11: REVIEW RICE VESTING EXPORT ARRANGEMENTS TO DETERMINE IF THEY PROVIDE A NET PUBLIC BENEFIT

Complete the 2021 Review of Rice Vesting Proclamation. Allow the rice vesting export arrangement to expire unless it is shown to deliver a net public benefit.

42 Note that a single desk can be a mechanism to exploit market power in international markets if it exists.

AGRICULTURAL REGULATION: GENETICALLY MODIFIED CROPS

Genetically modified (GM) technology can help to create more pest resistant crops, maximise yields and reduce water requirements. This makes agriculture more productive with less environmental damage. These benefits can also drive innovation and productivity growth in the agricultural sector—particularly when drought conditions and longer-term climate change threaten NSW agriculture. GM food can also have more nutrition and stay fresh longer.

Australia has already approved the use of GM varieties of canola and cotton.

The country regulates use of GM crops through the federal Office of the Gene Technology Regulator (OGTR). The OGTR identifies the risks posed by GM technology and manages them to protect the health and safety of people and the environment.

States and territory governments can still legislate to address market and trade issues arising from the GM crops. For the moment, NSW farmers can cultivate a licensed GM food plant only if the Government approves or exempts it. The current NSW restrictions cover GM crops that the OGTR has declared safe, which disadvantages NSW farmers.

Adoption of GM technology in New South Wales is forecast to deliver up to \$4.8 billion in total gross benefits over the next ten years and could boost production for NSW farmers by almost 10 per cent (Minister for Agriculture and Western NSW, 2021). Removing the moratorium can also encourage greater private investment in GM technology and facilitate innovation.

Submissions to the Productivity Green Paper were supportive of the recommendation to allow the *Gene Technology (GM Crop Moratorium) Act 2003* (the GM Act) to expire. The Government has since confirmed plans to lift the ban on the use of GM crops by allowing the GM Act to expire on 1 July 2021. This will align NSW legislation on GM crops with all mainland states and the Northern Territory, excluding Kangaroo Island (SA).

RECOMMENDATION 4.12: END SEPARATE STATE RESTRICTIONS ON GENETICALLY MODIFIED CROPS

Allow the *Gene Technology (GM Crop Moratorium) Act 2003* (NSW) to expire in 2021.

COMPETITION REGULATION: IMPROVE RAIL ACCESS

'Access regimes' regulate outsiders' access to monopoly infrastructure such as rail lines. They are designed to boost productivity by delivering the most efficient use of the infrastructure and lower prices for consumers. At the same time, they prevent the infrastructure owner from using its monopoly power to shut a competitor out of a service or charge too high a price. They usually ensure the owner imposes reasonable terms and pricing.

A better NSW rail access regime will help both the state's rail infrastructure owners and access seekers. It will help businesses like mine operators who rely on rail access to export their products make better investment decisions.

Both national and state regimes now govern NSW rail access. These are the NSW Rail Access Undertaking and the national rail access regime overseen by the Australian Competition and Consumer Commission (ACCC). Each calculates prices and decides access terms differently.

Access regimes can play an important role in the economic development of a region. For instance, the Australian Rail Track Corporation (ARTC) operates the Hunter Valley Rail Network in New South Wales' Hunter Valley region. The network is an important part of Hunter Valley coal supply chain, as it transports coal from mines to the Port of Newcastle. Some passenger services also operate on the same network. The ACCC-administered Hunter Valley Access Undertaking

(the 'ACCC Undertaking') governs third-party access to the Hunter Valley Rail Network. The Hunter Valley Rail Network is also covered by the NSW Rail Access Undertaking ('the NSW Undertaking'). The NSW Undertaking would apply if the ACCC Undertaking were to lapse.

There is scope to improve the operation of the NSW regime and its interaction with its national counterpart. IPART heard from stakeholders in 2019 (Independent Pricing and Regulatory Tribunal, 2019a) that:

- Where two access regimes govern one infrastructure network, as they do in the Hunter Valley, access seekers pay more, and taxpayers pay more for regulation.
- Rail infrastructure owners can often pick the regime they prefer and exploit the regulatory uncertainty to make tougher deals with access seekers.

- Compliance and enforcement of the NSW regime is inadequate. IPART found some access charges were above the full economic cost of providing access, but it lacked the power to address this: applicants had to initiate legal proceedings.
- The NSW rules have not been substantively reviewed since 1999, despite significant changes in the rail industry since then.

In addition, the NSW regime may not meet all the needs of access seekers. Notably, a group of access seekers obtained authorisation from the ACCC to collectively negotiate non-price terms of access with RailCorp in New South Wales, as individual negotiations had failed (Australian Competition and Consumer Commission, 2018).

Stakeholder submissions from Business NSW, IPART, and NSW Ports support this recommendation.

BOX 4.12: REGULATORY OVERLAP IN THE HUNTER VALLEY

The ACCC-administered Hunter Valley Access Undertaking ('the ACCC Undertaking') was due to expire in 2011. Had it expired with no replacement, the NSW Undertaking would have applied to part of the Hunter Valley Coal Network.

The ARTC submitted its proposed variation to the ACCC Undertaking less than one month prior to its expiry date. It proposed a rate of return higher than that recommended by the ACCC in its draft decision.

The industry was concerned that if the ACCC Undertaking lapsed, and the NSW Undertaking applied, they would lose provisions that promoted efficiency across the Hunter Valley coal supply chain by aligning operations and contracts between coal mines, track managers, train operators and port terminals.

In these circumstances, the industry accepted the ARTC's variation despite concerns that it had been inadequately consulted and that the ARTC's rate of return was too high.

Source: ACCC submission to IPART's 2019 NSW Rail Access undertaking review.

RECOMMENDATION 4.13: REVIEW NEW SOUTH WALES' RAIL ACCESS REGIME

Have IPART review the NSW Rail Access Undertaking, including its interaction with the national rail access regime.

COMPETITION REGULATION: UPDATE COMPETITIVE NEUTRALITY GUIDELINES AND PROCESSES

Where government businesses compete in the market with non-government businesses, they should not gain competitive advantages from their public sector ownership. That way, the most productive businesses will flourish and attract resources.⁴³ This idea is at the core of the principle of ‘competitive neutrality’.

Government businesses can offset the advantages of government ownership by pricing goods and services to reflect all the costs incurred by a private business in the same market.⁴⁴ Many NSW Government businesses follow this principle. For instance, when the Forestry Corporation of NSW sells timber in competition with private businesses, it must make tax payments, pay dividends, and cover its full costs of production and capital, just like private rivals. This fair competition gives business confidence to compete with government businesses where appropriate. That creates more competitive markets and supports the allocation of the state’s resources in the most productive way.

The NSW Government competitive neutrality policies (the CN policies) provides guidance on the application of competitive neutrality principles to state and local government entities. They set out:

- the activities and government entities that are subject to competitive neutrality principles
- costing and pricing guidelines for NSW government businesses
- mechanisms for addressing potential breaches of the policies.⁴⁵

The CN policies have not been reviewed or updated for almost 20 years.

New changes will improve this process:

- Update the CN policies, which contain outdated arrangements for dealing with complaints. For example, the NSW Government’s Policy Statement on the Application of Competitive Neutrality refers to the handling of tender-related complaints by the State Contracts Control Board (NSW Treasury, 2002). That entity no longer exists.
- Improve complaints processes in response to stakeholder concerns. Potential complainants may not know where to start; worse, the process can eat up business resources, in extreme cases discouraging businesses from lodging a complaint.⁴⁶ This has a disproportionate impact on small businesses, which may not have the resources to persevere with complex processes.
- Resolve if and how competitive neutrality should apply when the Government takes a minority ownership stake in a business.

State and local governments, by applying competitive neutrality effectively, can help small business recover from the COVID-19 recession. But without an effective competitive neutrality regime, government actions might discourage private firms, or even put them out of business.

For instance, the Small Business Development Corporation noted in its submission to 2015’s Harper Review that local governments can operate childcare centres, aged care facilities and gyms in competition with local providers. It argued for better application of competitive neutrality to local governments, including the adoption of effective complaints handling mechanisms.

⁴³ 2015’s Harper Review said: ‘The principle of competitive neutrality is an important mechanism for strengthening competition in sectors where government is a major provider of services.’ (Harper et al., 2015).

⁴⁴ In a small number of circumstances there may be a clear public interest reason not to do so.

⁴⁵ Different processes apply depending on whether a potential breach relates to state or local government concerns. Different processes also apply for procurement and non-procurement concerns.

⁴⁶ Submissions to the Harper Review raised concerns about the transparency and effectiveness of the competitive neutrality complaints process across all jurisdictions, including New South Wales.



Better application of competitive neutrality principles, including the public interest test, will also help the community by encouraging government businesses to target subsidised services to those in most need.⁴⁷

Local government competes unfairly with private providers when it offers childcare at below-cost rates. A council that applied competitive neutrality policy properly could target places for discounted childcare to those who could not otherwise afford childcare. This will encourage private businesses to compete in offering childcare to consumers who are not eligible for subsidised council services. That in turn will raise the number of childcare places and ease pressure on parents.

The Harper Review recommended that all Australian governments review their competitive neutrality policies. All governments agreed in 2016 to do it (Council Of Australian Governments, 2016). The Commonwealth and Western Australian governments are undertaking work on this. The NSW Government should have IPART do the same.

Stakeholder submissions supported a review of New South Wales' competitive neutrality policies. Sydney Water noted that IPART is well placed to conduct the review.

The review should answer questions such as:

- Are the current NSW competitive neutrality policies best practice? The review should assess the scope and coverage of the policy, complaint mechanisms, and oversight and administration arrangements.
- What improvements can be made to the delivery of the policies? The review's examination should cover local government, government procurement and the start-up stages of government businesses.
- What are the costs and benefits of expanding the scope of the policies to a broader range of government activities? The review should focus on circumstances where government service providers operate in the same market as private and not-for-profit providers.⁴⁸

RECOMMENDATION 4.14: UPDATE COMPETITIVE NEUTRALITY POLICY

Have IPART update the NSW Government's competitive neutrality policy and processes.

It is important that entrants to the emerging water market have confidence they can operate on a level playing field with public utilities. It is equally important that public utilities have a good understanding of competitive neutrality policy and how it applies to their operations and services.

SYDNEY WATER SUBMISSION

⁴⁷ A public interest test is used to determine whether competitive neutrality principles should apply to a government business. This test allows consideration of all relevant factors, including social welfare and consumer interests.

⁴⁸ For instance, the government provides non-emergency patient transport services to NSW Health in competition with the private sector.

E-CONVEYANCING: ESTABLISH INTEROPERABILITY

E-conveyancing allows parties in a property transaction to:

- electronically prepare and lodge their property dealings with title registries
- transmit settlement funds
- pay relevant taxes and duties.⁴⁹

E-conveyancing saves time and reduces the potential for errors and fraud (Independent Pricing and Regulatory Tribunal, 2019b). Property recorded in the Torrens Register in New South Wales is worth more than \$1.7 trillion. E-conveyancing has been mandatory for dealings in this property since 2019.

But one function of the current e-conveyancing market needs an urgent fix. New South Wales has two systems. And the data used by one cannot be used by the other. In short, they are not ‘interoperable’.

We call an information system ‘interoperable’ when it works with—and particularly, exchanges information electronically with—other systems.

E-conveyancing transactions are conducted on systems called electronic lodgement networks (ELNs) run by ELN operators. New South Wales’ ELN operators are:

- Property Exchange Australia Limited (PEXA), a formerly government-owned body that developed the first online platform for e-conveyancing in 2012
- new entrant Sympli, which entered the market in 2019.

Solicitors, conveyancers and mortgage providers must subscribe to these ELNs. And under the current market structure, conveyancing professionals and financial institutions must all use the same ELN operator to complete a property transaction (see Figure 4.19).

But because the systems do not interoperate, the first ELN operator—that is, PEXA—benefits from an enduring ‘network effect’. PEXA remains the first choice for most people entering the market, not necessarily because it is better but because so many more people are already using it.

As multiple reviews have acknowledged, this has cut down competition. The national competition regulator, the ACCC, has warned that new entrants will not be able to sustain a presence in the market. It has assessed the market as being at risk of becoming an entrenched monopoly—difficult to regulate, and with less innovation, higher costs, poorer services (ACCC, 2019).⁵⁰

Likewise, an IPART review found that New South Wales’ e-conveyancing is now highly concentrated and likely to stay that way for a while (Independent Pricing and Regulatory Tribunal, 2019b)

This problem needs fixing quickly: the longer the problem lasts, the greater the risk of entrenching a near-monopoly.

INTEROPERABILITY MAKES COMPETITION WORK

The solution to this problem is interoperability—demanding that data in the system works with *any* ELN that conforms to specified rules. In such a system, a user who subscribes to only one ELN operator can still transact with the user of another ELN operator *without* having to subscribe to both ELNs.

Interoperable systems are common in other industries. For example, an Optus user can take a phone call from a Telstra user.

⁴⁹ The process was facilitated by Commonwealth and state governments (COAG, 2012).

⁵⁰ The ACCC submission observes: ‘Should policy makers not undertake the necessary steps to implement a pro-competition market model, then it is unlikely that new entrants will be able to sustain a presence in the market ... The alternative to competition in this market is an entrenched monopoly, likely with forgone opportunities for innovation, lower costs, and improved quality of service. Further, the regulation of a monopoly is complex, timely and costly process, and is a sub-optimal solution.’

In 2019 the ACCC declared interoperability its preferred approach to the e-conveyancing problem. IPART has also backed interoperability, on the grounds that it would encourage new players into the industry and improve competition. Stakeholders such as Sympli, the Law Society of NSW, Australian Banking Association and the NSW Registrar General also support interoperability.

The NSW Registrar General commissioned a cost-benefit analysis (CBA) comparing three options:

- maintaining the status quo (the base case, with no effective competition in the e-conveyancing market)
- mandating interoperability between ELN operators
- a more comprehensive approach to price regulation (Centre for International Economics, 2020a).

The CBA establishes that interoperability delivers the greatest net public benefit. It estimates interoperability will deliver a net benefit of \$83.6 million to New South Wales over 10 years compared with the status quo. It estimates that price regulation will deliver a much smaller net benefit of \$19.7 million compared with the base case over the same period.

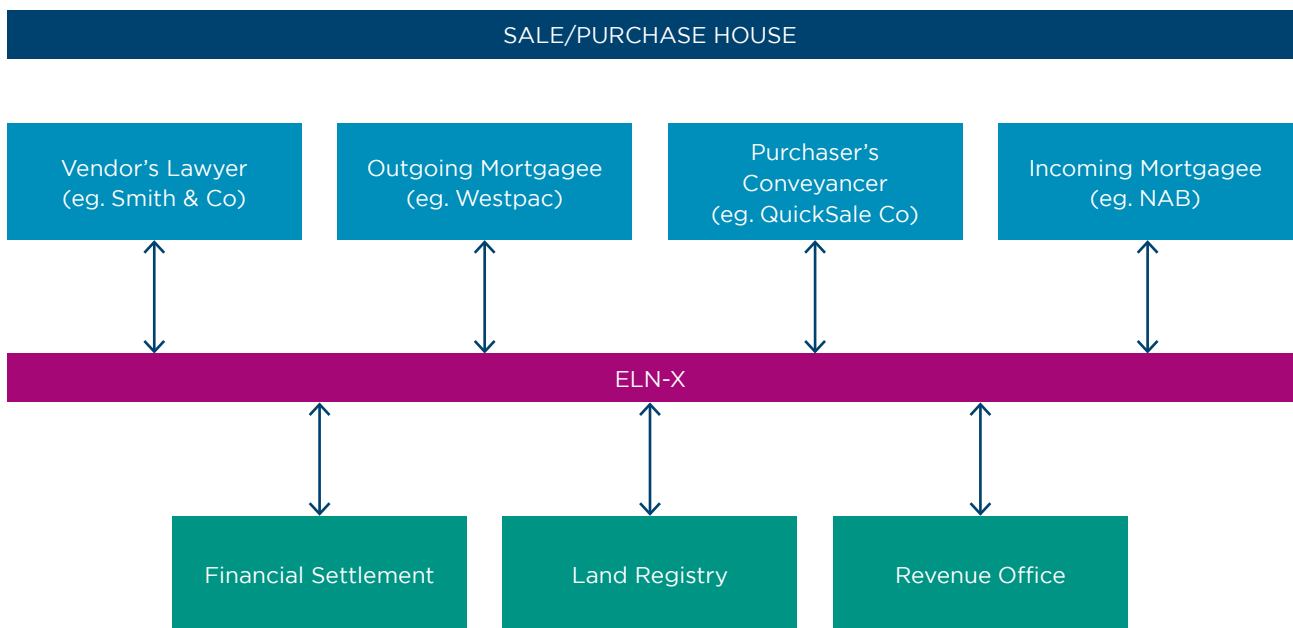
The CBA found that consumers and Sympli are the main ‘winners’ from interoperability; consumers enjoy lower prices, while Sympli’s revenue rises as it wins market share. The CBA found that lawyers and conveyancers also benefit, primarily because they save time.

PEXA is the main ‘loser’; it loses revenue as Sympli captures a larger market share and it must reduce prices to compete. Related parties which connect to ELN operators (such as banks and state revenue offices) are also likely to incur costs, because interoperability might increase the testing costs of new product releases.

A 2019 review identified financial, technical and security risks that need addressing, as well as issues with sharing costs between stakeholders (Dench McClean Carlson, 2019). PEXA reiterated these risks in its own submission to the NSW Productivity Commission.

NSW Government-sponsored industry working groups identified potential approaches and solutions. The Government is working with industry stakeholders and its state and territory counterparts on a technical model and regulatory changes.

FIGURE 4.19: E-CONVEYANCING WITHOUT INTEROPERABILITY



Source: NSW Registrar General.

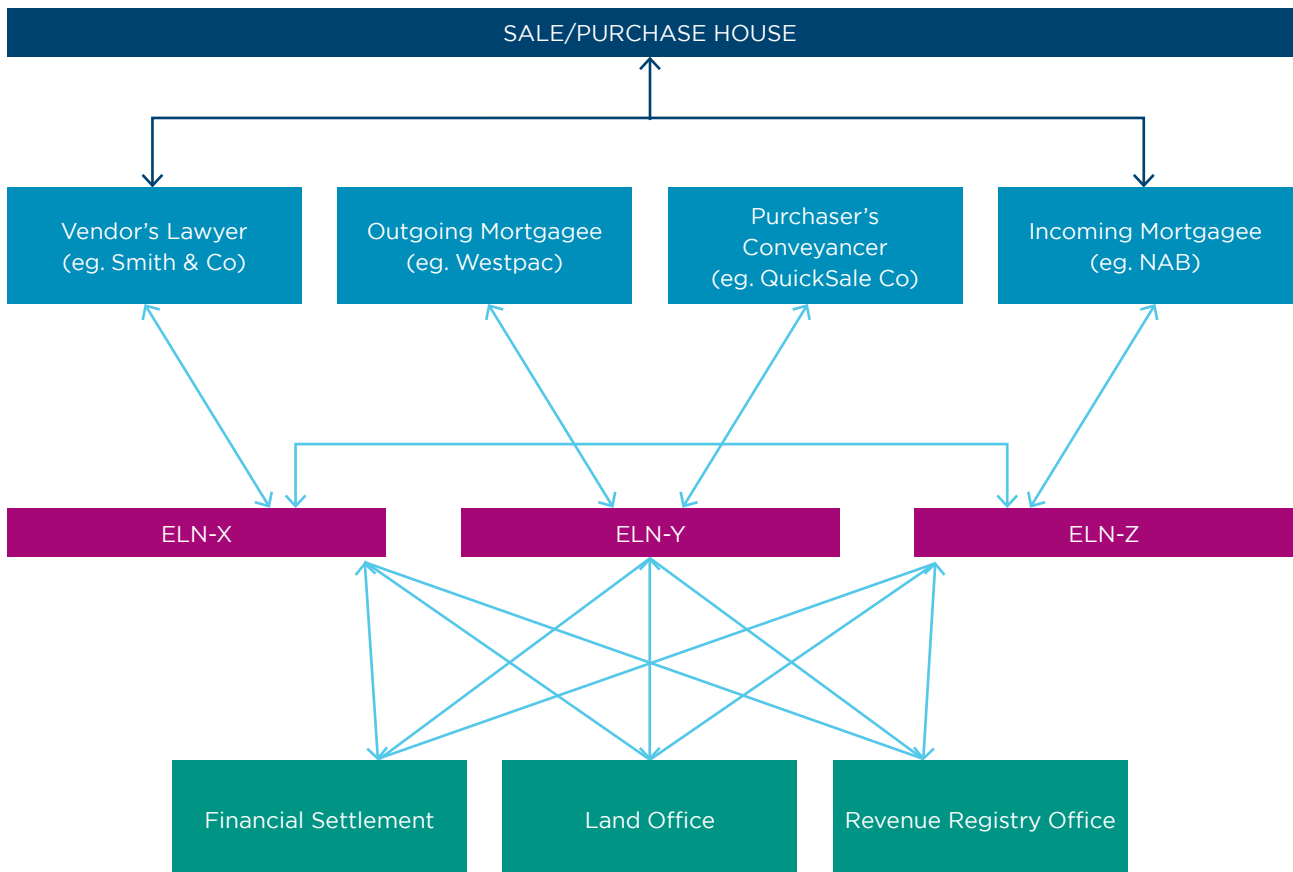
Figure 4.20 depicts competition with direct interoperability, the form of interoperability recommended by IPART given that two ELN operators are already in the market.⁵¹

To support competition, the NSW Government should urgently require interoperability in e-conveyancing, subject to addressing concerns regarding risk and costs.

Most stakeholders want a nationally consistent approach to interoperability (Independent Pricing and Regulatory Tribunal, 2019b).

On 7 September 2020, all states and territories supported the principle of requiring interoperability between ELN operators in the Electronic Conveyancing National Law (Parties to the Intergovernmental Agreement (IGA) for an E-conveyancing National Law, 2020). In addition, New South Wales, Queensland, South Australia and Western Australia further agreed to develop the technical and regulatory regime for legislation to be in place by mid-2021. They aimed then to have the solution live as soon as practicable, and by no later than the end of 2021. Tasmania noted that it was taking steps to implement e-conveyancing locally.

FIGURE 4.20: COMPETITION WITH INTEROPERABILITY



Source: NSW Registrar General (2019).

RECOMMENDATION 4.15: MAKE E-CONVEYANCING INTEROPERABLE

Support the implementation of interoperability in the NSW e-conveyancing market as a matter of urgency.

51 IPART recommended that future ELNO entrants be given the option of:

- connecting via an access regime to existing infrastructure
- if it is more cost efficient, building their own infrastructure.



Better local government regulatory practices could cut the compliance burden on business and the community by **\$313 MILLION** over 10 years (IPART, 2016d)

LOCAL GOVERNMENT REGULATIONS AND FEES

Local council regulations are an integral part of the NSW regulatory framework. Councils regulate everything from planning to fire safety, animal control to waste management and public health. They administer local rules and other quasi-regulatory instruments, such as permits, development approvals, licences and registrations. Increasingly, they implement and enforce state laws as well (Independent Pricing and Regulatory Tribunal, 2016d).

These activities can have major impacts on business and the community more generally. IPART has estimated that better local government regulatory practices could cut the compliance burden on business and the community by \$313 million over 10 years (Independent Pricing and Regulatory Tribunal, 2016d).

Ineffective local government regulation, on the other hand, can stifle business growth and productivity. The Commonwealth Productivity Commission has identified examples where regulation imposes delays, complex rules and processes, uncertain approval timeframes and inconsistent fees and charges (Commonwealth Productivity Commission, 2012a). It listed business suggestions for better local government regulation such as transparent information, consistent application of rules and processes, and more timeliness. These suggestions remain valid.

The NSW Government has taken steps to improve the administration of local government regulation, including the Food Regulation Partnership between NSW Food Authority and local councils (see Box 4.13). The 'Your Council' website launched by the NSW Government in 2019 provides information such as:

- council spending in areas including roads, bridges, footpaths, libraries, recreation and culture, community services, and the environment
- community facilities, including the number of swimming pools, public halls, and libraries as well as the length of roads and the amount of open space
- figures on council operations such as councils' staffing levels and their average rates and charges
- demographic information about the local population
- economic statistics, including the unemployment rate, average income, and number of businesses.

The 'Your Council' website could also give citizens information about specific regulatory arrangements, fees, and charges across local councils. This would provide businesses and the community with greater certainty about regulatory practices and save time and effort in finding information about compliance requirements and processes.

BOX 4.13: THE NSW FOOD AUTHORITY'S REGULATORY PARTNERSHIP WITH COUNCILS

The NSW Food Authority (the Authority) shares with local councils the responsibility for ensuring that retail and food service businesses comply with the food safety regulations. To fulfil this responsibility, the Authority partners with councils. The Food Regulation Partnership sets out each group's regulatory roles and responsibilities and provides:

- clear guidance and assistance from the NSW Government, including specific regulatory tools and resources
- a two-way exchange of information, which allows the Authority to better monitor, assess and provide feedback on councils' regulatory performance
- a dedicated forum for strategic consultation with councils and other key stakeholders.

The Partnership has improved co-operation between the levels of government, reduced duplication of regulatory services and increased:

- consistency in surveillance and enforcement
- compliance rates
- councils' regulatory effectiveness and efficiency.

MORE EFFECTIVE INTERACTION BETWEEN THE TWO LEVELS OF GOVERNMENT

Several past reviews have identified that state and local governments need to work together more effectively. The Commonwealth Productivity Commission in 2012 found three key gaps in states' support to local governments (Commonwealth Productivity Commission, 2012a):

- They did not think enough about local governments' capacity to administer and enforce regulation before delegating new regulatory roles to them.
- They gave limited guidance and training on how to administer and enforce regulations.
- They gave no clear indication and ranking of state regulatory priorities.

Two years later, IPART also pushed for more effective interaction. It said a 'partnership model' would cut costs to the community, and would make regulation work better, especially in more complex, high-risk and/or high-cost fields (Independent Pricing and Regulatory Tribunal, 2014).⁵²

NSW Government agencies should identify regulations that involve responsibilities for local government. The Government and councils should then agree on objectives for the regulatory functions that councils have the capacity to reach, with adequate cost-recovery mechanisms to help achieve this. The Government should prepare guidelines for councils to implement a consistent regulatory approach. It should also identify collaboration opportunities to reduce duplication and improve efficiency.

The regulation partnership approach pursued by the NSW Food Authority (Box 4.13) could also operate in other regulatory areas, such as planning, building and the environment (Independent Pricing and Regulatory Tribunal, 2014). The partnership model should include mechanisms to assess local governments' capability to administer regulatory responsibilities.

While stakeholders largely supported this recommendation, they raised concerns that the data requested on the website could create administrative burdens for councils. Moreover, differences in councils' regulatory practices could impede consistency with state regulatory practices.

BOX 4.14: CONFLICTING ADVICE PROVIDED BY TWO LEVELS OF GOVERNMENT

The Education State Environmental Planning Policy (SEPP) 2017 sets out the planning framework for educational establishments and early childhood education and care facilities. It outlines the conditions under which childcare and education providers can construct new facilities and upgrade existing facilities. Regulatory responsibility for the SEPP is shared between the state and local governments.

Inconsistent application between authorities and agencies can cause delays and costs for operators. In one example, a childcare centre was required to make several physical changes to the built environment of their toilet rooms. Local council, Department of Planning, Industry and Environment and the Department of Education advice regarding the necessary opacity of the glass conflicted, resulting in costly building alterations.

RECOMMENDATION 4.16: IMPROVE LOCAL GOVERNMENT INFORMATION AND COLLABORATION

Improve regulatory practices in local government by expanding the scope of the 'Your Council Website' to include information on regulatory arrangements, fees, and charges across local councils.

Encourage greater regulatory collaboration between State Government regulators and local councils in areas including planning, building and environmental regulation.

52 A Government response to this IPART report is currently in development.

4.5 | Build a higher-performance regulatory framework

CREATE A MODERN, BEST-PRACTICE APPROACH TO REGULATORY MANAGEMENT

Like jurisdictions worldwide, New South Wales faces an ongoing challenge to keep regulations appropriate in an era of constant technological change. Regulation must keep adapting to this change.

Previous approaches to managing the stock of regulation have included a 'one-in-two-out' policy (where new regulation can only be introduced if two existing regulations are removed) and a red tape reduction target. The Audit Office of New South Wales found that such efforts were largely ineffective in long-term red tape reduction, with legislative complexity increasing over the life of the initiative (Audit Office of NSW, 2016a).

Under the *Subordinate Legislation Act 1989*, subordinate legislation is automatically repealed every five years unless remade. The process applies indiscriminately to all subordinate legislation, without regard to the size, importance, or magnitude of regulatory impact. Stakeholders may be contacted multiple times on changes to related Regulations and Acts. Regulations are frequently remade with minor or no changes. This time-bound model of review is an inefficient use of taxpayer funds and does not deliver effective community engagement.

Victoria, South Australia, Queensland, Tasmania, and the Commonwealth provide a ten-year life span for subordinate legislation under their relevant legislative schemes. Previous reviews in these jurisdictions identified the benefits of moving to or maintaining a ten-year period. In 1992, Queensland extended the mandatory repeal of its subordinate legislation from seven to ten years. Similarly, an evaluation of the Victorian regulatory system in 2002 found the ten-year period to

be a suitable life span (Queensland Parliament Scrutiny of Legislation Committee, 2009).

The NSW Subordinate Legislation Act has not been comprehensively reviewed since its introduction in 1989 (NSW Better Regulation Office, 2011, p. 5). It is questionable whether its policy objectives remain valid and effective. While the Subordinate Legislation Act delivered gains in the 1990s by encouraging review of long-standing and outdated regulations, a more strategic approach to regulatory review is now required. The existing staged repeal process is resource intensive, for little or no gain. At present, the automatic sunset provisions burden agencies:

- It typically takes agencies three months and one or more full-time staff members to remake a single regulation when it is due for staged repeal. Agencies are required to prepare a Regulatory Impact Statement for each remake, despite most regulations being remade without significant changes.⁵³
- Parliamentary Counsel's Office experiences a peak of workload in August to redraft, review and publish regulations. That diverts resources from the drafting of Bills and Acts for Parliament.
- The Department of Premier and Cabinet considers numerous requests for postponement by agencies each year; 67 per cent (78) of regulations due for repeal in 2019 were postponed out of a total of 117 regulations.
- The Executive Council must consider each remade regulation.

'Regulatory stewardship', on the other hand, is an asset management approach to regulation, with the stock of regulation as the asset to be managed. It rests on the idea that good regulation

⁵³ NSW Treasury analysis found that more than 90 per cent of agencies and oversight bodies reported less than one in ten regulatory proposals were modified significantly or withdrawn as a result of the regulatory impact assessment process.

requires ongoing attention to ensure it maximises public wellbeing. There is consensus among stakeholders that an active stewardship approach will improve the current regulatory framework (Greiner et al., 2017). A favourable regulatory environment has been shown to lead to greater foreign direct investment (Zhang, 2012), boost productivity (Papaioannou, 2017), and increase our innovation capabilities (Organisation for Economic Co-Operation and Development, 1996).

Under regulatory stewardship, the custodians of regulation (government agencies) take responsibility for the ongoing 'health' of regulations over the regulatory lifecycle.

Unlike automatic repeal processes, regulatory stewardship promotes a strategic approach to regulation review. It lets agencies focus on reviewing the regulatory settings of greatest concern to businesses and community, and on the reforms with the greatest potential to deliver economic benefits. This approach is consistent with international best practice (see Box 4.15).

If agencies published 'regulatory stewardship plans' the need for a staged repeal of regulations could be removed. The publication would enable public and parliamentary scrutiny and appropriately motivate agencies to plan for and review regulation regularly.

Regulatory stewardship plans would also provide information on how agencies fulfil their roles as regulatory stewards. The plans would set out the systems and processes that each agency has in place to manage the regulatory regimes that it administers.

The Commonwealth Government is also considering elements of regulatory stewardship as part of a renewed agenda to ensure regulations are fit for purpose.⁵⁴

Stakeholders support a regulatory stewardship approach within the NSW Government. Sydney Water argued, however, that the effectiveness of such an approach would **'depend on its scope, design, roles and responsibilities assigned within it, and the capability of both regulators and organisations being regulated'**.

Staged repeal is not compatible with regulatory stewardship. The staged repeal provisions of the *Subordinate Legislation Act 1989* should be removed. This would release agency resources to support a systematic, comprehensive lifecycle approach to the management of existing regulation under regulatory stewardship.

BOX 4.15: REGULATORY STEWARDSHIP IN CANADA

Since 2007, Canada has adopted a 'lifecycle' approach to managing regulations as part of strategic regulatory planning. This recognises that regulatory development and analysis is only one part of the regulatory lifecycle. Agencies must also consider the implementation and evaluation of regulations.

Canadian agencies publish annual 'forward regulatory plans'. These set out their plans to review the stock of regulations they manage, and amendments they plan to make. Agencies are responsible for establishing timelines to undertake a regular review of regulatory stock. Several agencies have implemented regulatory modernisation agendas as part of this process.

In fact, Canada's performance improved off a high base between 2015 and 2018. Canada rates strongly in international comparisons of regulatory policy and governance. It scores well above the OECD average on engaging with the community, completing regulatory impact assessments and evaluating regulations after their implementation, all important metrics of stewardship (Weiland, 2012).

⁵⁴ The Assistant Minister to the Prime Minister and Cabinet, the Hon Ben Morton MP, recently announced the Commonwealth leadership's intention to drive deregulation within their portfolios and to streamline and harmonise regulatory processes across agencies and other jurisdictions.

Should staged repeal be retained, it is recommended that the *Subordinate Legislation Act 1989* be amended to provide a 10-year lifespan for subordinate legislation, instead of the current five years. This would bring New South Wales in line with other Australian jurisdictions. It would also free up agency resources currently spent on frequent postponements and remakes that generally result in insignificant change.

STRENGTHEN THE EVIDENCE UNDERPINNING THE POLICY PROCESS

Regulatory impact analysis is an important aspect of policy development and one of the cornerstones of regulatory stewardship. There is significant evidence that it requires improvement in New South Wales.

The Audit Office of New South Wales has previously found that regulatory proposals put to Cabinet did not consistently justify the additional regulatory burden or consider viable alternatives. It said regulatory impact statements (RIS) were often a last-minute, 'tick-the-box' exercise. Poor transparency and an absence of compliance oversight left the Government lacking accountability for high-quality regulation (Audit Office of NSW, 2016a).

The Commonwealth Productivity Commission concluded there is substantial scope for improvement in RIS cost-benefit analysis, and that public transparency is a 'glaring weakness' in Australian regulatory impact analysis (Commonwealth Productivity Commission, 2012a).

This sentiment is echoed in stakeholder submissions, with several noting an inadequate assessment of costs and benefits.

A properly functioning regulatory impact analysis process will deliver significant benefits, particularly as the regulatory burden of shortcomings mounts over time. NSW Treasury has conducted an analysis that draws upon IPART's Review of Local Government Compliance and Enforcement (Independent Pricing and Regulatory Tribunal, 2014). This analysis suggests that the cost to New South Wales of weaknesses in the regulatory impact analysis process could be in the order of \$500 million per year. That is made up of administrative costs, substantive compliance costs, fees and charges, and delay costs.⁵⁵

Regulatory agencies often do not appropriately consider the costs and benefits of regulation. This is particularly the case when determining the costs associated with any reform. A Regulatory Impact Statement (RIS) will often be drafted in generalised terms and claim an inability to capture appropriate data in order to provide useful, reliable and accurate information about cost impacts.

BUSINESS NSW

⁵⁵ This estimate is based on an average net cost to New South Wales per year over 10 years from inconsistent application of regulatory impact analysis requirements on significant amendments to primary legislation (that is, Acts of Parliament). This estimate does not include the cost arising from subordinate legislation (that is, regulation) or other non-statutory instruments (such as environmental planning instruments).

IMPROVE THE ADMINISTRATION OF REGULATION

Poor administration of regulation can impose costs on individuals and businesses. The Commonwealth Government has its Regulator Performance Framework (Commonwealth Government, 2014), largely based on recommendations from the Commonwealth Productivity Commission's 2014 report (Commonwealth Productivity Commission, 2014b). The Commonwealth Productivity Commission noted: ... **many instances of regulators providing incorrect and inconsistent guidance and advice. This poor advice results in businesses having to pay costly fees for consultants or accountants to navigate the maze of regulation. At times, this has also resulted in businesses or individuals finding themselves subject to legal proceedings or penalties for actions, which they took in good faith, based on advice about regulatory requirements.**

New South Wales could incorporate a regulator performance framework into agencies' annual regulatory stewardship strategies, as the Commonwealth Government has done. This would enable agencies to report publicly on:

- their operational effectiveness and efficiency in achieving intended policy outcomes
- performance feedback from stakeholders and other regulators
- targets to encourage improved data practices and digital adoption
- benchmarking of agencies' performance
- opportunities to reduce the administrative burdens on agencies and regulated entities.

Other states have implemented similar performance frameworks, as shown in Box 4.16.

A performance framework, as a component of regulatory stewardship, would build on NSW regulators' existing commitments. For example, the NSW Environment Protection Authority (EPA) prepares an annual Regulatory Assurance Statement that assesses its strengths and weaknesses as a regulator using the 'Modern Regulator's Improvement Tool' developed by the Australasian Environmental Law Enforcement and Regulator's Network. The assessment of its performance includes benchmarking against environmental regulators in other jurisdictions.

Clear public reporting requirements can also motivate regulators to improve their operational performance and to seek out innovative ways to reduce the administrative burden they impose.

BOX 4.16: REGULATOR PERFORMANCE FRAMEWORKS IN OTHER JURISDICTIONS

Victoria

Better Regulation Victoria surveys regulators every two years as part of the 'Victorian Regulatory System' report. This report provides a snapshot of the activities of Victoria's regulators and notes whether regulators have publicly reported against key performance indicators.

Better Regulation Victoria also plays a role in the ongoing monitoring of regulator performance against the 'statement of expectations for regulators' provided to each regulator by its minister.

Queensland

The Queensland Government has implemented a regulator performance framework. It requires regulators to publicly report their operational performance against five model practices each year. The model practices are designed to support regulatory objectives, while reducing unnecessary regulatory burden through better stakeholder engagement, risk-based regulation, continuous improvement, transparency, and tailored information provision.

RECOMMENDATION 4.17: INTRODUCE AN ADAPTABLE AND FORWARD-LOOKING REGULATORY FRAMEWORK

Create a best-practice regulatory policy framework, with regulatory stewardship as the cornerstone, to promote rigorous and transparent impact assessments and improve regulator performance.

Remove the five-year staged repeal provisions under the *Subordinate Legislation Act 1989* or, at a minimum, extend the lifespan of subordinate legislation from five to 10 years.



05 | Meet the challenge of reliable, well-priced water and energy



Recommendations

RECOMMENDATION 5.1: SET A VISION AND A PLAN FOR WATER

Outline the long-term vision for the whole water sector (including rural water, wastewater, stormwater, flood management) and develop a plan to meet the challenges facing the sector.

As part of each metropolitan and regional water strategy, identify the most cost effective and welfare maximising options for meeting the water needs of each place over the long run (consistent with asset life), considering all options (including infrastructure and non-infrastructure, centralised and decentralised).

RECOMMENDATION 5.2: ISSUE STATEMENTS OF EXPECTATIONS

Issue Statements of Expectations to state owned water corporations to provide clear guidance on the Government's plans and direction for the water sector.

RECOMMENDATION 5.3: FIGHT FRAGMENTATION IN NSW WATER SERVICES

Bring together leaders from all key NSW water sector organisations to coordinate and deliver the vision outlined in the State, Metropolitan, and Regional water strategies.

Identify more permanent governance measures to solve the fragmentation of water responsibilities across New South Wales.

Draw on the experience of the Infrastructure NSW South Creek Sector Review to identify other areas in New South Wales that would benefit from integrated land use and water planning and management.

RECOMMENDATION 5.4: ENGAGE ON WATER RECYCLING

Coordinate with state owned water corporations and local water utilities to develop and implement a public engagement program for purified recycled water for drinking.

Work with utilities to explore investment in demonstration plants to help NSW communities to understand the water cycle and build trust in purification technology.

RECOMMENDATION 5.5: ASSESS ALTERNATIVES FOR LOCAL WATER UTILITIES

Work with local water utilities to identify and adopt more efficient operating models for regional water provision.

Design and implement a needs based funding model that encourages efficient operation and gives regional communities a more secure water supply.

RECOMMENDATION 5.6: MONITOR AND REFINE SCARCITY PRICING

As part of the Greater Sydney Water Strategy, consider the full range of demand management options, including any role that price signals might play.

Identify and evaluate innovative pricing models that might reduce our reliance on water restrictions, drawing on public engagement to better understand barriers to their use.

RECOMMENDATION 5.7: REVIEW AND IMPROVE BASIX

Evaluate the water component of the Building Sustainability Index (BASIX) scheme against alternative policies, including an 'informed choice' based system and a catchment-specific or precinct-based integrated water cycle management approach. Implement changes to the program based on the results of the evaluation.

Dictate in the Design and Place State Environmental Planning Policy and *Apartment Design Guide* that applications cannot be rejected because of alternative water sources or rainwater retention and reuse unless:

- they have been informed by a catchment-level integrated water management plan that sets out how the sources will be managed and funded in the long run
- the cost of the inclusion can be shown to be approximately offset by reductions to infrastructure contributions and charges for water services, reflecting the benefits of those sources.

RECOMMENDATION 5.8: POLICY FOR THE NATIONAL ELECTRICITY MARKET

Policy interventions for the NSW region of the National Electricity Market should be developed and implemented through the NEM's governance structure.

Any NSW Government intervention in the system should first:

- establish a clear justification
- show that NEM governance will not resolve the problem
- be subject to rigorous cost benefit analysis that demonstrates value for money of the solution and superiority to alternative options
- incorporate detailed and transparent stakeholder consultation.

RECOMMENDATION 5.9: INVOKING THE ELECTRICITY INFRASTRUCTURE SAFEGUARD

Long-term energy service agreements should only be entered into subject to:

- private allocation of risk and no assumption of losses by taxpayers
- rigorous and published cost benefit analysis demonstrating net benefits to energy consumers and the NSW economy, with outcomes verified and reported on an ongoing basis
- transparent stakeholder engagement to ensure implications are understood.

RECOMMENDATION 5.10: REDEFINE THE ENERGY SECURITY TARGET

The Energy Security Target should be defined in like terms to the national generation reliability standard. If the Target imposes a higher standard, it should be demonstrated as consistent with consumer willingness to pay. If not, the national standard should be adopted in its place.

RECOMMENDATION 5.11: VALUE FOR MONEY LONG-DURATION STORAGE

The NSW Government should require long-duration storage projects demonstrate value for money through independently audited cost benefit analyses that account for their social, environmental, and market impacts. These should be made public.

RECOMMENDATION 5.12: LIFTING THE BAN ON NUCLEAR ELECTRICITY GENERATION

Propose the national ban on nuclear generation be lifted for small modular reactors that satisfy safety conditions.

RECOMMENDATION 5.13: EXPLORE ELECTRICITY PRICING THAT FULLY REFLECT COSTS

Evaluate the expedited rollout of smart meters to all consumers and for mandatory cost-reflective electricity pricing.

RECOMMENDATION 5.14: EFFICIENT LAND USE AND DEMAND MANAGEMENT

Revise the NSW Gas Plan, including a demand management strategy for gas.

Review the Strategic Regional Land Use Policy and Strategic Release Framework to ensure they reflect competitive neutrality and maximise benefits of land use.

RECOMMENDATION 5.15: ACHIEVING NET ZERO EMISSIONS

Establish an economic review into the NSW Government's net zero emissions by 2050 target to report on cost effective policies to deliver on the commitment.

RECOMMENDATION 5.16: RATIONALISE ENERGY REGULATION

Review responsibilities for regulating the energy sector across NSW Government, with consideration to establishing a single regulator to perform these functions.

RECOMMENDATION 5.17: IMPROVE AND RATIONALISE ENERGY REBATES

Improve the efficiency of energy rebates by incorporating them into the *Government Made Easy: Tell Us Once* initiative.

Review the suite of rebate and assistance measures with a view to consolidating their number and better targeting those most in need.

5.1 Water and energy are essential to a productive economy

Water is key to all sectors of the economy as it underpins business operations and household living standards.

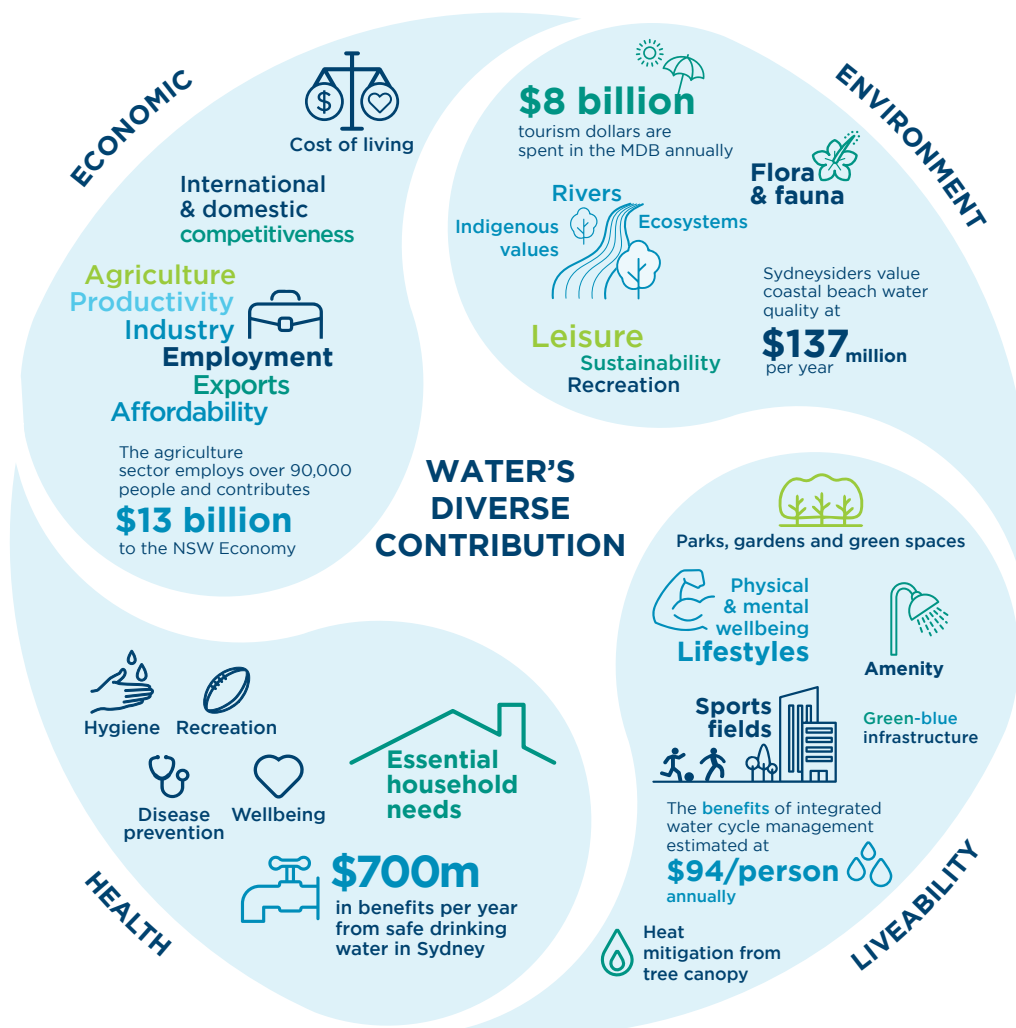
WATER SERVICES ASSOCIATION OF AUSTRALIA SUBMISSION

Reliable and affordable water services, electricity, and gas play a vital role in household activity and almost all production processes.

Even mere threats to the availability of these inputs or volatility in pricing can generate significant uncertainty. For instance, firms facing water shortages may need to change their operations and delay or reconsider productivity-enhancing capital investment.

Historically, the water and energy sectors have involved substantial government intervention. They often depend on the State's land, waterways, mineral deposits, and other resources. Their monopoly characteristics dictate a larger than usual role for Government, whether the State acts as owner and manager or as regulator and coordinator.

FIGURE 5.1: THE FOUR DIMENSIONS OF WATER'S VALUE



5.2 Population and climate are challenging the water sector

In dealing with long term water security, the industry needs to respond to a number of drivers including population growth, climate change, and the need to ensure sufficient water for livable communities.

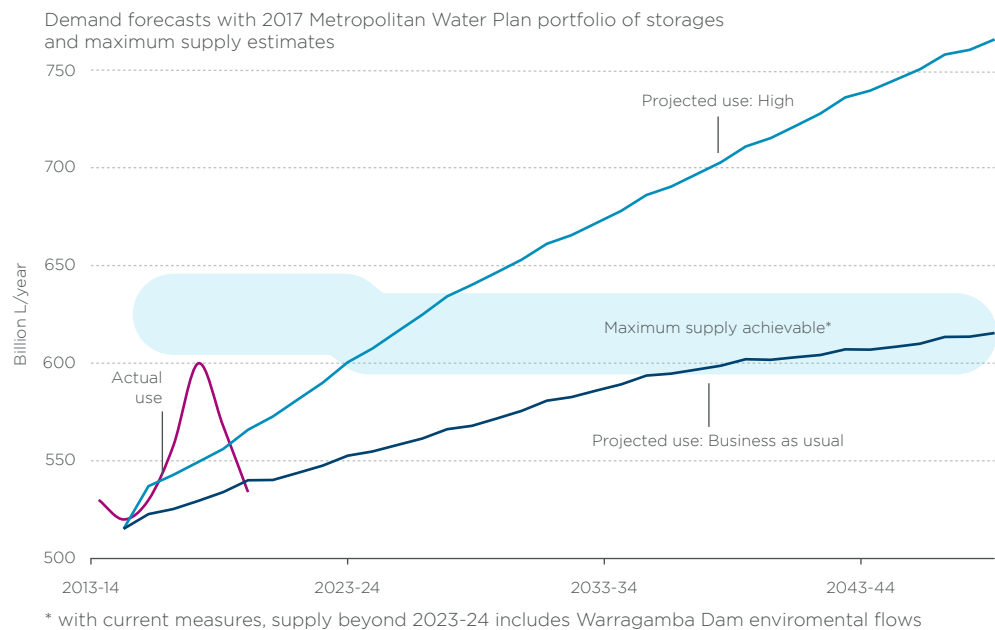
WATER SERVICES ASSOCIATION OF AUSTRALIA SUBMISSION

Over the past two decades, New South Wales' population has grown from 7.1 million to 8.1 million. By 2061, the State will need to accommodate perhaps another 3.3 million people, mostly in the Greater Sydney region.¹ Population will grow most in Western Sydney, which, with rising average temperatures, may add to per capita demand for water. At the same time, water must continue to flow to the environment to allow it to thrive (Figure 5.1).

Individual residential and business use fluctuates from year to year, making total water consumption more variable and less certain. Greater Sydney's water consumption between 2017 and 2019

exceeded what was projected even under a high-use scenario at the time of the 2017 Metropolitan Water Plan. This usage spike persisted until water restrictions and public conservation campaigns drove use down in 2019-20 (see purple line in Figure 5.2). If we revert back to these water consumption patterns, use will exceed supply far earlier than the 2017 Metropolitan Water Plan estimated.

FIGURE 5.2: SYDNEY RISKS RUNNING OUT OF WATER



Source: Adapted from the 2017 Metropolitan Water Plan, NSW Department of Planning, Industry and Environment (2017).

¹ NSW Treasury projection. Population projections to be finalised in the 2021 Intergenerational Report.

As demand grows, there is a risk that traditional rainfall-dependent water supply will become less reliable. A larger Sydney meant water supplies dwindled far more quickly in the latest drought than in the Millennium Drought of 1997

to 2009 (Figure 5.3). Many regional towns experienced even more severe shortages than metropolitan areas; some were forced to ‘cart’ water in on trucks and suffered extreme water restrictions (see Section 5.6).

FIGURE 5.3: A BIGGER POPULATION MEANS SUPPLIES DWINDLE FASTER IN DROUGHT



Source: Water NSW (from NSW Department of Planning, Industry and Environment’s Draft NSW Water Strategy).

In the context of climate change, new public health (and productivity) threats are emerging. They include increasing urban heat, heightened flood risk, and water quality impacts.

SYDNEY WATER SUBMISSION

As the impacts of climate change intensify, improving the productivity and resilience of water resources is more urgent.

PUBLIC INTEREST ADVOCACY CENTRE SUBMISSION

There are further risks to the reliability of water supply for our State. A warming climate will likely disrupt the State’s rainfall patterns in the coming decades. The exact effect of this disruption for key NSW water catchments over the next 50 years is unclear. Average annual rainfall is not expected to be materially different across the State as a whole (NSW Department of Planning, Industry and Environment, 2020c). But the Department of Planning, Industry and Environment (DPIE) predicts that the frequency, intensity, and duration of droughts are likely to increase in New South Wales. Combined with growing water demand, this will make water shortages increasingly likely.

For these reasons, Infrastructure Australia’s 2020 *Infrastructure Priority List* identified water security as a top priority (Infrastructure Australia, 2020).

Forecasters also expect continued warming to make extreme weather events bigger and more frequent. That is likely to heighten risks for other aspects of water management. More frequent storms will present a challenge

for stormwater and flood management. Bushfires too, when combined with heavy rain, can threaten the quality of drinking water in our catchments, as experienced in Bega Valley Shire in February 2020. Stakeholders identified many potential challenges for water supply and management.

While we deal with population and climate challenges, we will also need to manage our existing infrastructure. Parts of the State’s existing water infrastructure are either at capacity or are very old and will require major investment (City of Sydney, 2012).

The recent drought was a timely wake-up call. We need to be better prepared if we are to maintain the affordable and reliable access to water services that are critical to a productive and liveable State.

This preparation involves more than simply additional investment. The current reprieve from water shortages is an opportunity to reform the way we meet our water needs. This paper considers five opportunities for Government to act:

- Improve water governance and planning to achieve better water outcomes more efficiently (Section 5.3).
- Unlock efficiencies and opportunities through coordination and collaboration (Section 5.4).
- Address the barriers to using new water sources to ensure all options are 'on the table' (Section 5.5).
- Improve the performance of local water utilities (Section 5.6).
- Improve efficiency in our day-to-day water usage (Section 5.7).

5.3 Improve water governance and planning

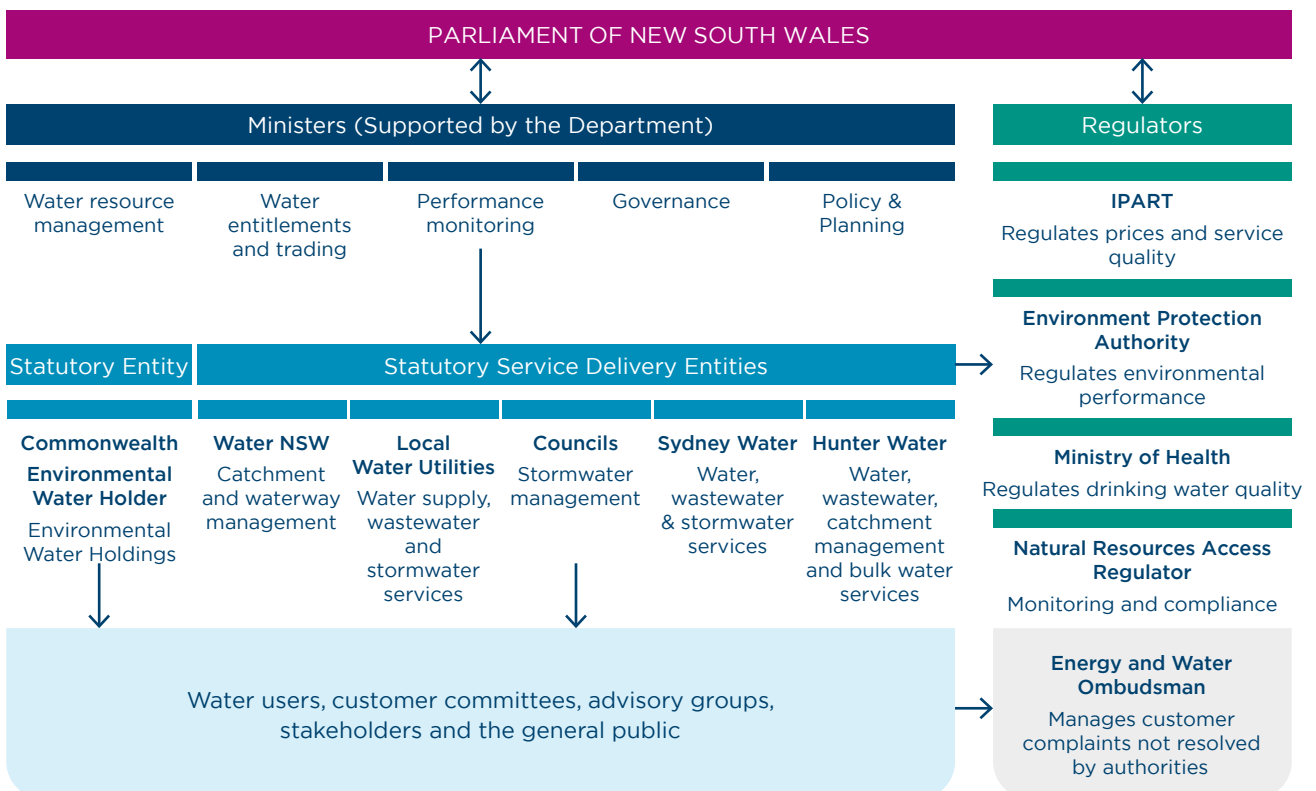
Decisions that the water sector make today will shape the provision of NSW water services for decades. The sector relies on a vast infrastructure network, some of it very old. And the whole system is challenged by population growth and the rising variability of supply. Good long term infrastructure decisions are critical to providing quality drinking water, wastewater, and stormwater services at the lowest cost.

The characteristics of the water sector make long-run decision-making particularly challenging. The water sector is expected to deliver an array of social,

environmental, and market outcomes that in many cases can conflict with each other. Its functions are spread across many agencies and corporations at all three levels of government, creating coordination challenges (Figure 5.4).

The NSW Productivity Commission discussion paper, *Kickstarting the Productivity Conversation* said New South Wales needed strong planning and governance to meet the State's future water needs (NSW Productivity Commission, 2019). Stakeholders echoed this theme in submissions and consultations.

FIGURE 5.4: THE NSW WATER SECTOR



Source: Adapted from *Water for Victoria - Water Plan*.

In our opinion, the management of water in NSW, and in Australia as a whole, has been hampered by the lack of long-range planning.

ONE WATER ADVOCATES SUBMISSION

We strongly support a whole-of-government approach that can bring together organisations with the appropriate expertise required for effective planning.

SYDNEY WATER SUBMISSION

UDIA supports the overarching theme to set a vision for water and create a plan for the challenges facing the sector.

URBAN DEVELOPMENT INSTITUTE OF AUSTRALIA SUBMISSION

THE NSW WATER SECTOR NEEDS A CLEAR PLAN TO MEET THE COMING CHALLENGES

The NSW Government's water plans have served the sector well over the years and been responsive to challenges as they have arisen. Sydney Water's submission noted that the Government's Metropolitan Water Plans have provided a good foundation for supply and demand planning and drought response since the Millennium Drought. But a range of submissions, including those from the Independent Pricing and Regulatory Tribunal (IPART) and OneWater Advocates, argued that strategic planning can be improved.

Stakeholders emphasised the need for a state-wide vision that clearly articulates the Government's long-term market, environmental, and social objectives for the water sector. There was general support for the Government's existing commitments to produce a State water strategy and regional water strategies for all catchments, made in response to the *2018 State Infrastructure Strategy* (Infrastructure NSW, 2018).²

Stakeholders also highlighted other characteristics of the necessary vision, and what is required in a robust plan to deliver on it:

1. The vision should **clearly articulate the Government's objectives**—market, environmental, and social—for the water sector, as highlighted above.

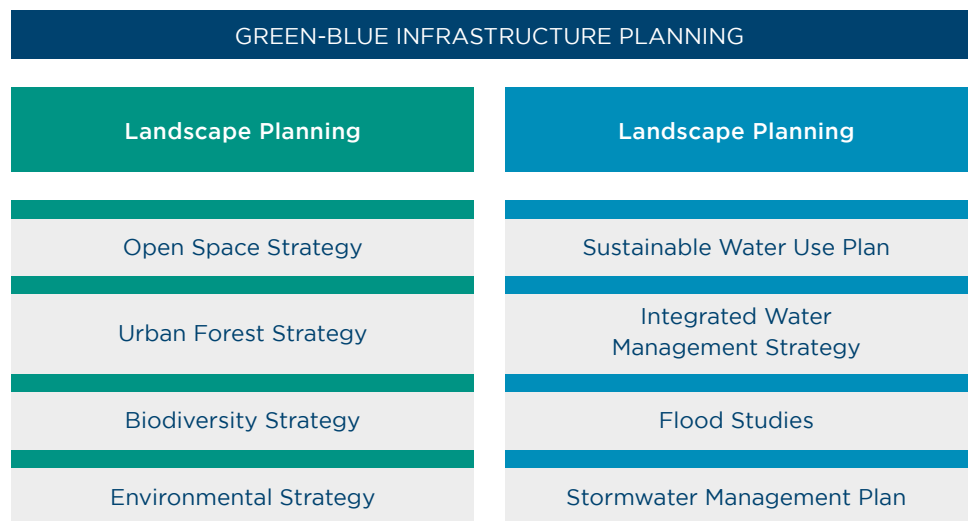
2. The development of plans should involve **greater collaboration and engagement**. While central water planners are well placed to make high level decisions, these decisions need to:

- reflect customers' needs and willingness to pay
- be informed by the expertise and on-the ground knowledge of utilities and regulators
- be accountable to the taxpayer.

Collaboration helps to produce good policy and avoid conflicts in outcomes—for example, between market and environmental outcomes.

3. Water planning would benefit from a **broader scope**. While previous planning has focused on ensuring a reliable and high-quality supply of water through periods of drought, stakeholders including Sydney Water noted the importance of considering wastewater, stormwater, water supply, and general waterway health together.
4. Stakeholders including IPART and Local Government NSW recommended that the NSW Government **improve the process for infrastructure planning and investment decision-making** to consider all options, based on a range of scenarios, over a long timeframe consistent with asset lifetimes. Chapter 8 highlights the need for improved infrastructure decision-making more broadly.

FIGURE 5.5: LAND AND WATER USED PLANNING ARE INTERTWINED



Source: Victorian Department of Environment, Land, Water and Planning (2017b).

² An example was the Local Government NSW submission, which voiced the hope that a State water strategy 'will drive action to overcome a number of barriers, especially prescriptive and conflicting regulatory requirements and unclear roles and responsibilities for water management'.

PIAC recommends that a NSW water planning process ...involve transparent reporting of progress against key indicators for the state and lower-level plans.

**PUBLIC INTEREST
ADVOCACY CENTER
SUBMISSION**

5. Objectives for the water sector and the plan for achieving them should be **aligned and consistent with related government objectives**, such as State land use planning. Land use and water planning are interdependent. For example, the objectives of a land use plan for green spaces depend on water. The Victorian Government's 'how to guide' to assist cities and towns in planning for green-blue infrastructure illustrates these interdependencies (Figure 5.5; Department of Environment, Land, Water and Planning, 2017).

6. The plan should **periodically monitor progress toward objectives and be adaptable** so that the organisations and agencies involved are accountable and the sector can respond to changes in circumstances and new information and take advantage of new technologies. This will require a robust monitoring, evaluation, and reporting framework to periodically track progress.

A draft NSW Water Strategy is out for public feedback

DPIE released a draft NSW Water Strategy in February 2021. When finalised, it will provide the overarching direction for the 12 regional and two metropolitan strategies. These strategies will identify more specific objectives and solutions. The draft Strategy meets some of the characteristics identified above:

- It sets out the Government's objectives in the form of priorities and actions and commits to outlining how these will be measured for ongoing monitoring.
- It aims to improve engagement and collaboration, including with Aboriginal communities (Actions 1.1, 2.1, 2.2; see Box 5.1).
- It has a broad scope, signalling a shift to an integrated water management framework (Action 6.8) and better coordination with land use planning (Action 4.4). It incorporates commitments on waterway health (Action 3.2).
- It commits to better modelling, including of climate impacts (Action 1.3) and to identifying infrastructure and operational options for each region of New South Wales.

The more detailed regional and metropolitan water strategies will address the other more location-specific aims. Well-progressed regional water strategies include the Namoi, North Coast, Far North Coast, South Coast, Border Rivers, Lachlan, Gwydir, and Macquarie-Castlereagh.

Water in many parts of New South Wales is at risk, and additional infrastructure will be needed to maintain reliable water services (Box 5.4). It is important, though, that these risks are addressed in the most efficient way possible.

Most importantly, the metropolitan and regional plans should clearly outline the investment (and policy) approach that will most efficiently meet the Government's long-run objectives for the water sector. A range of options should be evaluated through rigorous cost benefit analysis.

The process of options analysis should consider all available options. This includes:

- both infrastructure and non-infrastructure options (for example, increasing water allocations for towns on rivers and demand management)³
- both centralised and decentralised sources (such as rainwater harvesting and recycling)
- all feasible technologies.

The options analysis does not replace the need for due diligence on individual projects. Individual investment decisions should still be based on a high-quality business case, with consideration of options and cost benefit analysis.⁴ But this analysis would inform the business cases for these individual decisions by putting them in the bigger picture of meeting long-run water service needs.

The Greater Sydney Water Strategy and the Lower Hunter Water Security Plan, as well as the Western, Murray and Murrumbidgee Regional Water Strategies, are expected to be open for consultation in late 2021.

³ The Summary Report of the 2018 Water NSW *20 Year Infrastructure Options Study*, for example, did not indicate that non-infrastructure options nor purified recycled water had been considered.

⁴ This process should comply with NSW Treasury guidance and be subject to the Infrastructure NSW Investor Assurance Framework.

BOX 5.1: ENHANCING ABORIGINAL COMMUNITIES' ACCESS TO WATER

Aboriginal communities have had a deep connection to the land and waters of New South Wales for tens of thousands of years. Waterway health and the quantity and timing of waterflows underpin cultural and spiritual identity as many sacred sites are located along, on, or in riverbeds and waterways. Aboriginal communities have expressed how access to water entitlements that reflect this ongoing connection to the ecosystem play an important role—not only in terms of their cultural connection to country and water but also in enabling them to pursue economic development through activities such as agriculture, aquaculture, and tourism.

Current provisions do not adequately allow Aboriginal cultural water-related needs to be met. For example, only seven cultural water entitlements have ever been issued in New South Wales, with only two remaining in use today (NSW Department of Planning, Industry and Environment, 2020c). While NSW Water Sharing Plans include objectives relating to Aboriginal communities' water interests, the practical value of these provisions is unclear.

There are also significant barriers to Aboriginal communities accessing water for economic purposes. Water holdings by Aboriginal organisations and entities in the New South Wales portion of the Murray-Darling Basin represented 0.2 per cent of all available surface water, as of October 2018 (Hartwig et al., 2020).

The need to restore ownership of water to Aboriginal communities is increasingly being recognised by Australian Governments. The Commonwealth Productivity Commission recently highlighted the need to include Traditional Owners' interests in water in jurisdictional planning and the management of water.

The NSW Draft State Water Strategy acknowledges the need for reform in its second priority to 'Recognise Aboriginal rights and values and increase access to and ownership of water for cultural and economic purposes'. The Strategy proposes some actions, including: a partnership agreement with the Aboriginal Water Coalition, developing a state-wide Aboriginal water strategy, and providing Aboriginal ownership of and access to water for cultural and economic purposes.

These priorities are similar to Target 15 of the New Agreement on Closing the Gap which commits Australian Governments to a 15 per cent increase in the landmass and sea subject to Aboriginal and Torres Strait Islander people's legal rights or interests. This Agreement also commits Australian Governments to specifying a target for the amount of inland water that should be subject to Aboriginal and Torres Strait Islander legal rights or interests.

RECOMMENDATION 5.1: SET A VISION AND A PLAN FOR WATER

Outline the long-term vision for the whole water sector (including rural water, wastewater, stormwater, flood management) and develop a plan to meet the challenges facing the sector.

As part of each metropolitan and regional water strategy, identify the most cost effective and welfare maximising options for meeting the water needs of each place over the long run (consistent with asset life), considering all options (including infrastructure and non-infrastructure, centralised and decentralised).



SET OUT CLEARER ROLES AND RESPONSIBILITIES FOR WATER

For the water sector to be able to deliver the objectives laid out in strategic plans as efficiently as possible, the function of each participant should be clear. Clear roles and responsibilities make it easier for each to ensure its own operations meet higher-level strategic objectives and will make it possible to hold institutions accountable.

Changes to the structure of the sector over recent years have contributed to confusion about responsibilities. For instance, stakeholders noted that the creation of WaterNSW left an unclear division of licensing responsibility between the new corporation and the water functions of the DPIE.

Stakeholders also argued that more clearly specified responsibilities and priorities would drive efficiency improvements. For example, WaterNSW's many statutory responsibilities include the very broad and vague duty of 'ensuring that declared catchment areas ... are managed and protected'.

When governments struggle to define or measure responsibilities, as in this case, they often struggle to drive efficiency and performance.

In addition to the specifically legislated roles, the Government outlines responsibilities for the water sector through regulatory standards (for instance relating to pollution) and through Directions by the portfolio Minister (with the approval of the Treasurer). IPART's submission emphasised the importance of Directions to undertake non-commercial activities being clearly defined and funded.

Beyond these roles, the water sector is also subject to broader policy objectives (such as those mentioned in the NSW Water Strategy). Sydney Water's submission noted that they are already expected to deliver on Government's objectives beyond the 'traditional' water and wastewater services that lie within its remit (see Case Study 5.1).

CASE STUDY 5.1: SOLVING WESTERN PARKLAND CITY'S WATER CHALLENGES

The growing role of water in promoting the liveability of communities such as the Western Parkland City exemplifies the tension between NSW Government priorities and formal responsibilities of state-owned corporations. It also points to a possible solution.

Sydney Water has a statutory responsibility to protect public health by supplying safe drinking water, to protect the environment, and to be a 'successful business'. It is answerable to shareholder Ministers (the Treasurer and the Minister for Finance) on these objectives.

At the same time, there are expectations that Sydney Water will contribute to other policy priorities of the Minister for Water. One is that it will supply recycled water to support significant green spaces envisaged for the Western Parkland City in the *A Metropolis of Three Cities* strategy (Greater Sydney Commission, 2018a).

The Government has identified that taking an integrated approach to land use and water planning across the South Creek catchment would deliver benefits. A second economic analysis found further benefits in a catchment-wide approach to planning and delivery of stormwater infrastructure and waterways management (NSW Department of Planning, Industry and Environment, 2021b).

This integrated approach is being adopted in other cities around the world and may prove useful in other parts of Sydney and the State.

A clearer Statement of Expectations, jointly issued by the Minister for Water, the Treasurer, and the Minister for Finance, would be one way to transparently communicate the Government's policy priorities to state-owned corporations. Victoria's Minister for Water has used this method to outline the priorities for Victoria's water corporations (Department of Environment, Land, Water and Planning, 2017).

The role of a Statement should be to coordinate the actions of the water sector, and to be a starting point for discussions with government about how its operations contribute to those priorities. A comprehensive, explicit set of policy priorities would enable

state-owned corporations to better plan their investments and operations, while still meeting their primary responsibilities to shareholders, and customers.

It is important that the Statement is not used as a Direction; it should not override legislated responsibilities or allocate additional funding. The Statement should be clear that a Ministerial Direction (with associated funding) would still be the appropriate way to instruct and fund state-owned corporations to pursue activities that are non-commercial or where it would not be in the interests of the broader customer base.

RECOMMENDATION 5.2: ISSUE STATEMENTS OF EXPECTATIONS

Issue Statements of Expectations to state owned water corporations to provide clear guidance on the Government's plans and direction for the water sector.

[T]he governance and regulation of state-owned water utilities could be improved if the following were implemented ... 1. Shareholders of state-owned water utilities are more active in driving performance and efficiency gains ... 2. Non-commercial objectives or requirements imposed on state-owned water utilities are clearly defined and funded 3. Environmental and other regulatory requirements imposed on water utilities... achieve objectives at lowest net cost or greatest net benefit i.e. value for money.

5.4 Unlock efficiencies and opportunities through coordination and collaboration

In the somewhat fragmented water sector, all players must work together more closely—water corporations, catchment management authorities, regulators, water policy agencies, and local government.

The separation of responsibilities can avoid conflicts of interest in fields such as regulation and drive efficiency benefits (for example, when water utilities specialise geographically by covering different catchment areas).

But the same division of responsibilities can also create challenges, especially because many water responsibilities are interrelated. For example, the Audit Office of New South Wales recently highlighted that water conservation responsibilities are unclearly distributed between DPIE and Sydney Water, and this restricted the planning and implementation of water conservation (Audit Office of New South Wales, 2020a). Stormwater management and wastewater treatment are divided across multiple institutions, meaning that no individual body or person can be held fully accountable for waterway health. Fragmented governance makes the health of our waterways more difficult to maintain as the stresses on them grow (see Case Study 5.2).

Better coordinated governance would also help the water sector identify and realise economies of scope—efficiencies that arise from operational breadth. While there can be economic benefits from specialisation, a ‘siloed’ approach tends to miss or fail to fully achieve better outcomes and efficiencies that might have been possible with better coordination. For example, regional water utilities benefit from the vertical integration of water supply, wastewater, and stormwater, but are fragmented geographically by local government borders.

The water sector’s functions are spread across a number of agencies and corporations. That makes coordinated long-term decision-making harder.

CENTRAL NSW JOINT ORGANISATION SUBMISSION

Reducing fragmentation—and improving coordination—in the NSW water sector can improve productivity in water management, and provide better outcomes for water customers, the broader community, and our environment.

SYDNEY WATER SUBMISSION

Regulation is another area where a broader perspective may achieve efficiencies. Regulating based on outcomes, rather than on activities, may achieve waterway health objectives at lower cost. The proposed Hawkesbury-Nepean Nutrient Offset Scheme focuses on the waterway health outcomes for the river system, rather than the activities of individual treatment plants. The scheme allows Sydney Water to 'trade' water quality between individual treatment plants in the most cost-effective way and offset their pollution by contracting diffuse polluters (such as stormwater service providers) to reduce their discharges.

Recent changes within the NSW Government have reduced fragmentation and improved coordination by bringing all policymaking and water-related planning teams into DPIE. DPIE has also recognised the need for greater coordination by initiating an informal coordinating body. It is led by the Chief Executive Officer, Water, and helps resolve gaps and overlaps in the governance of the sector.

The informal coordinating body will rely on the goodwill of the participants. It sets the direction for more permanent, water governance changes that may work better as priorities change over time.

One proposal raised during the consultation process was that catchment managers be established and given responsibility for the health of entire waterways, both within Greater Sydney and elsewhere in the State.

A shift to catchment-level management, perhaps through a formalised collaboration arrangement or joint organisation, could generate efficiencies and improve environmental outcomes. In Greater Sydney, Sydney Water's oversight of stormwater management could be increased, either by subsuming councils' responsibilities for stormwater (and associated funding) completely, or through a coordinating role.

Catchment level responsibility for water planning, management, investment, land use, and service provision would ... provide a consistent platform for greater economies of scale and enable more efficient resource sharing and investment.

PUBLIC INTEREST ADVOCACY CENTRE SUBMISSION

CASE STUDY 5.2: A FRAGMENTED APPROACH TO SYDNEY'S STORMWATER MANAGEMENT

Stakeholders highlighted fragmentation as a constraint on water management in Greater Sydney.

The way stormwater is captured and managed has implications for a range of broader water sector objectives, including waterway health and flood management. With appropriate treatment, stormwater can also be a valuable water resource.

Currently, however, while stormwater responsibilities are divided between councils (and in some instances Sydney Water), broader water objectives are the responsibility of government agencies and state-owned corporations. This makes it harder to coordinate the various parts of the water sector to achieve the best outcomes for the community. The benefits of stormwater capture, for example, may accrue to downstream communities, by reducing pollution or flood risk or in other ways. But councils upstream incur the costs. That reduces the likelihood that beneficial investments will go ahead.

In its submission, Sydney Water describes 'an absence of strong governance and integrated management of stormwater and waterways.' Better coordination or more permanent changes to governance would address these issues.

Land use and water management and quality are inextricably linked in urban areas: for example, permeable surfaces have a bearing on stormwater runoff and flooding. Some stakeholders noted that an entity with oversight of waterway health and stormwater management would also need greater involvement

in land use planning to achieve optimal outcomes for the catchment. Permeable surfaces or onsite rainwater harvesting might enable the stormwater manager to reduce its expenditure on stormwater retention basins, for example (see Section 5.7).

RECOMMENDATION 5.3: FIGHT FRAGMENTATION IN NSW WATER SERVICES

Bring together leaders from all key NSW water sector organisations to coordinate and deliver the vision outlined in the State, Metropolitan, and Regional water strategies.

Identify more permanent governance measures to solve the fragmentation of water responsibilities across New South Wales.

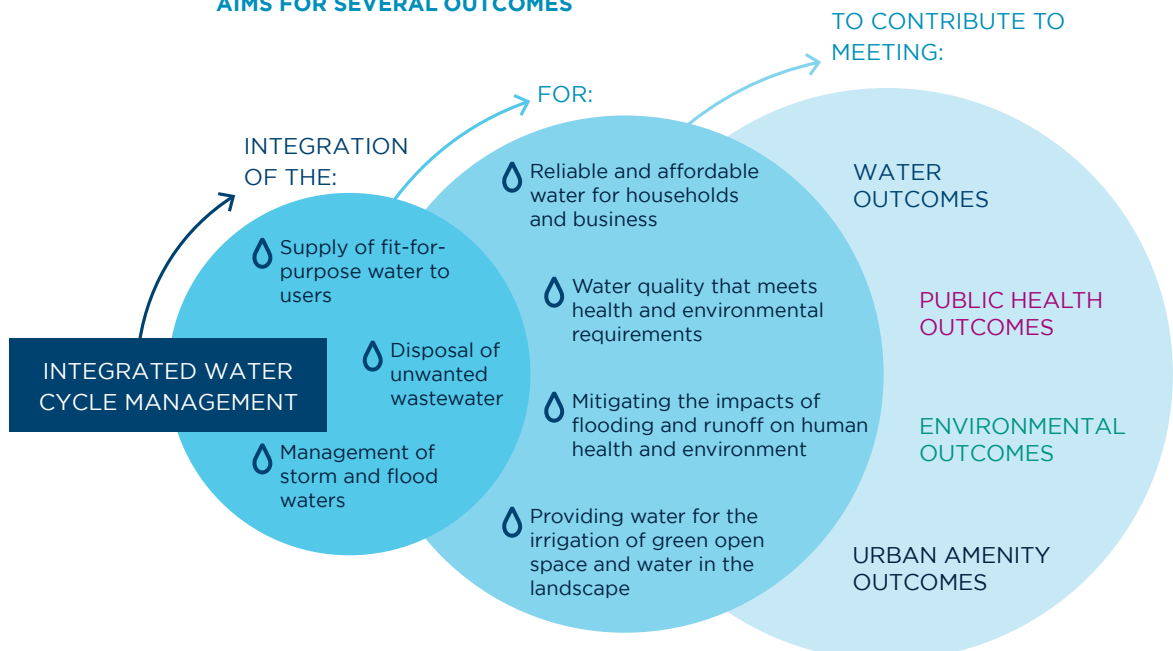
Draw on the experience of the Infrastructure NSW South Creek Sector Review to identify other areas in New South Wales that would benefit from integrated land use and water planning and management.

5.5 Address barriers to using new water sources

As water management grows more challenging, water policymakers and service providers broadly agree we should take a more integrated approach to providing water services. In other words, we should treat water supply, wastewater, and stormwater services as interrelated tasks.

Under this approach, known as integrated water cycle management, wastewater and stormwater become resources that we can reuse (Figure 5.6).

FIGURE 5.6: INTEGRATED WATER CYCLE MANAGEMENT AIMS FOR SEVERAL OUTCOMES



Source: Commonwealth Productivity Commission.

Emerging capacity constraints in Sydney’s key wastewater assets provide a strong planning and financial incentive to consider recycling as a wastewater management tool, as well as a water supply solution.

SYDNEY WATER SUBMISSION

Benefits of this approach include:

- delaying or avoiding expensive infrastructure upgrades and network expansions, cutting costs and containing prices
- improving environmental outcomes by discharging less wastewater and stormwater
- increasing resilience to drought
- providing access to rainfall-independent water where seawater desalination is technically challenging.

Many of these benefits were recognised in submissions by stakeholders such as Sydney Water and Western Sydney’s councils.

WATER RECYCLING HAS GROWN MORE AFFORDABLE AND FEASIBLE

Several NSW communities—including Greater Sydney—will need new water sources and significant upgrades to wastewater networks if they are to meet the needs of growing populations and the ‘greening’ priorities of local governments, the Greater Sydney Commission, and the NSW Government.⁵

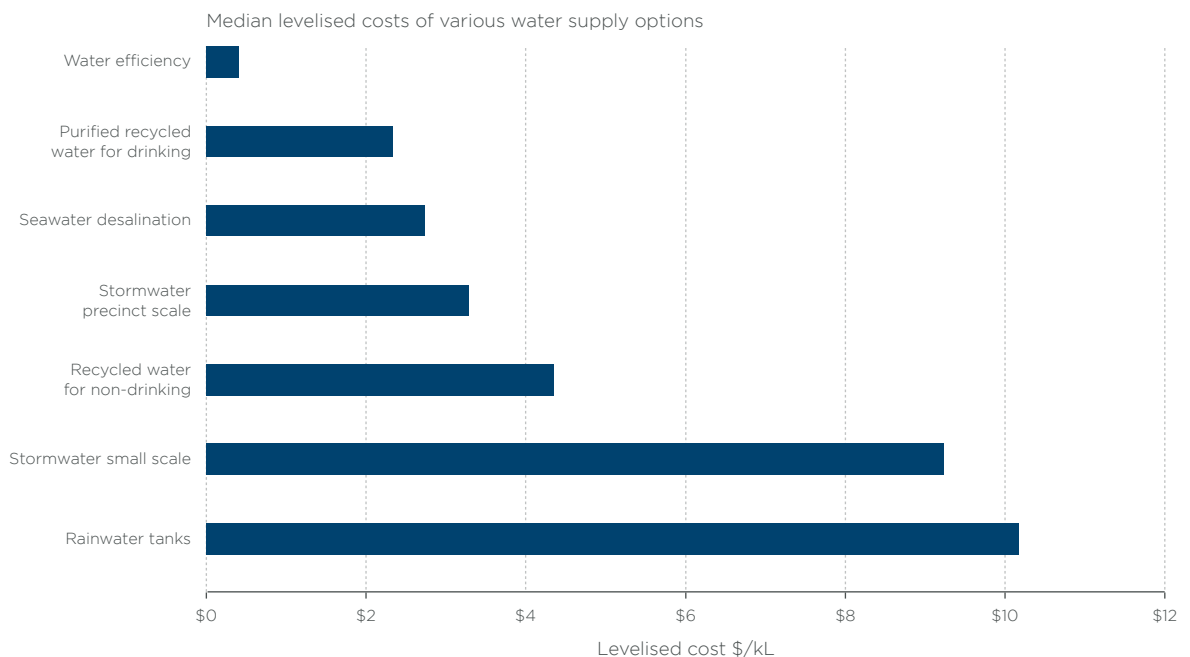
Advances in treatment and purification technology have made recycling water

a more affordable, technically feasible and safe solution. The ‘levelised’ cost of producing purified recycled water for drinking is on par with desalination (see Figure 5.7) (Water Services Association of Australia, 2020).⁶ But water recycling provides additional benefits, including lower costs of distribution (such as pumping costs), reduced wastewater discharge, and lower energy usage and carbon emissions.

New South Wales already takes advantage of these benefits. Several communities—including Greater Sydney and Orange—indirectly reuse water (see Box 5.2). To take one example, pumping treated wastewater from the Southern Highlands to the ocean would be prohibitively expensive. Instead, we purify this wastewater and discharge it back into the Wingecarribee River. It then flows into Warragamba Dam, saving the cost of transporting the water and contributing to Sydney’s water supply.

As Greater Sydney grows, we can reap significant benefits from more water recycling. The high costs of expanding surface water or desalination capacity to meet demand will likely make water recycling a more important part of the portfolio.

FIGURE 5.7: WATER RECYCLING CAN SAVE MONEY



Source: Water Services Association of Australia.

⁵ ‘Greening’ refers to increasing the vegetation in an urban environment: for example, increasing the number of trees on city streets or allowing for parks and reserves in new suburbs.

⁶ Levelised costs take into account the present value of the upfront capital costs, and ongoing operational and maintenance costs.

The Western Parkland City is unique because we have the opportunity to implement improved water management from day one.

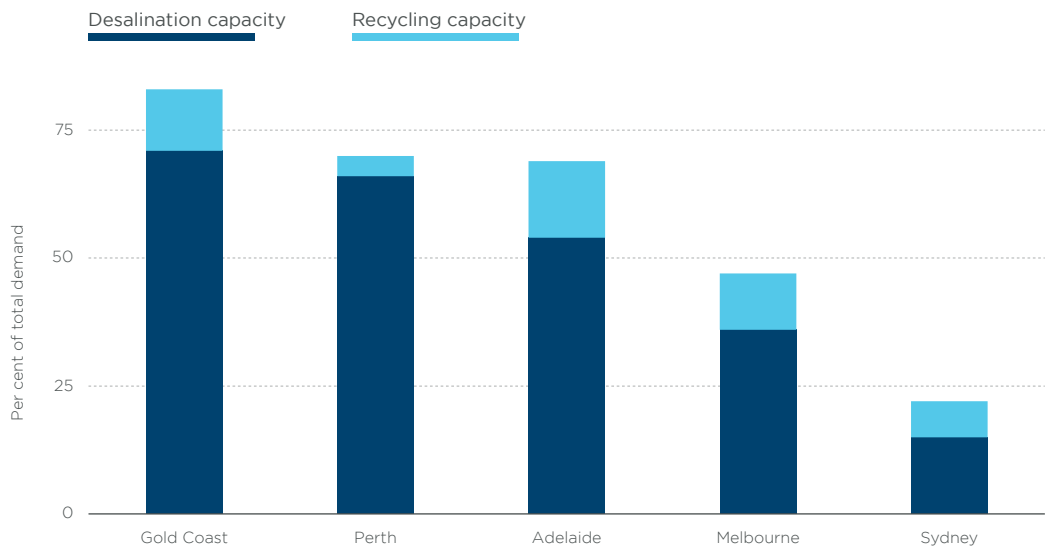
**URBAN DEVELOPMENT
INSTITUTE OF AUSTRALIA
SUBMISSION**

An early review suggests an integrated water cycle management approach to delivering the Western Parkland City (WPC) has the potential to deliver greater benefits than a traditional approach for a similar cost (Commonwealth Productivity Commission, 2020d; NSW Department of Planning, Industry and Environment, 2021b). Over half the extra benefits of a more integrated approach stem from avoiding or deferring water-related infrastructure spending. The integrated approach also provides urban cooling, lowers energy costs, and reduces wastewater discharges into the environment (NSW Department of Planning, Industry and Environment, 2021b).

REMOVE BARRIERS TO UNLOCK THE BENEFITS OF INTEGRATED WATER MANAGEMENT

Stakeholders noted that uptake of water reuse has slowed in recent years, despite widespread recognition of its benefits. Sydney produced less recycled water in 2018-19 than in 2012-13, while Melbourne’s production has risen by more than 50 per cent (Bureau of Meteorology, 2020, p. 20). Far more than other major Australian cities, Sydney’s water supply depends on rain (Figure 5.8).

FIGURE 5.8: SYDNEY’S WATER SUPPLY DEPENDS ON RAIN



Source: NSW Department of Planning, Industry and Environment.

BOX 5.2: TYPES OF WATER RECYCLING

Non-potable reuse schemes involve treating water that is not safe to drink and distributing it for other purposes, such as flushing the toilet or watering the garden. This requires a separate pipe network.

Direct potable reuse involves purifying stormwater or wastewater to drinking quality and redistributing it through the water network.

Indirect potable reuse involves releasing treated water into an ‘environmental buffer’, such as a river or underground aquifer, before re-extracting and treating the water for drinking. Currently there are no intentional indirect potable schemes in the State. Indirect potable reuse does occur when treated wastewater is released into river systems that feed other water supplies.⁷

Water can be recycled through **centralised** infrastructure (large-scale treatment and purification plants), or through **decentralised** infrastructure to service a smaller community such as a large apartment building.

Two main purification processes have been used in other jurisdictions. **Reverse osmosis trains** (using membranes) have historically been the most common choice for purified recycled water and use the same technology as desalination plants. **Carbon trains** (using ozone and activated carbon filters) are increasingly being used due to their lower cost and environmental benefits—unlike reverse osmosis they do not produce a concentrated ‘brine’ of salt and residual organic substances, which can be hard to dispose of.

Some reuse of water for drinking purposes does occur (see Box 5.2). But most recycled water in New South Wales is used for non-drinking purposes. In 2019-20, Sydney Water recycled 47 billion litres of water, with only around a quarter provided back to households and business to offset the demand for drinking water. Most of the water recycled was released into rivers as environmental flows or used in agriculture. Private recycling operators, such as golf courses and commercial

building operators, supplied around one billion litres for non-drinking purposes (Sydney Water, 2019b).

Following a review by Infrastructure NSW into barriers to recycling, the NSW Government has addressed some of the impediments to the uptake of cost effective water recycling (Frontier Economics, 2018). But as set out in Table 5.1, important barriers remain.

TABLE 5.1: PROGRESS IN REMOVING BARRIERS TO INTEGRATED WATER MANAGEMENT

BARRIER	PROGRESS
Negative public perception	Water utilities have been engaging with communities to understand the likely level of community acceptance of recycling. Utilities are investigating how facilities might help to demonstrate and engage on the benefits of recycling.
Fragmented responsibilities across the water cycle	DPIE is leading a WPC Waterways and Stormwater Governance Project. The recommendations, expected to be published in late 2021, will have implications on how waterways and stormwater are managed in other urban areas of the state.
Unclear objectives for state-owned corporations	Statements of Expectations will enhance state-owned corporations' ability to deliver reuse schemes where they align with the Government's stated objectives and consumers' willingness to pay.
Wastewater prices do not reflect the long-run costs of network augmentation	IPART and Sydney Water are working together to estimate the long-run marginal cost for Sydney's wastewater catchments.
Zero developer charges favour traditional infrastructure solutions	The Government has accepted the recommendation for a phased return to cost-reflective water developer contributions per the NSW Productivity Commissioner's <i>Review of Infrastructure Contributions</i> . The NSW Government will publish a blueprint to deliver the reform.

⁷ For example, towns in the Southern Highlands and Blue Mountains release purified wastewater into the river systems that feed into Sydney's water supply and Penrith releases treated water into the Hawkesbury-Nepean river system that is then used to supply North Richmond.

The most economically beneficial pathway for future city-wide wastewater management is to disaggregate some of our large coastal systems and recycle more water.

**SYDNEY WATER
SUBMISSION**

Pricing wastewater services

One barrier to greater reuse is the way we price wastewater services. Water reuse can postpone the need to upgrade wastewater infrastructure—for example, by reducing the amount of wastewater that needs to be transported to the coast. As the State’s population grows, a traditional approach to water management will require that wastewater networks be upgraded at significant cost.

But unlike the pricing of drinkable water, wastewater user charges do not reflect the cost of such upgrades or other long-run capital costs. Prices are based on the estimated short-run marginal cost of transporting and treating the sewage.

IPART has encouraged Sydney Water to improve its estimates of long-run marginal costs for each of its wastewater catchments. IPART recommends incorporating long term capital costs, in line with Sydney Water’s approach for estimating water supply costs. This would help to value the benefits of water reuse schemes and improve their viability (Independent Pricing and Regulatory Tribunal, 2020c).

Developer charges

Developers are charged for recycled water schemes but not for traditional water and wastewater servicing. The Public Interest Advocacy Centre submission argued that this cuts developers’ incentive to invest in ‘decentralised’ integrated water management infrastructure. IPART favoured a return to cost-reflective developer charges.

The NSW Productivity Commissioner’s recent *Review of Infrastructure Contributions* recommended a phased return to cost-reflective water developer charges (NSW Productivity Commission, 2020b). The NSW Government has accepted this recommendation and will publish a blueprint to guide implementation. The reinstatement of water developer contributions will level the playing field for decentralised integrated management solutions.

There will be a need for potable reuse in some shape or form in the coming future.

ONEWATER ADVOCATES SUBMISSION

WILL THE COMMUNITY ACCEPT THIS ALTERNATIVE WATER SOURCE?

Perhaps the most significant barrier identified by stakeholders is the public perception of drinking recycled water.

This 'yuck factor' has made governments unwilling to consider potable water recycling because of their vulnerability to negative campaigns (see Case Study 5.3). People are generally comfortable

with using recycled water for watering their gardens and cleaning their cars, but can initially be far less accepting of drinking or bathing in recycled wastewater. This is notwithstanding the fact most children learn in school that water is, ultimately, endlessly recycled by nature.

CASE STUDY 5.3: WHAT WE CAN LEARN FROM TOOWOOMBA

Toowoomba is Australia's best-known example of how a public engagement campaign on recycled water can go astray.

Faced with a critical water supply shortage during the Millennium Drought, Toowoomba was forced to make plans to source water in a range of ways, including indirect potable reuse. The Council lodged a submission for funding for the recycling facilities with the Commonwealth Government, with unanimous support from local, State, and Commonwealth politicians (Thorley, 2006).

Before receiving funding, groups that opposed the plan fought an aggressive campaign about quality water (even though the plant was to produce higher quality water than the existing supply). This opposition reportedly prompted the Commonwealth to require a referendum as a condition of funding (Commonwealth Productivity Commission, 2011).

Residents voted against the system, forcing the construction of a pipeline to a dam 38 kilometre away that may receive recycled wastewater from the Western Corridor Recycled Scheme anyway. But this came at a capital cost \$120 million more than the estimated cost of the proposed recycling scheme.

A subsequent study suggested that the rushed nature of the referendum played a major role in the rejection of the recycled water scheme (Dolnicar & Hurlimann, 2010).

The key lesson from Toowoomba is that governments considering recycled water need to start engaging early to ensure that the evidence is well entrenched by the time an investment decision is made.

Public acceptance of wastewater reuse is generally low and perceptions of low purity of such water will need to be overcome through public information and education.

THE AUSTRALIAN ACADEMY OF TECHNOLOGY AND ENGINEERING SUBMISSION

Among different types of recycling, there is a trade-off between the degree of public acceptance and cost. Non-potable or 'third pipe' recycling, for example, circumvents community concerns by creating separate supplies for drinking and non-drinking water. While this option has been used in new developments such as Rouse Hill, it is more costly and prohibitively expensive in established areas.

Distributing purified recycled water through existing infrastructure for drinking and non-drinking uses is a more efficient option than third pipe recycling. It presents no additional health risks and avoids the cost of a whole new reticulation system to deal with what is fundamentally an image problem.⁸

To unlock the potentially significant long-run payoffs of water recycling, community support for recycled water must be achieved. Recycled water is accepted and used for drinking in many jurisdictions. Other jurisdictions have found that resistance to recycled water for drinking diminishes as people engage with decision-makers and learn more about recycling (Water Services Association of Australia, 2020).

There are already signs that the community is open to recycled drinking water. The Lower Hunter Water Security Plan's customer engagement survey showed high levels of support for portfolios that included community engagement on purified recycled water. Close to 60 per cent of NSW respondents in a survey by the

⁸ Health regulations are not an explicit barrier in this respect as NSW Health advises that recycled water is currently permitted as long it is found to meet the Australian Drinking Water Guidelines.

Experience, locally and internationally, indicates that support for the implementation of recycled water is heavily dependent upon effective community education to build the understanding of the water cycle and trust in water recycling technology.

PUBLIC INTEREST ADVOCACY CENTER SUBMISSION

35 locations around the world [are] already using purified recycled water for drinking.

WATER SERVICES ASSOCIATION OF AUSTRALIA SUBMISSION

Water Services Association of Australia (WSAA), the peak body for the urban water industry, stated they wanted to know more about the subject (Water Services Association of Australia, 2021). And as noted above, many water users across the State drink purified recycled water already and without complaint.

Still, there is value in ensuring that the community supports recycling before investments in large-scale potable recycling are made. Experience in other parts of the country demonstrates this (see Box 5.3). Stakeholders, including the Urban Development Institute of Australia, the Public Interest Advocacy Centre, Open Cities Alliance, and councils, supported large-scale public engagement on purified recycled water. This would aim to build acceptance of water recycling technology.

Demonstration plants may be an effective way to engage more deeply with the community. Recent research by WSAA finds almost all jurisdictions that have invested in demonstration plants—including in the United States, Singapore, and Western Australia—have gained

public support and gone on to adopt purified recycled water as part of their water infrastructure portfolios. None have gone on to reject this technology, although some have not yet made an investment decision.

These plants also have broader benefits, including enabling health regulators to test that the purified water meets health requirements, providing training, and giving a clearer idea of what operational costs would be in a full-scale plant.

Demonstration plants used in other jurisdictions range from basic facilities (such as the Perth plant) and mobile plants built onto truck trailers, to large-scale experiential centres such as in Singapore. Permanent demonstration plants may be an appropriate solution for larger cities, while mobile demonstration plants might allow engagement in regional towns. The Government and water utilities should evaluate whether demonstration plants would be beneficial for New South Wales.

BOX 5.3: SIX THINGS WE CAN LEARN FROM OTHER PLACES

- **Large cities can do this.** Today more than 35 cities around the world rely on purified recycled water for drinking, including Perth, Singapore, London, and Los Angeles.
- **It needs trust and understanding.** Public knowledge of the urban water cycle and of the challenges of resilience and sustainability is important. Trust in institutions and a belief in the technology that will deliver the reuse service are critical. International experience shows that demonstration and experience centres encourage public participation and education and help determine success.
- **It takes time.** Perth's current indirect potable scheme took 13 years to plan and deliver. That contrasts with Toowoomba, which rushed its decision-making and limited its engagement program and public debate to just three months.
- **Language can have an impact.** The term 'wastewater' is acceptable, while any reference to 'sewage' will be off-putting. Damaging media headlines such as 'toilet to tap' can undermine a proposal.
- **Political leadership makes a difference.** Engagement across the full political spectrum is critical to gaining and keeping support.
- **Regulators play a powerful role.** Regulators, as the risk managers, can lead government and community perception and have the authority to determine that purified recycled water can safely proceed.

RECOMMENDATION 5.4: ENGAGE ON WATER RECYCLING

Coordinate with state owned water corporations and local water utilities to develop and implement a public engagement program for purified recycled water for drinking.

Work with utilities to explore investment in demonstration plants to help NSW communities to understand the water cycle and build trust in purification technology.

Improve the performance of local water utilities in the regions

Outside Greater Sydney and the Lower Hunter, water services are provided by council-owned and run utilities known as local water utilities (LWUs). Some 92 LWUs serve more than 1.8 million people across regional New South Wales.

Unlike metropolitan utilities, these LWUs have a wide-ranging set of responsibilities, including planning, bulk water supply, infrastructure delivery and maintenance, and the provision of water, wastewater, and stormwater services. This business model brings benefits, including the ability to take an 'integrated' approach to water management (see Section 5.5), and challenges.

Operational scale poses a problem to many LWUs. They often provide water services to small populations spread out across vast and often dry stretches of New South Wales; more than half have fewer than 5,000 connections (NSW Department of Planning, Industry and Environment, 2021c). A lack of scale can add significant costs for each customer.

Compounding these challenges, many LWUs struggle to attract and retain the skilled staff they need, due to their relatively remote locations. Several government and consumer groups highlighted issues around the capabilities of LWUs to adequately manage water supply security, drinking water quality and environmental risks.

The recent drought exacerbated the challenge for LWUs, some of which experienced serious water security and quality issues (see Box 5.4). Since the drought, flooding has caused further risks to water supplies.

Many LWUs also serve low-income communities. This, combined with significant operating challenges, means that utilities can struggle to independently fund services that meet health, environmental, and social objectives. For this reason, the NSW Government provides some funding through infrastructure grants to help utilities meet these objectives.

Many of the local councils in ... regional New South Wales have the responsibility, but not the expertise, financial resources or capability to undertake the assessments, planning, investment and management that is required to facilitate sustainable and secure access to water.

PUBLIC INTEREST ADVOCACY CENTRE SUBMISSION

BOX 5.4: WATER SECURITY ISSUES HAVE UNDERLINED LOCAL WATER UTILITIES LIMITATIONS

New South Wales has only recently emerged from a severe drought that threatened the water security of cities and towns across the State. These drought conditions were unprecedented. But they also underlined the consequences of ineffective planning and management.

In late 2019, around 10 regional NSW towns were close to 'zero' water, including Dubbo, Cobar, and Narromine. Some resorted to carting water, among them Euchareena and Guyra. Many others had six to 12 months of supply, such as Tamworth (Davies, 2019; Audit Office of New South Wales, 2020b). Some affected towns imposed level five water restrictions, which commonly ban any outdoor water use and encourage strong voluntary water reduction for households, such as shorter showers. Many councils ceased irrigating public parks, gardens, and sporting grounds.

FUND LWUS MORE SUSTAINABLY AND EFFICIENTLY

LWUs receive grant funding from the NSW Government through the *Safe and Secure Water Program*. This program, managed by DPIE, provides grants for infrastructure projects prioritised based on the size of the existing risk to water safety and security.

This funding model may discourage utilities from operating efficiently. Funding based on the size of the risk may create incentives for LWUs to hold back on investment to the point where risk is high enough to secure grant subsidies. The consequence is that funding is often not distributed according to need. Risk-based grants can also increase opportunities for political interference and encourage a bias towards infrastructure investment over non-infrastructure alternatives (Commonwealth Productivity Commission, 2021a).

There is evidence of under-pricing, consistent with these incentives. The National Water Initiative agreement requires that utilities charge at least enough to cover costs (excluding return on capital). In past reviews, the Commonwealth Productivity Commission found that some LWUs in New South Wales persistently priced below this minimum level (Commonwealth Productivity Commission, 2017a).

The Commonwealth Productivity Commission also found that where grant funding is tied to infrastructure projects and not necessarily directed to subsidise communities with the least ability to pay, it does not conform to the National

Water Initiative's concept of Community Service Obligations (CSOs).

A system of transparent and needs-based CSOs would be a more efficient and fair way to allocate funding. Some parts of the State will always have higher costs, even if their water services are run very efficiently. Some communities will have lower capacity to pay due to socio-economic factors. A CSO payment on this basis would bridge the gap between the assessed cost of running the utility efficiently and the community's ability to pay (see Box 5.5).

A needs-based CSO funding model would have broader benefits to LWUs. For example, it would:

- account for operational and capital expenditure needs, including the cost of attracting and retaining skilled personnel
- provide a more stable and predictable level of government support from year to year.

Local Government NSW's submission supported the introduction of a CSO-based funding model.

The transition to a model of self-funded capital expenditure is likely to be challenging for some councils, especially given the backlog of regional water infrastructure projects. To aid a transition to debt-financed infrastructure, the NSW Government could subsidise interest on loans with a scheme akin to the existing Low-Cost Loans Initiative. LWUs could then move to independent debt financing once financially and operationally sound. For infrastructure that has a positive environmental impact, sustainability bonds—issued in cooperation with Treasury Corporation—may present an opportunity to access new funding.



If all NSW communities are to have equitable access to town water of suitable quality, it must be acknowledged and accepted that, for some communities, delivering these services on a full cost recovery basis is not feasible (nor equitable). And in these instances, a transparent operating subsidy arrangement, or Community Service Obligation, is required, as recommended by the Productivity Commission.

LOCAL GOVERNMENT NSW SUBMISSION



BOX 5.5: PRINCIPLES OF A COMMUNITY SERVICE OBLIGATION-BASED FUNDING MODEL

The Commonwealth Productivity Commissioner's *Draft National Water Reform* outlines five principles of a CSO-based funding model. Any model should be:

1. designed to ensure access to a basic level of service in those communities where such service provision would otherwise be unviable
2. adequate to ensure a basic level of service is considered affordable
3. based on credible data on efficient service costs, subject to a degree of independent oversight, following state or territory government involvement in system planning
4. predictable to provide certainty for long-term water system planning
5. conditional on ongoing operational improvements, such as improvements to utility governance, better service outcomes (based on performance benchmarking), and compliance with guidelines for pursuing collaboration.

There are great opportunities for resource and skills sharing amongst geographically closely linked water utilities.

CENTRAL NSW JOINT ORGANISATION SUBMISSION

FINDING ECONOMIES OF SCALE AND SCOPE IN WATER

Stakeholders suggested that reform to the structure of the regional urban water sector could also deliver significant improvements in operating and financial performance, as achieved by Victoria's amalgamations of water utilities into 13 LWUs in the 1990s. The feasibility and benefits of this kind of structural reform have been longstanding issues within government. The 2008 Armstrong-Gellatly Inquiry Report recommended restructuring to achieve economies of scale and improve service delivery efficiency (Armstrong & Gellatly, 2008). Specifically, LWUs should be aggregated into regional groups that could take the form of a binding alliance or a council-owned regional water corporation (Independent Pricing and Regulatory Tribunal, 2016d).⁹

One challenge highlighted by Local Government NSW is that the geography and hydrology in New South Wales are very different to Victoria's, so that the costs of operating water utilities in many areas will be high regardless

of operational structure. Further, the amalgamation of some water functions but not others, such as stormwater, could create a barrier to integrated water cycle management.

While these are valid considerations, there is still substantial fragmentation even within single catchments. The Macquarie-Castlereagh catchment, for example encompasses 13 local government areas and at least 21 drinking water supply systems—the majority of which are assessed as having very high water security risk (NSW Government, 2020d).

There may be alternatives to amalgamation that capture some of the benefits from increased scale and integration. Collaboration between councils can achieve some of the same benefits as amalgamation (see Table 5.2). Given around half of smaller LWUs (with fewer than 10,000 connections) continue to operate independently, there is potential for further collaboration. The Central NSW Joint Organisation Water Utilities Alliance is one example of a successful collaboration (see Box 5.6).

BOX 5.6: THE CENTRAL NSW JOINT ORGANISATION WATER UTILITIES ALLIANCE

The Central NSW Joint Organisation Water Utilities Alliance is a voluntary regional collaboration of 11 council water utilities in central New South Wales. The Alliance represents more than 157,000 people in an area of more than 47,000 square kilometres.

Services are delivered independently, with joint operations undertaken cooperatively, reducing operational costs for member councils, and building technical capacity. These collaborative arrangements allow councils to deliver service more efficiently. For example, shared procurement of operation and maintenance services is estimated to have saved the Alliance more than \$700,000 since its inception (Central NSW Councils, 2017).

DIPE IS PARTNERING WITH REGIONAL UTILITIES TO IDENTIFY SOLUTIONS

DIPE is currently collaborating with LWUs to identify and address the barriers facing regional water service provision through the *Town Water Risk Reduction Program* (NSW Department of Planning, Industry and Environment, 2021f). The program aims to:

- improve the regulatory framework to ensure it focuses more on the outcomes we want and less on telling people how to act

- encourage greater collaboration between neighbouring utilities
- leverage the capabilities and scale of the water state-owned corporations (including the newly established Water Infrastructure NSW) and DIPE
- identify skills shortages and options to address them
- explore alternative funding models, including a needs-based CSO model.

⁹ IPART likewise has recommended that the Department of Planning and Industry regulate LWUs on a catchment or regional basis (IPART, 2016)

TABLE 5.2: ALTERNATIVE MODELS FOR LOCAL WATER UTILITIES TO ACHIEVE SCALE ECONOMIES

MODEL	OWNERSHIP	GOVERNANCE	PROS	CONS
Independent local government provision (status quo)	Councils	Utilities controlled by local government	Economies of scope	Small scale increases individual user charges Capability gaps
Bilateral collaboration	Councils	Services delivered independently, with collaboration on a 'fee-for-service' basis	Economies of scope maintained Improved economies of scale from skill sharing	Limited degree of integration may mean some barriers remain to achieving scale economies
Alliance	Councils	Services delivered independently, but joint operations undertaken cooperatively	Economies of scope maintained and potentially improved through whole-of-catchment coordination Improved economies of scale, efficiency and capability from knowledge sharing, joint planning, joint procurement and shared services	Maintaining separate operations may mean some barriers remain to achieving scale economies
Joint organisation	Councils, through a common legal entity	Services delivered independently, but with joint operational support	Economies of scope maintained and potentially improved through whole-of catchment management Improved economies of scale, efficiency & capability from integrated operations (knowledge sharing, joint planning, joint procurement and shared services)	Maintaining council ownership may mean some barriers remain to achieving scale economies

RECOMMENDATION 5.5: ASSESS ALTERNATIVES FOR LOCAL WATER UTILITIES

Work with local water utilities to identify and adopt more efficient operating models for regional water provision.

Design and implement a needs based funding model that encourages efficient operation and gives regional communities a more secure water supply.

5.7 | Keep improving efficiency in our day-to-day water usage

Demand management and water efficiency campaigns help to ensure water remains available for its most productive uses, such as for drinking, and to delay or prevent costly supply augmentations. New South Wales currently uses:

- mandatory water restrictions limiting the permitted uses of water when supply levels fall below certain thresholds
- campaigns to influence consumer behaviour, such as promoting 'four-minute showers'
- subsidies to fix leaks or install water-saving fittings
- schemes that mandate water-efficient technologies and systems, such as the Building Sustainability Index (BASIX)
- policies to minimise network leakage, including investigating new technologies that may reduce the cost of detecting and repairing leaks.

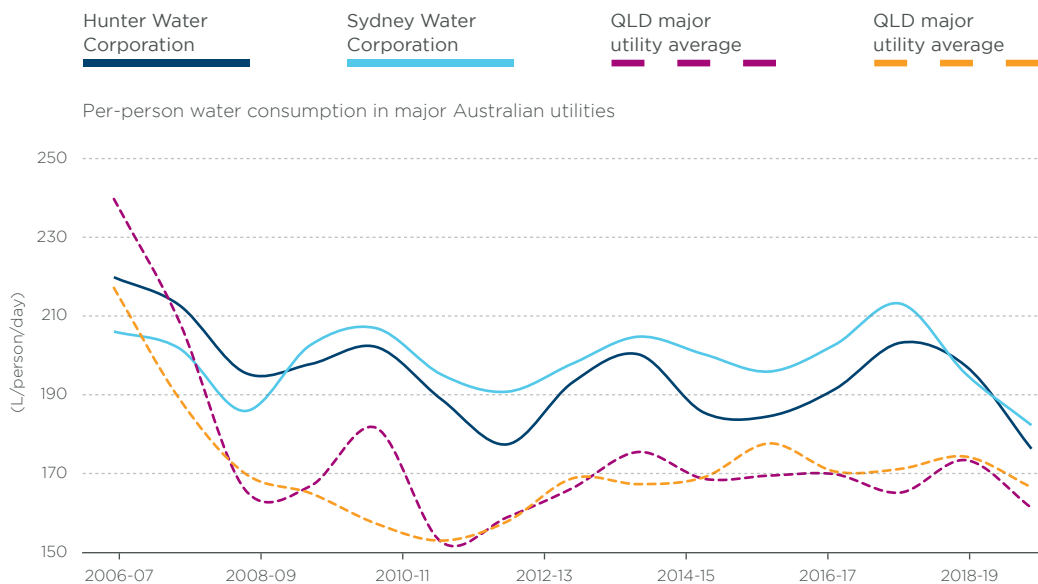
After the peak of the Millennium Drought, a combination of these measures continued driving long-term behavioural changes in Greater Sydney, reducing per-person water use by a quarter between 2003 and 2010. Even so, NSW households did not reduce their usage as much as other eastern coast states over this period and usage remains comparatively high (Figure 5.9).

One likely factor in this high usage is that usage charges in New South Wales are, on average, lower than in Victoria and Queensland. When water is plentiful, these lower water prices help households and businesses. But when rainfall drops, these same lower prices increase the risk of water shortages (Wright, 2020).

New approaches to efficiency are now needed.

SYDNEY WATER SUBMISSION

FIGURE 5.9: SYDNEY AND HUNTER RESIDENTS USE MORE WATER THAN THEIR INTERSTATE COUNTERPARTS



Source: Bureau of Meteorology.

Managing demand for water can ease supply pressures, but it can also have social and economic costs.

CENTRAL NSW JOINT ORGANISATION SUBMISSION

We note that there are some important differences between IPART's newly implemented drought pricing with true scarcity pricing. Scarcity pricing has not been adopted in New South Wales.

SYDNEY WATER SUBMISSION

The principles and expectations the community has regarding the value of water, equity of access to water, and the way that costs are shared must be integrated.

PUBLIC INTEREST ADVOCACY CENTRE SUBMISSION

INNOVATIVE PRICING MAY DELIVER BETTER OUTCOMES

Authorities often use water restrictions to control water use during drought. But this technique costs the community more than other methods.

Many studies have shown that there are economic costs when governments step in to dictate how water should be used during brief shortages. For example, two leading Australian resource economists have estimated that mandatory water restrictions in 2004-05 cost Sydney residents about \$150 per household compared with a 'dynamic pricing' technique (Grafton & Ward, 2008).

IPART has recently taken steps towards more dynamic pricing to reduce our reliance on such restrictions. In its decision on pricing for both Hunter and Sydney Water from July 2020, IPART incorporated a variable rate for usage charges (Independent Pricing and Regulatory Tribunal, 2020b; 2020c). A 36 per cent higher rate will now apply to water usage in Greater Sydney and 17 per cent in the Lower Hunter when water storage levels fall below 60 per cent.¹⁰ The purpose of this approach is to recover higher costs during drought rather than to manage demand. But it is expected to reduce demand in these regions by 4.7 per cent and 2.2 per cent, respectively. Restrictions will still need to play a major role in demand management under this system.

One of the major concerns about dynamic pricing is that water use is insensitive to price and that large price increases would be needed to drive behavioural change.

Another common concern is that dynamic pricing would be inequitable. The burden for water reduction would fall more on lower-income households, while higher-income households would be able to continue watering their lawns and filling their pools.

These are important considerations. But they are not insurmountable. Innovative pricing approaches have been used successfully in the United States, Israel, and elsewhere to encourage water users to cut their discretionary usage on things such as gardens and swimming pools while still allowing access to a certain amount of water at a lower price for cooking, bathing, and flushing toilets (Becker, 2015). Further, equity concerns could be addressed by rebates that aim to reduce the overall impact on larger and low-income households.

Further pricing reform should be considered as an option for further analysis. The recent changes for Sydney and Hunter Water are an opportunity for us to better understand how water prices affect household and business behaviour. A better understanding can guide future policy development. IPART notes that pricing could be made more flexible in future, particularly if the water industry shifts to 'smart' digital metering.

RECOMMENDATION 5.6: MONITOR AND REFINE SCARCITY PRICING

As part of the Greater Sydney Water Strategy, consider the full range of demand management options, including any role that price signals might play.

Identify and evaluate innovative pricing models that might reduce our reliance on water restrictions, drawing on public engagement to better understand barriers to their use.

¹⁰ The base price would then not be reapplied until water storage levels reached 70 per cent again.

EFFICIENCY IS A VALUABLE PART OF THE WATER MANAGEMENT TOOLKIT

Greater efficiency can also help to ensure that NSW households and businesses get the water they need. Alternative technologies, such as water-saving showerheads and washing machines, are helping people to use less water without disrupting their lives. Well-designed educational campaigns may have a similar effect.

These water efficiency improvements are often also very cost effective. An analysis by the WSAA found that water efficiency initiatives often provide more water at lower cost than other options, as shown in Figure 5.7 (Water Services Association of Australia, 2020). Households and businesses save money on their water bills—and, perhaps more importantly, their energy bills—by using less water.¹¹ Lower water usage also reduces pressure on utilities' water and wastewater infrastructure. And it can bring further environmental benefits, such as lower greenhouse gas emissions, from lower energy use.

Government can guide people towards making their homes more efficient. When any one of us buys a washing machine, for example, we probably do not find it easy to understand what different models will mean for our utility bills. Government can help to fix this problem by requiring that manufacturers give us the information that we need for an informed choice. Research has shown the Water Efficiency Labelling Scheme (WELS) is a cost effective way to improve our water efficiency (Institute for Sustainable Futures, 2019).

Government can also encourage water efficiency and conservation measures that spread their benefits across the community. For example, fixing leaks can postpone major water capacity increases, benefitting all water users. New South Wales is currently reviewing the framework that it uses to identify the most cost effective water conservation solutions (Box 5.7).

BOX 5.7: A NEW WATER EFFICIENCY FRAMEWORK AND PROGRAM

The Government plans to implement a new state-wide framework for water efficiency after last year's *Water Conservation in Greater Sydney* report (Audit Office of New South Wales, 2020a). The framework and program will take a whole-of-water-cycle perspective. It will focus on:

- building water efficiency capacity in New South Wales, which the Audit Office found was inadequate at the onset of the latest drought
- better understanding drivers and patterns of household and business water use
- improving how we evaluate water efficiency initiatives, including the Economic Level of Water Conservation (ELWC) methodology
- increasing private sector involvement.

The effectiveness of the BASIX will also be considered as part of the program.

The ELWC is fundamental to the NSW approach to water efficiency. Developed by IPART in 2016, it improved on what was previously an arbitrary and prescriptive approach based on consumption limits (Hunter Water, 2018). For example, while it's not cost-effective to eliminate all leakage, fixing some leakage can be an efficient way of increasing the water available to customers. IPART's latest pricing report found Sydney Water should have placed a greater emphasis on fixing leaks over recent years (Independent Pricing and Regulatory Tribunal, 2020c). In this way, the ELWC encourages water managers find the right balance between the cost of conservation and the value of the water saved.

The principles of ELWC are sound and an improvement on the previous approach to conservation. The planned framework and program are promising and may be able to build on the current approach.

¹¹ Hot water is one of the major drivers of electricity and gas usage.

Mandating alternative water sources is a costly solution

In New South Wales, the BASIX scheme requires new homes to meet targets for water efficiency.¹² BASIX requires most new detached houses to use 40 per cent less mains water than a pre-BASIX benchmark home, by using efficient appliances and fixtures and alternative water sources.

Alternative water sources—in particular rainwater tanks—are central to the BASIX scheme. Stakeholders claimed that it was almost impossible for new dwellings to meet the 40 per cent target through reducing water use alone. So most new houses are required to harvest rainwater for certain uses, or to be linked to a small-scale recycling scheme to reduce their dependence on the central supply.

But the benefits of mandated alternative water sources come with considerable costs to households. Studies across multiple jurisdictions have demonstrated that it is much more costly to source water from a rainwater tank than from central facilities (see Figure 5.7). Estimates of the 'levelised cost' of rainwater tank water range from \$7 per kL to \$10 per kL (Hall, 2013; Institute for Sustainable Futures, 2018; Water Services Association of Australia, 2020).¹³ And decentralised water recycling is estimated to cost from \$4.35 per kL up (Water Services Association of Australia, 2020). By comparison, at time of writing, Sydney Water customers pay \$2.35 per kL.

Some stakeholders suggested that average costs hide the true benefit of decentralised water supply options. Research based on detailed bottom-up modelling of water services suggests that the true cost of supplying water varies substantially across Sydney (Urban Water Cycle Solutions & Kingspan Water & Energy, 2020). Benefits likewise differ by location. Rainwater harvesting, for example, may be cost effective in areas where it can offset the need to invest in bulk water, distribution networks, or stormwater infrastructure.

Private water supply creates additional challenges

One of the most significant challenges for decentralised water sources on private property is that they rely on the property owner to keep the system running. The property owner must undertake maintenance and occasional repairs. And while BASIX effectively mandates up-front installation, it does not mandate that systems are maintained or kept fully operational. Past surveys have found that:

- almost half of rainwater tank owners did no maintenance within a 12-month period
- owners of mandated tanks were less likely to perform required maintenance than those who chose to install a tank (Australian Bureau of Statistics, 2013).

Whether the result of lack of awareness or willingness to maintain or repair tank systems, separate audits of BASIX tanks by Sydney Water and Hunter Water found more than a quarter were not fully functioning (Hunter Water, 2020).¹⁴ A Melbourne survey found 14 per cent of tanks were not collecting any rainwater at all, and another 13 per cent were not fully functional (Moglia et al., 2015). Common issues included faulty pumps and switches, and uneven foundations. Uncertainty about functionality has meant water utilities have been unwilling to factor BASIX-related savings into their infrastructure planning (Institute for Sustainable Futures, 2018).

Utilities have initiated and piloted rainwater tank maintenance programs to keep rainwater tanks operating as an alternative water source. But the cost of the ongoing repairs makes these programs far less cost effective than many other water supply or conservation options—even excluding the upfront capital cost of the systems (Hunter Water, 2020; Sydney Water, 2019b).

¹² BASIX also sets targets for energy efficiency and thermal comfort.

¹³ Levelised costs take into account upfront capital costs, ongoing operating and maintenance costs, but do not include avoided costs and broader externalities.

¹⁴ See the Sydney Water and Hunter Water submissions.

PIAC supports measures to review and update the BASIX scheme to ensure that it is more effective in driving best practice outcomes for residential building efficiency.

**PUBLIC INTEREST
ADVOCACY CENTRE
SUBMISSION**

We agree with the Commission that it is timely to review BASIX.

**SYDNEY WATER
SUBMISSION**

**BROADER SOCIAL BENEFITS ARE SMALL
AND LOCATION-SPECIFIC**

Stakeholders highlighted that rainwater tanks and decentralised recycling schemes can provide benefits beyond water supply to the owner of the house. These include reducing the need to invest in new water supplies (such as desalination), lower stormwater management costs, and better environmental outcomes—such as lower nitrogen levels in waterways. Recycling schemes also have the potential to reduce pressure on the wastewater system (see Section 5.5).

In some locations, for example, rainwater tanks have the potential to reduce the need for centralised stormwater infrastructure. Sydney Water has identified that rainwater harvesting and reuse can play an important role in reducing runoff as Western Sydney develops.

But it can be challenging to incorporate the offset from rainwater tanks into a stormwater management system that was designed to accommodate extreme rainfall scenarios. Risk-averse stormwater managers will tend to ‘play it safe’ by assuming that tanks are full when planning stormwater infrastructure (Rabbitts, 2009). Sydney Water likewise has noted that uncertainty about the ongoing operation of sewer-mining schemes makes it difficult to incorporate their external benefits into investment decisions (Sydney Water, 2019a).

Some studies have estimated the external benefits of policies that will come from mandating rainwater tanks. But those studies still found the costs outweighed the benefits. For example, an evaluation of South-East Queensland’s mandatory tank policy included assessment of reduced stormwater management and water supply investment costs (Queensland Competition Authority, 2012). The evaluation found that costs were three times greater than the benefits. That led the Queensland Government to repeal the policy.

**Use location-specific solutions for
location-specific problems**

Based on the available evidence, regulations that mandate the use of alternative water sources unconditionally across the State do not appear to be the best way to manage water. Nor do they deliver the greatest value for NSW citizens.

This is not to say that water savings have not been substantial, or that other savings have not been realised. Rather, it could be that alternative approaches deliver the same outcomes at lower cost.

Most stakeholders supported the draft recommendation to review and update the BASIX scheme to improve its effectiveness. The draft recommendation provides an opportunity to update BASIX after 17 years in operation to better meet our energy and water efficiency needs.

This review should evaluate a range of alternative policy options, consistent with the NSW Government’s Better Regulation Principles. An ‘informed choice’ regulatory option, for example, might require builders and developers to disclose information relating to a property’s expected water use with an ‘average’ household in the long run. An independent entity would assess the information and assign a rating—perhaps drawing on elements of the BASIX rating system.

It is important that the disclosure requirements be well designed. Similar schemes (such as WELS) have worked well in the past. But a simple star rating may be challenging to interpret. Framing the benefits in terms of the financial impact over time has been shown to be a more effective nudge than a simple rating (Hardisty et al., 2020). A system that translates the star rating into an approximate dollar saving should therefore be considered.

Another alternative to BASIX mandates would use and manage rainwater harvesting and recycling schemes in a more integrated way, considering any location specific benefits accruing to centralised water, wastewater, and stormwater service providers. Unless the 'avoided cost' benefits of alternative water sources can be realised, forcing households to install them just duplicates other infrastructure and adds unnecessary cost.

Catchment-level integrated water management plans might play a coordinating role to help find the most efficient outcome (see Section 5.4). A shift to greater use of these solutions would, however, need to answer a key question: How can we monitor and maintain decentralised solutions, especially where they are privately owned? This might mean greater intervention by utilities and councils, but also greater cost.

The development of the proposed Design and Place State Environmental Planning Policy (SEPP) presents an opportunity. We can use it to clarify the role that integrated water cycle management might play in achieving the Government's desired water outcomes. The Explanation of Intended Effect only hints that councils might be able to impose standards based on an integrated water management plan. It also risks adding another layer of complexity to water regulations. Instead the SEPP should ensure that councils and utilities coordinate to choose the best solution for each catchment or precinct.

RECOMMENDATION 5.7: REVIEW AND IMPROVE BASIX

Evaluate the water component of the Building Sustainability Index (BASIX) scheme against alternative policies, including an 'informed choice' based system and a catchment-specific or precinct-based integrated water cycle management approach. Implement changes to the program based on the results of the evaluation.

Dictate in the Design and Place State Environmental Planning Policy and *Apartment Design Guide* that applications cannot be rejected because of alternative water sources or rainwater retention and reuse unless:

- they have been informed by a catchment-level integrated water management plan that sets out how the sources will be managed and funded in the long run
- the cost of the inclusion can be shown to be approximately offset by reductions to infrastructure contributions and charges for water services, reflecting the benefits of those sources.

5.8 The energy sector must be cost-effective

New South Wales enjoys a competitive advantage in energy. The State's substantial black coal deposits have fired the NSW region of the National Electricity Market (NEM). It also has significant gas reserves. Domestic and imported gas serves the needs of households and industry while also generating electricity at times of high demand.

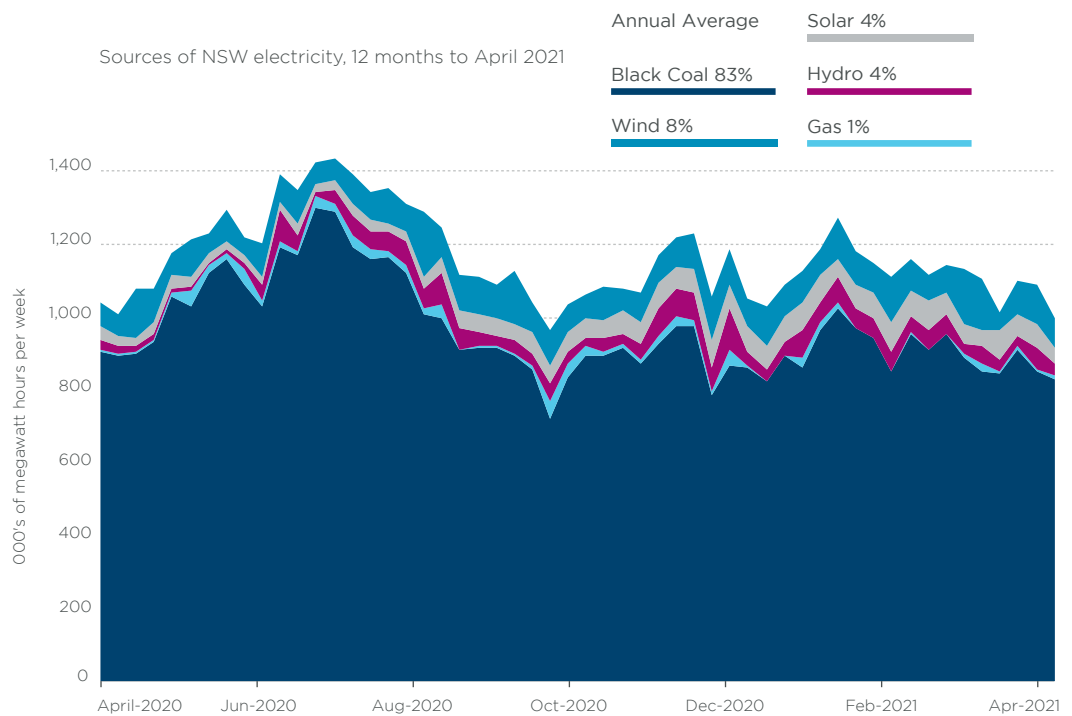
Plentiful low-cost land outside metropolitan areas and favourable climatic conditions have ensured the State is competitive in renewable energy, particularly solar photovoltaic (PV) and wind generation. The cost of renewable generation has fallen worldwide in recent years, with solar generation seeing the fastest falls.

ELECTRICITY GENERATION IN NEW SOUTH WALES

Currently, coal generation remains dominant in the NSW region, accounting for over 80 per cent of electricity generated (Figure 5.10). It is the key source of 'baseload' power, meeting the minimum electricity needs of industry and households. The State also has a smaller amount of gas 'peaking' capacity for high-demand situations, such as hot summer afternoons when air conditioners are in use.

Coal generation is projected to decline rapidly over the next two decades. The State presently has five operational coal generators—Bayswater, Eraring, Liddell, Mount Piper, and Vales Point B—all are scheduled to be decommissioned by 2042, as shown in Figure 5.11.¹⁵

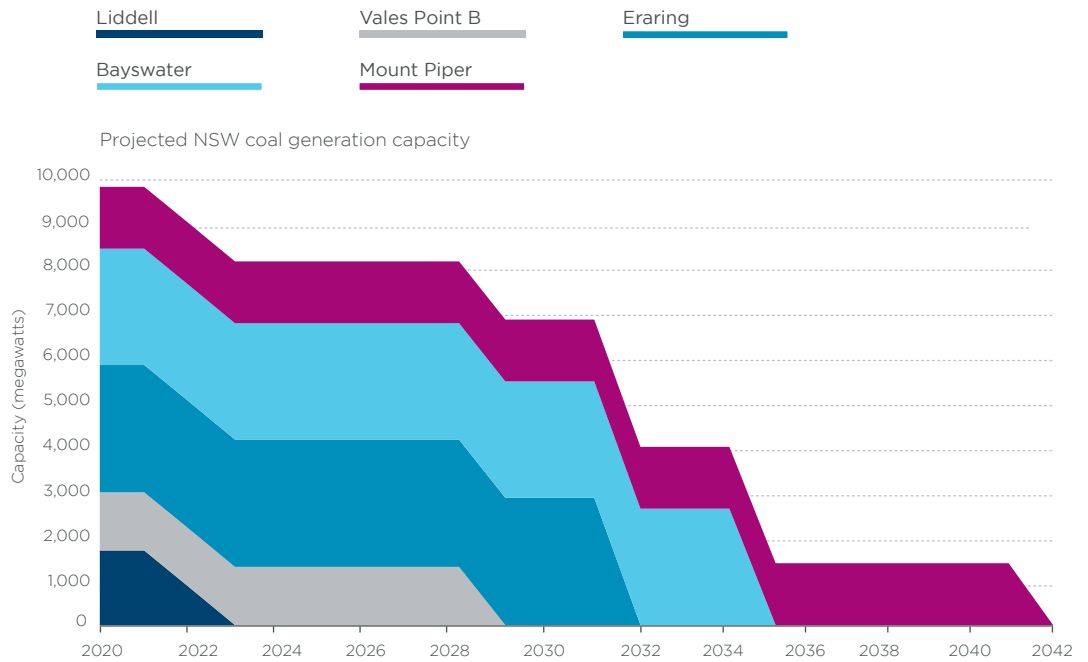
FIGURE 5.10: NSW CURRENTLY RELIES ON COAL GENERATION



Source: Australian Energy Market Operator.

¹⁵ Liddell and Bayswater are in the Upper Hunter region, Eraring is in the Lower Hunter, Vales Point is on the Central Coast, and Mount Piper is at Lithgow.

FIGURE 5.11: NEW ENERGY SOURCES WILL BE NEEDED AS COAL GENERATION DWINDLES



Source: Australian Energy Market Operator.

The pace of those closures could be even quicker.

The Australian Energy Market Operator (AEMO) has evaluated technology trends and unit costs (Australian Energy Market Operator, 2020). It has found the cheapest replacement for the current coal-based system is a portfolio of renewable energy sources ‘firmed’ by storage and peaking capacity. That is, when wind and solar alone cannot meet power demand, the gaps will be filled by gas, pumped hydro, and batteries.

Moving from coal to this new portfolio is a complex task that requires coordination between industry, consumers, governments, and the national agencies that administer the NEM. Unfortunately, Australian governments do not yet agree on how this transition should be guided.

This lack of agreement has given rise to competing, even conflicting, interventions that risk making the energy transition more costly than it needs to be.

THE NATIONAL ELECTRICITY MARKET HAS STRONG INSTITUTIONAL DESIGN

When states established the National Electricity Market (see Box 5.8) in 1998, they separated electricity conglomerates into individual entities dealing with generation, transmission, distribution, and retailing. In New South Wales, generation and retail were privatised and the transmission network company TransGrid became the subject of a 99-year lease. The State is a minority shareholder in metropolitan distribution businesses, with only regional distribution assets remaining completely in government hands.

The NEM runs on a competitive bid model, explained in more detail in Box 5.9.

The NEM’s rigorous governance arrangements give the energy sector incentives to deliver efficient prices and sufficient reliability.

BOX 5.8: GOVERNANCE OF THE NATIONAL ELECTRICITY MARKET

The NEM is a wholesale market covering New South Wales, Queensland, Victoria, South Australia, Tasmania, and the Australian Capital Territory. This market follows policies agreed in National Cabinet's Energy Reform Committee.

The NEM aims to promote efficient investment in, and operation of, the electricity system in the interests of consumers with respect to price, safety, reliability, and system security.

When the states agreed to create the NEM in 1990, they also created:

- the **Australian Energy Market Commission** (AEMC) to make rules for the NEM
- the **Australian Energy Market Operator** (AEMO) to operate the NEM
- the **Australian Energy Regulator** (AER) to enforce the NEM's rules, including those determining how much revenue transmission and distribution network companies can earn.

The AEMC and AER chairs and the AEMO chief executive, together with an independent chair and deputy chair, comprise the Energy Security Board. It coordinates advice to National Cabinet on energy policy.

The **Australian Competition and Consumer Commission** (ACCC) and the **National Competition Council** oversee third-party access to the network.

The Independent Pricing and Regulatory Tribunal (IPART) duplicates some of the functions of the national bodies, monitoring and reporting on the retail market and enforcing the safety and reliability of network businesses.

BOX 5.9: OPERATION OF THE NATIONAL ELECTRICITY MARKET

The NEM is actually *two* markets. Generators bid into a *spot market* to supply power at any point in time. Retailers and generators make deals in a *contract market* to supply power over longer periods, currently for one to three years, on average.

The spot market

Generators submit offers to AEMO on a daily basis, signalling the prices for which they will generate electricity for five-minute intervals. AEMO accepts them, lowest bids first, until they meet total demand from retailers and large energy consumers (see Figure 5.12).¹⁶ Prices are determined at the bid of the last generator dispatched.

In 2018, AEMO released its first Integrated System Plan, a 20-year blueprint for the NEM, updated every two years. It aims to address:

- the **rise of large-scale renewables**
- the **decline of coal** and risks of unexpected generator closures
- an increasingly **fragmented policy environment** where states are intervening more
- **demand-side risk** as distributed energy resources like rooftop solar

make the levels and patterns of system demand less certain¹⁷

- the **two-sided market** that is now emerging, with households and firms trading both the energy they generate and their own willingness to reduce demand
- the rise of **renewable energy zones**—areas rich in sun and/or wind but often poorly connected to the transmission network (Australian Energy Market Operator, 2020).¹⁸

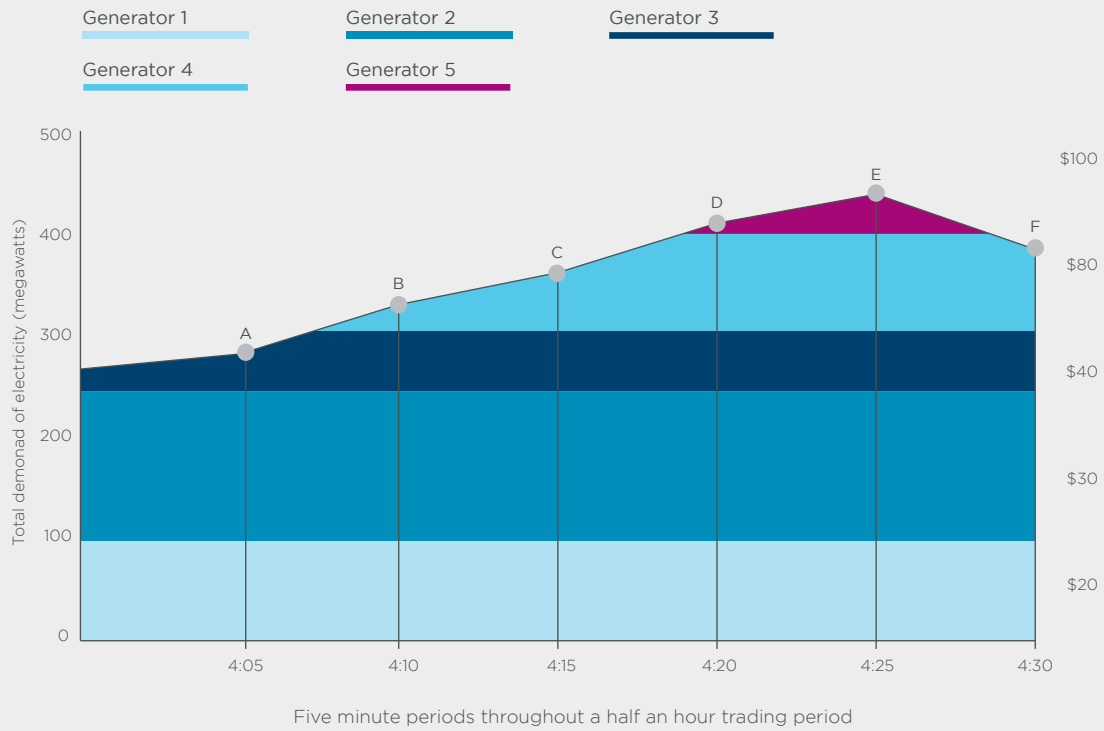
¹⁶ From 1 October 2021, prices will be determined every five minutes at the bid of the marginal generator, a change from existing 30-minute settlement arrangements where five-minute marginal generator costs are averaged.

¹⁷ Rooftop solar and other distributed energy resources produce electricity for their owners on-site, and thus make outside demands on the system less certain, some 50 per cent of customers are forecast to have distributed energy resources by 2030.

¹⁸ AEMC's *Coordination of Generation and Transmission Investment* (COGATI) review is considering how locational marginal cost pricing could guide future system development.



FIGURE 5.12: SCHEDULING GENERATORS IN THE NEM



Source: Australian Energy Market Commission.

Generators have strong incentives to bid at their short-run marginal costs—that is, the lowest price at which they can supply without losing money on the power they sell. If they bid higher, they risk not being dispatched; if they bid lower, they risk being dispatched at prices that lose them money on the power they sell.

The contract market

Market participants manage volatility in spot prices by using the contract market, where they buy and sell financial contracts that fix the price of future electricity. These contracts are based on expectations of spot market outcomes. They reduce market uncertainty, providing:

- generators with more predictable revenue streams, allowing them to finance investment
- retailers with predictable costs, allowing them to offer stable prices to consumers.

Most of the output in the NEM is traded through the contract market. Contract prices tend to be above long run marginal cost to ensure the viability of investment in long-lived assets.

The electricity market can be compromised, however, by government interventions that distort price signals and attempt to drive investment that is not based on private allocation of risk.

Presently, the Energy Security Board is progressing the Post-2025 Market Design workstream, which is identifying reforms to the NEM to accommodate the energy transition beyond 2025. It is focused on:

- **resource adequacy mechanisms** to provide signals for investment that minimises costs while maintaining reliability
- maintaining **essential services** that maintain overall system security, including system strength, frequency, and inertia

- **integrating distributed energy resources** (such as rooftop solar and batteries) and **flexible demand** (such as smart appliances)
- reconfiguring **transmission and access** to accommodate large-scale renewables and storage.

The work of the national agencies illustrates the strength of the governance arrangements for the NEM. Proposals for interventions outside these arrangements should be required to demonstrate they are necessary to address a gap. They should also be the subject of detailed and transparent stakeholder engagement.

RECOMMENDATION 5.8: POLICY FOR THE NATIONAL ELECTRICITY MARKET

Policy interventions for the NSW region of the National Electricity Market should be developed and implemented through the NEM's governance structure.

Any NSW Government intervention in the system should first:

- establish a clear justification
- show that NEM governance will not resolve the problem
- be subject to rigorous cost benefit analysis that demonstrates value for money of the solution and superiority to alternative options
- incorporate detailed and transparent stakeholder consultation.

RELIABILITY, SECURITY, EMISSIONS: SYSTEM COSTS AND TRADE-OFFS

NSW consumers will be best served by a sustained return to an economically sensible, national approach to the NEM. Evaluation of the NEM's history illustrates this point.

The NEM initially delivered stable retail prices, which rose 54.5 per cent in Sydney in the first decade of operation, compared to an increase in the Sydney Consumer Price Index (CPI) of 32.3 per cent over the same period.¹⁹ But unanticipated challenges prompted *ad hoc* and costly interventions and, from 2007-08, prices started to rise significantly. Other interventions imposed additional costs that pushed retail prices higher still.

Recently, prices have moderated. But consumers continue to feel the impact of the earlier actions. As of 2021, retail electricity prices in Sydney are 227.8

per cent higher than when the NEM was established, compared to an increase in CPI of 74.1 per cent over the same period (Australian Bureau of Statistics, 2021a).

Reliability improvements and household subsidies initially drove rapid price growth

In the post-war years, the electricity system was built for each day's early-evening peak and each year's winter peak. But in the late 20th century, when many households bought newly affordable air conditioners, the yearly peak moved from winter nights into summer days. That increased stress on the system, which had not been built to carry very large loads in hot weather. The result was major power outages in the summer of 2004-05.

In August 2005, the NSW Government imposed stringent new electricity reliability standards.

¹⁹ Retail prices comprise: **wholesale** costs incurred by retailers through purchases through the NEM; **network** costs, reflecting capital cost recovery and other costs of transmission and distribution businesses, based on Australian Energy Regulator determinations; **environmental** costs, such as the NSW Climate Change Fund; **retailer** costs and margins.

These required transmission and distribution companies to invest substantial sums into new network infrastructure. IPART and AER price determinations allowed these costs to be recovered from consumers.

The Commonwealth Productivity Commission found rising network costs added \$654 to the average annual NSW residential electricity bill between 2008 and 2013 and criticised the investment as excessive (Commonwealth Productivity Commission, 2013). That view was supported subsequently by IPART (Independent Pricing and Regulatory Tribunal, 2016) and ACCC (Australian Competition and Consumer Commission, 2018c).²⁰

This investment coincided with programs to encourage people to install small-scale renewable energy systems, particularly rooftop solar. The Commonwealth continues to operate the Small-scale Renewable Energy Scheme and, between 2010 and 2016, New South Wales operated the Solar Bonus Scheme. The costs of both these schemes have been recovered from electricity retailers, further raising average electricity bills.

At the same time, rooftop solar uptake reduces electricity demand from the grid. Because network expenditures must be therefore recovered across a smaller consumption base, this pushes prices up even further. In many cases, consumers bearing a disproportionate share of these costs had less capacity to pay. The higher prices further strengthened consumers' incentives to install solar systems, and this spiral continues.

Uptake of rooftop solar has also been stimulated by cost, which has fallen substantially through global innovation and scale economies over the past decade.

Wholesale costs have contributed more recently

The penetration of renewables was already increasing risk for existing generators when, into this environment, came increasing volatility in coal and liquefied natural gas (LNG) prices.

Thermal black coal, which cost an average of \$71 per tonne in 2015-16, rose to about \$160 per tonne in mid-2018. Domestic gas prices rose from an average of \$4 per gigajoule at the start of 2015 to between \$8 and \$10 per gigajoule by 2017 as new export facilities opened up domestic supplies to international demand (Australian Energy Regulator, 2021).

Rising brown coal prices, among other pressures, prompted the closure of two generators—Northern in South Australia in 2016 and Hazelwood in Victoria in 2017. The early closures took the market by surprise, so no new capacity came quickly online to replace them. Gas generators, with relatively expensive fuel, became the marginal generation source more often, raising NEM spot prices.

Black coal prices, which reached a peak of \$94 per tonne pre-pandemic, have now fallen to a 2021 forecast average of \$64.50 per tonne. Gas, which traded at \$7.50 per gigajoule at the end of 2019, has more recently traded at an average of \$5.16 per gigajoule. These price fluctuations raise risk for fossil fuel-dependent electricity generators. In 2014-15, the annual average NEM wholesale price was \$36 per megawatt hour; in 2018-19 it reached a high of \$92 per megawatt hour. For 2019-20, it was \$79 per megawatt hour. The pandemic caused prices to fall to \$39 per megawatt hour at end March 2021—similar to 2015 levels.

The rolling four-quarter moving average in wholesale prices for the NSW NEM region is shown in Figure 5.13.

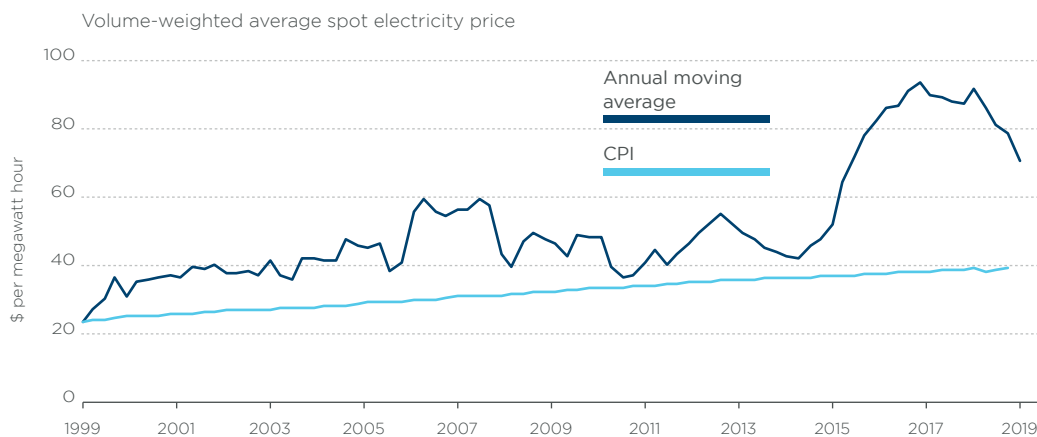
A 2016 South Australian power failure further underlined the system's vulnerability.²¹ The Independent Review into the National Electricity Market (Finkel et al., 2017) and the Energy Security Board's National Energy Guarantee (Energy Security Board, 2018) led to national standards being imposed for electricity generation.

National generation reliability standards are described in Box 5.10.

²⁰ Describing the expenditures as 'gold-plating', in 2018, the Grattan Institute proposed write-downs of state-owned assets and rebates to energy customers to correct for investment that exceeded consumer willingness to pay (Wood et al., 2018).

²¹ In September 2016, failure of transmission assets in South Australia destabilised the system, requiring renewable generators to be shut down and causing a major outage. Resolution took longer than necessary because the Heywood interconnector with Victoria also failed.

FIGURE 5.13: WHOLESALE PRICES HAVE RISEN IN RECENT YEARS²²



Source: Australian Energy Regulator; Australian Bureau of Statistics (2020).

BOX 5.10: NATIONAL GENERATION RELIABILITY STANDARDS

The national reliability standard requires unserved energy demand to go no higher than 0.002 per cent within any NEM region in any year:

- capacity and demand within each region are forecast over 10 years to determine whether the NEM will generate sufficient power to meet the standard
- *where gaps are identified*, the market will have an opportunity to invest to resolve it
- *should a gap remain*, AEMO may apply to AER to trigger the so-called Retailer Reliability Obligation, where retailers must establish adequate contracts to cover their demand²³
- *should a gap persist*, AEMO may use its own powers to close it²⁴
- AEMO to publish a register of intended generator closures.

In August 2020, energy ministers adopted an *interim* reliability standard of 0.0006 per cent maximum unserved energy demand in any region in any year. It will be implemented by AEMO procuring additional reserve capacity and lowering the trigger for the Retailer Reliability Obligation.

Uncertainty and complexity of emissions policy is a problem for the NEM

There is now debate about the market structure that has evolved under the NEM governance arrangements. The ACCC's Retail Electricity Price Inquiry, delivered in 2018, found a lack of competition was contributing to higher retail prices (Australian Competition and Consumer Commission, 2018c). It attributed this to vertically integrated generation and retail firms (known as 'gentailers').

The ACCC recommended the Commonwealth enter into low fixed-price energy offtake agreements, buying electricity at \$45–50 per megawatt hour for the later years (say, 6–15) of new generation projects. Agreements were recommended only for new entrants, excluding any existing retail or wholesale market participant with a significant market share.

Discussion Paper and Green Paper submissions from the Australian Industry Group, the Grattan Institute, and Business NSW agreed that the lack

²² An observation for 2020-21 is not yet available.

²³ Retailers would be required to demonstrate compliance by entering sufficient contracts for dispatchable capacity, including demand response. This would cover their share of system peak demand at the time the gap emerges.

²⁴ This would occur either through the Reliability and Emergency Reserve Trader program or AEMO's Procurer of Last Resort function.

of a lasting greenhouse gas emissions reduction framework is deterring investment. The issue is explained in Box 5.11.

Since abolition of the Commonwealth carbon price in 2014, all states and territories have adopted 2050 net zero emissions targets and complementary

policies. Queensland and Victoria have imposed state-based renewable energy targets and New South Wales has adopted the *Electricity Infrastructure Roadmap* (NSW Department of Planning Industry and Environment, 2020d). These varying schemes add to policy complexity.

BOX 5.11: THE LACK OF A CARBON DIOXIDE REDUCTION MECHANISM DETERS INVESTMENT

Efforts to impose a greenhouse gas emissions reduction mechanism on the NEM at the national level in 2009, in 2012, and again in 2018 were all ultimately unsuccessful. Each was challenged by concerns about impacts on electricity prices and the economic costs of emissions reduction. When the Commonwealth carbon price was abolished in 2014, renewable power generation cost more than generation from fossil fuels.

Global innovation over the past decade has substantially reduced the cost of solar generation and further reduced the cost of wind (Figure 5.14).

Coal generators are not competitive in two circumstances:

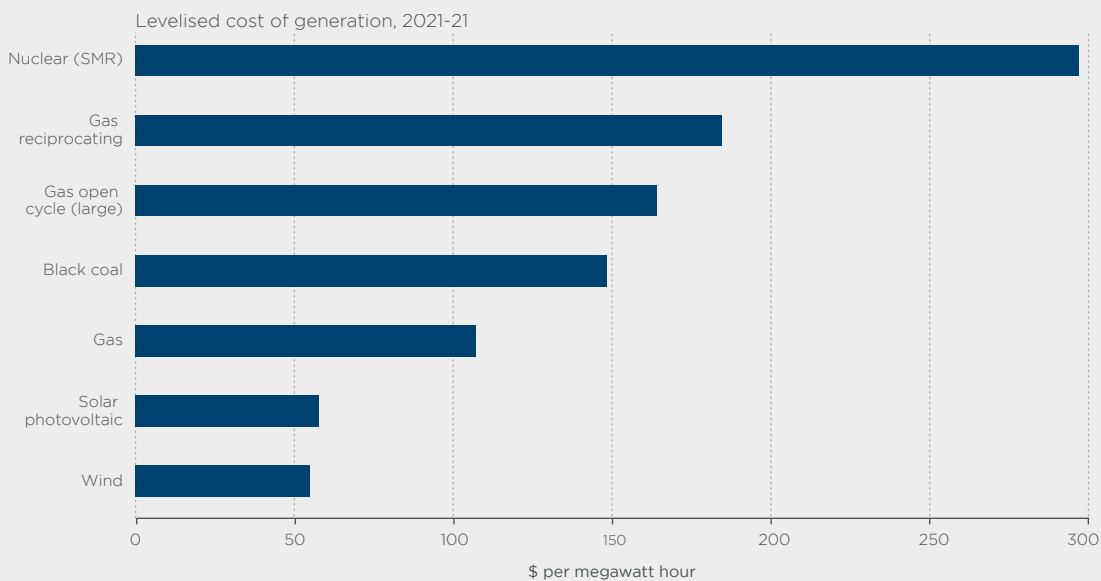
- when significant power is generated by utility-scale renewables
- when system demand is low because of supply from distributed energy resources.

These instances invariably overlap. But confidence to invest in utility scale renewables, peaking, and storage depends on:

- system demand as rooftop solar and other distributed energy resources rise
- clarity about coal generators’ departure from the market
- expectations on when, how, and for how long Commonwealth and state governments will further intervene
- the viability of investment portfolios under a range of emissions reduction scenarios.

In other words, the absence of a single, lasting national carbon price is now a *brake on* investment in new electricity generation capacity.²⁶

FIGURE 5.14: RENEWABLES COSTS HAVE FALLEN



Note: Price is the average of ‘high’ and ‘low’ scenarios, Gas open cycle & reciprocating are a 20 per cent peaking load under a carbon price. Gas & Black coal are a flexible 40-80 per cent load under no carbon price.

Source: Graham et al. (2020).

In October 2019, the Commonwealth responded to the ACCC's recommendation for energy offtake agreements with the *Underwriting New Generation Investment program* (Department of Industry, Science, Energy and Resources, 2021). Unlike the ACCC recommendation, Commonwealth ministerial statements have not prioritised technological neutrality, instead advocating the operational lives of coal generators should be extended. The Commonwealth has also announced it will direct Snowy Hydro Limited to deliver 1,000 MW of additional gas-fired capacity at Kurri Kurri in the Hunter region.

Neither proposal would be a cost-effective complement to renewable generation. A Commonwealth owned gas-fired power station would also require public subsidy to remain operational. And Commonwealth intervention could make alternative private investments less viable. Investors in generation assets would require higher returns in compensation for the risk of unanticipated market interventions. That in turn would reduce investment in cost-effective new generation.²⁷

Two initiatives would improve prospects for private generation investment:

- a lasting national price on greenhouse gas emissions from the energy sector
- bipartisan commitment to the national institutions.

In short, investors are awaiting a resolution on carbon pricing that allows the NEM to work as it was designed.

THE NSW ELECTRICITY INFRASTRUCTURE ROADMAP

The NSW Government's Electricity Roadmap includes an Energy Security Target, which is designed to ensure sufficient capacity to cope with unpredictable generator outages during peak periods, such as heatwaves. In November 2020, the NSW Parliament passed enabling legislation for the Roadmap—the *Electricity Infrastructure Investment Act 2020*.

The Roadmap establishes:

- five **Renewable Energy Zones** in Central West Orana, Illawarra, New England, South West and Hunter-Central Coast
- an **Electricity Infrastructure Investment Safeguard** to de-risk investment in new generation capacity and storage
- an **Electricity Infrastructure Jobs Advocate** and Renewable Energy Sector Board to maximise engagement of local workers and businesses
- a **Transmission Development Scheme** to de-risk Renewable Energy Zone investment.

²⁵ Price worked previously at the NSW Electricity Commission and helped design the NEM.

²⁶ A carbon price could either be explicitly set or a 'shadow price' generated through a certificate trading scheme.

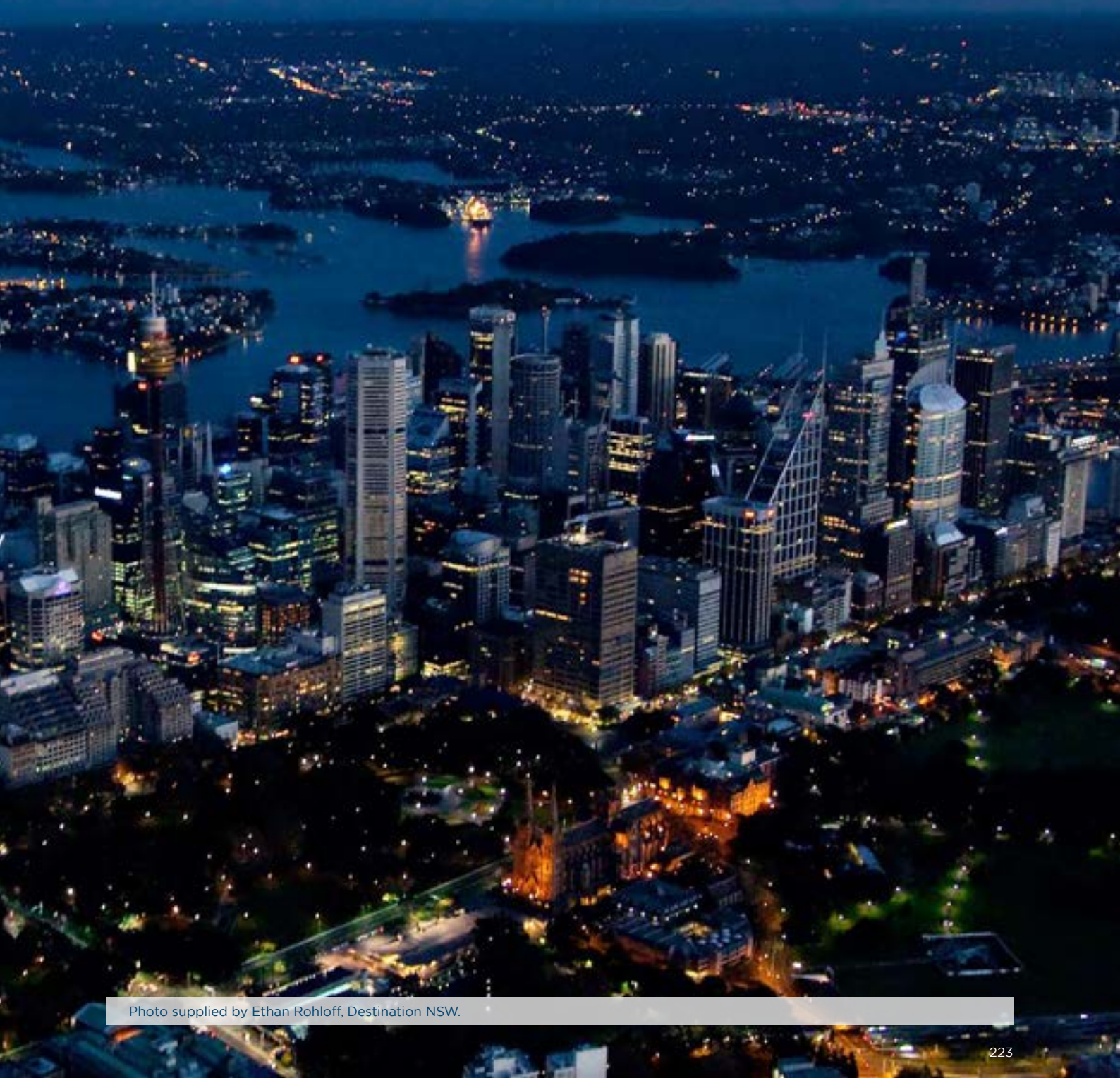
²⁷ The Australian Industry Group (AIG) said in its submission: 'In an understandable response to high prices and technological change, government are making or considering major changes to market rules or intervening outside the market to bring on new assets or affect the usage of existing assets. While many of these steps may ultimately be wise and necessary (and some may miscarry), they can substantially change the competitive landscape and the economics of individual projects. These reforms and interventions can thus delay and dissuade private investment, at least until their nature and ramifications become clear.'



Investors will only commit to generation investments if it is viable both with and without a carbon price, or more precisely a carbon price sufficient to achieve Australia's Paris commitments. And every investor I know expects that some form of carbon pricing is highly likely to apply at some point over the life of an investment. Presently, there is no conventional generation investment that is viable with and without a Paris-consistent carbon price. This does not bode well for efficient investment in new generation.

DANNY PRICE

2018, THE FUTURE OF AUSTRALIAN ENERGY, SPEECH TO AARES²⁵



The Roadmap aims to coordinate private investment in new capacity as the State prepares for coal generator closures. The Energy Security Target will be implemented by invoking the Infrastructure Safeguard to close gaps in any forecast capacity shortage. A consumer trustee will run competitive tenders for long-term energy service agreements—options contracts that fix the price of future output. A scheme financial vehicle will recover these payments by on-selling output. Any losses it incurs will be charged to distribution businesses and passed on to consumers through electricity bills.

The Infrastructure Safeguard is designed to lower the cost of capital that generation projects otherwise require, accelerating investment in dispatchable capacity. But the Safeguard would transfer some risks currently borne by investors onto consumers. The final impact on consumers is not certain; they would benefit from higher energy security and lower wholesale charges on their bills but would pay higher network charges.

Some risks have been identified that need to be managed:

- While the Roadmap may bring forward investment, it is also possible that:
 - new capacity will add to competitive pressure and accelerate generator closures
 - greater concern about further interventions will add to risk and discourage investment.
- Future governments might charge losses to taxpayers rather than distribution businesses.
- Overall scheme costs could diverge from efficiency if tender assessment criteria identified in the Roadmap—such as ‘community support’ and ‘location’—are given disproportionate weight.

RECOMMENDATION 5.9: INVOKING THE ELECTRICITY INFRASTRUCTURE SAFEGUARD

Long-term energy service agreements should only be entered into subject to:

- private allocation of risk and no assumption of losses by taxpayers
- rigorous and published cost benefit analysis demonstrating net benefits to energy consumers and the NSW economy, with outcomes verified and reported on an ongoing basis
- transparent stakeholder engagement to ensure implications are understood.

The Energy Security Target overlaps with national reliability provisions

Owners of generation, transmission, and distribution assets need to invest to comply with New South Wales and national reliability standards. There are signs that these standards demand more reliability than energy consumers are willing to pay for.

Research for Energy Consumers Australia indicates that customers worry more about the price they pay for electricity than about its reliability (Energy Consumers Australia, 2018). In 2018, about 70 per cent of customers were happy with the reliability of their electricity, but only about 40 per cent were happy with overall value for money.

Submissions on both the Discussion Paper and the Green Paper agreed willingness to pay was the appropriate benchmark for reliability regulation. These submissions argued governments have gone too far in demanding reliability at the expense of affordability.

In 2018, the ACCC argued that existing state reliability standards should be repealed where they are not determined by consumer valuation. The ACCC also argued responsibility for reliability regulations should be transferred to the AER (Australian Competition and Consumer Commission, 2018c).²⁸

²⁸ In December 2019, the Australian Energy Regulator produced its final report on consumers’ willingness to pay for reliability (Australian Energy Regulator, 2019). It estimated how much customers valued reliability when they experienced unplanned electricity outages lasting up to 12 hours.

Submissions on the Green Paper by both Australian Energy Council and Public Interest Advocacy Centre supported the draft recommendation to revisit the NSW Energy Security Target by:

- defining it in like terms to the national standard
- demonstrating it is consistent with consumer willingness to pay if it imposes a higher standard
- otherwise, adopting only the national standard.

Australian Energy Council did not support the Energy Security Target because of its duplication of national interventions. Public Interest Advocacy Centre expressed concern about costs to consumers.

The NSW Electricity Strategy commits the Government to review the National Electricity Law and Rules to identify national regulatory burdens that can be removed, streamlined, or clarified. This commitment is a sound one. The clear case for regulation to be determined by consumer valuation through a single, national framework suggests the Target should be revisited. Before reliability interventions are implemented, they should be evaluated based on consumer willingness to pay for further improvements.

RECOMMENDATION 5.10: REDEFINE THE ENERGY SECURITY TARGET

The Energy Security Target should be defined in like terms to the national generation reliability standard. If the Target imposes a higher standard, it should be demonstrated as consistent with consumer willingness to pay. If not, the national standard should be adopted in its place.

RESOLVING THE EMISSIONS REDUCTION IMPASSE

The scheduled closures of coal generators will leave the NSW NEM region largely decarbonised by 2050.²⁹ The region is, however, part of a national market, with all its member jurisdictions sharing the same net zero objective that New South Wales has adopted. But the task of achieving net zero is complicated by the lack of a uniform, cost-minimising policy across jurisdictions.

Instead, Australia is now attempting to reach net zero using a series of uncoordinated and inefficient state and territory policies. Renewable energy targets adopted by Victoria and Queensland, for instance, reward specific technologies rather than system outcomes. Reaching net zero in this way risks imposing far higher economic costs than a single national mechanism that creates incentives across the Australian economy.

The most efficient policy to meet the net zero aim would be to put a price on carbon. That would let investors adjudicate between the

merits of different emissions reduction technologies within a certain and lasting policy framework.

In submissions on the Green Paper, the Australian Energy Council and Business NSW both preferred a national mechanism. But the lack of Commonwealth support means that for a national mechanism to be achieved, the states and territories would need to coordinate among themselves.

That scenario is not unrealistic. New South Wales and other states and territories could cooperate on a single mechanism that provided a simple pathway to net zero by 2050. Recent productive discussions between the states on pandemic-related issues demonstrate the potential of multi-jurisdictional collaboration.

The NSW Government previously tasked the NSW Chief Scientist and Engineer with assessing the challenges and opportunities to meet the net zero emissions target by 2050.²⁹ A similar enquiry should be pursued from an economic perspective, discussed further in Section 5.11.

²⁹ In 2050 the region is expected to still have some gas generators providing firming capacity.

5.9 Firming renewables through peaking, storage, and small-scale baseload

Solar and wind alone cannot replace coal. Our increasingly reliance on non-dispatchable, variable renewable energy requires additional sources that provide firming capacity. This fills the gap when the sun does not shine, and the wind does not blow.

Firming capacity comes in two forms:

- **storage** such as batteries and pumped hydro
- **peaking generation** from gas and, potentially, hydrogen or small-scale nuclear.

Firming capacity costs more than renewables for a unit of energy produced. But the combination of the two can provide a reliable and cost effective dispatchable energy portfolio.

STORAGE OPPORTUNITIES

Storage projects buy power when prices are low, store this energy, and sell it when prices are high. By supporting minimum demand while meeting peak demand, storage also provides broader benefits: reduced price volatility, optimised grid utilisation, and enhanced system security.

NSW battery storage capacity is forecast to reach seven gigawatts by 2050, up from zero today, as battery costs keep falling (Green Energy Markets, 2020). Pumped hydroelectricity facilities can store energy for longer durations than batteries (see Box 5.12). The Snowy 2.0 initiative will provide two gigawatts of storage capacity.

The Energy Roadmap finds New South Wales has significant opportunities for pumped hydro development, with 20,000 reservoirs for potential projects having been identified. These are risky investments, however: they can attract local community opposition and have long delivery times. They are also capital-intensive.

To expedite planning for pumped hydro projects, the Roadmap includes funding for pre-investment studies of potential sites. That funding would be recovered from proponents at financial close or when development rights are sold. Each proposal will need evaluation that considers market, social, and environmental impacts.

BOX 5.12: STORAGE THROUGH PUMPED HYDRO

Pumped hydroelectricity is a form of long-duration storage increasingly used worldwide to balance renewable energy over days and seasons and, thereby, better match supply with demand. Excess energy from solar, wind, or both can be used to pump water from a lower dam to higher one during periods of low system demand. That stored water is then available for passing through turbines to generate electricity during high-demand periods when renewables are not generating enough power.

This technology is currently in operation in Wivenhoe, Shoalhaven, and Tumut 3 with total capacity of 1,410 megawatts. This is supporting penetration of renewables into the NEM.

RECOMMENDATION 5.11: VALUE FOR MONEY LONG-DURATION STORAGE

The NSW Government should require long-duration storage projects demonstrate value for money through independently audited cost benefit analyses that account for their social, environmental, and market impacts. These should be made public.

PEAKING GENERATION OPPORTUNITIES

Gas

As renewables rise, gas has a critical role in providing peaking power. Gas generation is expensive, but gas turbines can be ramped up at short notice, making it ideal for very high demand periods and extended instances of low renewables dispatch.³⁰ Use of gas in this way—despite carbon dioxide and methane emissions—is still viable provided programs are in place to offset its emissions. Opportunities for offsets include carbon sequestration in soils and plants through reforestation.

The Commonwealth's proposal for a gas combined cycle baseload generator at Kurri Kurri is a risk to other gas investments, however. Energy Australia had previously proposed a 300-400 MW gas generator at Tallawarra B. Also, AGL had proposed a 250 MW gas 'peaker' in Newcastle as well as batteries at Liddell. But these proposals were placed on hold when the Commonwealth nominated gas as its preferred replacement for Liddell.

The option for gas as a source of firming generation and system backup is also jeopardised by insufficient fuel supplies. The NSW Government will need to be clear about the future role of gas, given its commitment to net zero emissions by 2050.

Hydrogen

Hydrogen is another firming option once the technology is cost effective. It is an attractive fuel because it can be deployed in gas generators. This technology is highlighted in Box 5.13.

SYSTEM FIRING OPPORTUNITY

Small-scale nuclear

A further option for firming capacity is small-scale nuclear reactors, an emerging form of baseload generation. Australia has, to date, foregone nuclear power generation, which is subject to a national ban. Reasons include operational safety and concerns over disposal of spent nuclear fuel, which is highly radioactive.³¹ The ban persists notwithstanding the country's considerable uranium reserves, which are exported. The emerging technology is discussed in Box 5.14.

BOX 5.13: HYDROGEN'S POTENTIAL

'Green' hydrogen is produced using renewable energy to electrolyse water into hydrogen (with oxygen as a benign by-product). Metal hydrides can store hydrogen for long periods. It can then be recovered as hydrogen gas or electricity when fed through a fuel cell. New South Wales has the endowments—sunshine, water, low-cost coastal land, and technical expertise—to develop a hydrogen industry.

An example is H2Store, a hydrogen storage start-up partnership between University of NSW, Merlin (Materials Energy Research Laboratory in Nanoscale), and Efficacy Advisors. H2Store aims to commercialise a safe hydride product for energy storage within the next two years. A modular system will be delivered as a one megawatt hybrid energy storage system at the 103 megawatts Yarranlea Solar Farm on Queensland's Darling Downs.

³⁰ See, for example, Frank Calabria, Chief Executive Origin Energy (2019), available at <https://events.ceda.com.au/Events/Library/Past-Events/1/N191025> and Tony Wood & Guy Dundas (2020), *Flame Out: The Future of Natural Gas*, available at <https://grattan.edu.au/report/flame-out-the-future-of-natural-gas/>

³¹ The country's one nuclear reactor, at Lucas Heights, is used only for research and production of medical isotopes.

There is a wide degree of uncertainty about future price paths for small-scale nuclear reactors. The Commonwealth Scientific and Industrial Research Organisation (CSIRO) and AEMO find they are only viable with ambitious decarbonisation objectives for the energy sector and limited deployment of renewables (Graham et al., 2020). The lack of a national carbon price and accelerating investment in solar and wind capacity suggest these conditions are unlikely to be met. Even for high-deployment scenarios, CSIRO and AEMO

do not project capital costs to fall much below \$7,000 per kilowatt (Graham et al., 2020). Innovation would have to drive considerable cost reductions—not impossible, but also not expected.

Uncertainty notwithstanding, New South Wales should not support ongoing prohibition of potential sources of firming capacity. It should, instead, seek lifting of the ban on nuclear energy generation, subject to safety concerns being addressed.

BOX 5.14: SMALL-SCALE NUCLEAR GENERATION

While nuclear energy continues to be a significant energy generation source across Europe and Asia, its commercial use poses some issues.

The biggest issues arise with large-scale nuclear reactors. High fixed costs and long delivery times mean such reactors tend not to be feasible for private investors. Existing nuclear reactors have been delivered either by state-owned or regulated monopolies, with consumers and taxpayers shouldering some of the risk. Low-cost renewables now pose an additional risk to the economics of large reactors.

Prospects are better, however, for smaller nuclear generators that can firm energy systems and support overall security. Proponents say:

- Their modularity generates economies of scale, with pre-fabrication of individual components at specialist facilities.
- They are less risky in the face of earthquakes and floods and can incorporate contemporary fail-safe mechanisms that largely eliminate potential for catastrophic failure.
- Their reduced consumption of water for cooling avoids the requirement to build near large water sources, which can be flood prone.

This technology is current being developed in the United States, where NuScale Power expects to have its first small modular reactor operating by 2026.

RECOMMENDATION 5.12: LIFTING THE BAN ON NUCLEAR ELECTRICITY GENERATION

Propose the national ban on nuclear generation be lifted for small modular reactors that satisfy safety conditions.

Demand management can reduce costs

A TWO-SIDED, FLEXIBLE MARKET CAN REDUCE THE NEED FOR NEW INVESTMENT

NSW consumers can pay lower electricity prices if the electricity system can reduce costs while still generating the power we need. The system needs generation and network capacity that reliably delivers peak loads without incident. But this can leave substantial excess capacity in off peak periods. Pricing that incentivises energy consumers to shift some peak demand into the off peak can reduce overall generation and network costs.

Consumers with smart meters already have the option of paying different tariffs based on the time of day they use electricity. Off-peak rates between 10pm and 7am already encourage consumers to run timed appliances like dishwashers and washing machines when the current coal-based system can more easily supply electricity. Consumers that change the timing of their demand

in this way can save on their energy bills. And because system costs are contained overall, benefits are shared by all consumers, regardless of when they consume and their capacity to pay.

Smart meters can take demand management even further. They can signal variable prices in cases of unanticipated peak demand and system stress, such as hot summer days or instances of an unplanned outage.

These approaches reduce depreciation of existing assets and economise on expensive investment. As the Australian Alliance for Energy Productivity noted in its Discussion Paper submission, 'the state must be careful to ... ensure that demand measures are implemented FIRST i.e. before new investment in supply infrastructure.'

New AEMC rules incorporating demand response into the NEM are described in Box 5.15.

BOX 5.15: WHOLESALE DEMAND RESPONSE

Demand response involves payments to some energy consumers to encourage them to voluntarily reduce, or shift, their electricity consumption during peak periods. By better balancing demand with capacity, the energy system is made more flexible and reliable.

In June 2020, AEMC released a final rule and determination to implement a wholesale demand response mechanism in the NEM. Under the rule, consumers can sell demand response in the wholesale market either directly or through specialist aggregators. A new category of registered participant—a demand response service provider (DRSP)—can bid demand response into the market as a substitute for generation. A DRSP can also engage directly with a customer without the involvement of that customer's retailer.

The Commission hopes the mechanism will contribute to a two-sided market emerging, characterised by active participation of both the supply and demand sides in dispatch and price setting. AEMO has scheduled its commencement for 24 October 2021.

In New South Wales, all new and replacement meters are now required to be smart meters. But many businesses and households continue to rely on old meters that cannot record time of use and, therefore, cannot opt for time-of-use pricing. Consumers can request a meter upgrade—which may be free of charge—but may not opt to do so.

The slow rollout of smart meters is an obstacle to the wider application of cost-reflective pricing. The NSW Government should fully explore options for expediting the roll out of smart meters. In so doing, it should heed lessons from other jurisdictions and design a transition that avoids unintended consequences. Some lessons include:

- In Victoria, mandatory rollouts began in 2006. But this proved problematic. Consumers were required to cover the full cost without sufficient regard to the distribution of benefits between stakeholders or the impacts on low income households.
- There is a risk of adverse selection if, coupled with mandatory rollout, cost-reflective pricing is not also mandated for all customers:
 - If cost-reflective pricing remains voluntary, it will be most attractive to customers with relatively high off-peak use.
 - But if cost-reflective pricing remains voluntary, standard tariffs will remain available. And they will be attractive to customers that prefer not to shift their demand from peak into off-peak periods.
- So, a system with voluntary cost-reflective pricing will not be effective at containing costs. It risks continuing high levels of system investment to meet growing peak usage.

RECOMMENDATION 5.13: EXPLORE ELECTRICITY PRICING THAT FULLY REFLECT COSTS

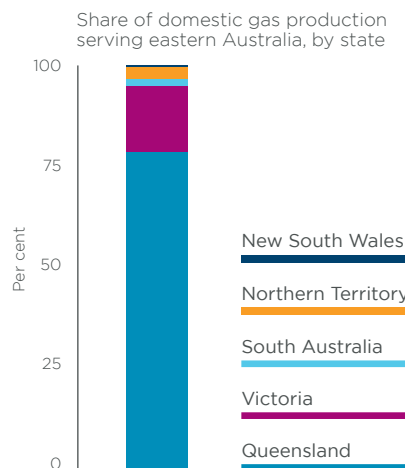
Evaluate the expedited rollout of smart meters to all consumers and for mandatory cost-reflective electricity pricing.

5.11 Ensuring New South Wales has strategic gas supplies

Our economy depends on natural gas for power generation, manufacturing (such as fertilisers, plastics, and explosives), and household use. Gas is also used in commercial buildings, hospitals and schools, transportation, and minerals processing.

New South Wales has significant gas reserves that are potentially recoverable. Most of these resources are in coal seams. For the past decade, production has been negligible, as depicted in Figure 5.15. Instead, most domestic supply is sourced from other states through pipelines, particularly from Queensland and South Australia.

FIGURE 5.15: NSW PRODUCES LITTLE GAS COMPARED TO OTHER STATES



Source: Australian Energy Regulator (2020).

Globally, COVID-19 has coincided with falling demand and investment. The International Energy Agency (IEA) has estimated a \$1 trillion write-down in the value of the global gas industry since 2019 alone, from \$6 trillion to \$5 trillion (International Energy Agency, 2020). Prospects are uncertain and highly sensitive to nations' sustainability goals, including emissions reduction:

'Declines in production from existing fields create a need for new upstream projects, even in rapid energy transitions. However, investors are looking with increased scepticism at...gas projects due to concerns about financial performance and the compatibility of company strategies with environmental goals. Some of the financial concerns might ease if prices pick up and projects start to offer better returns, but questions about the industry's contribution to reducing emissions are not going to go away.'

International Energy Agency *World Energy Outlook 2020*

On IEA calculations, a global emissions scenario of net zero by 2070 is associated with a further write-down of the industry's present value from \$5 trillion to \$3 trillion. Moreover, under this scenario peak gas demand would come sooner rather than later in economies that have committed to net zero emissions within that timeframe, such as New South Wales.

As we grapple with the uncertain outlook, we must also address the legacy of a lack of domestic production over the past decade that has contributed to a south-eastern Australian supply gap. This is forecast to widen as current sources are depleted.

AEMO's annual *Gas Statement of Opportunities* forecasts demand and supply for the Australian east coast over 20 years. In March 2021, it found:

- Forecast demand would be met until 2026 provided Australian Industrial Energy's Port Kembla Gas Terminal project—Australia's first LNG import terminal—is delivered by mid-2023.
- Supply was forecast to fall by 35 per cent in the second half of the decade—despite an increase in committed gas developments—because of declining production from existing east coast fields.
- New projects would build resilience into the energy system, though few are anticipated.
- Demand management and investment in pipeline infrastructure to connect new sources such as Santos' Narrabri basin could further assist in managing scarcity risks (Australian Energy Market Operator, 2021).

Commitment to Port Kembla and planning approval for Narrabri have improved prospects for meeting the State's gas needs. But failure to ensure ongoing supplies poses risks to delivery of gas peaking generation, which is heightened if coal generators close earlier than anticipated. This is amplified if the Commonwealth's Kurri Kurri gas generation plant proposal proceeds, as that plant would consume increasingly scarce fuel stocks.

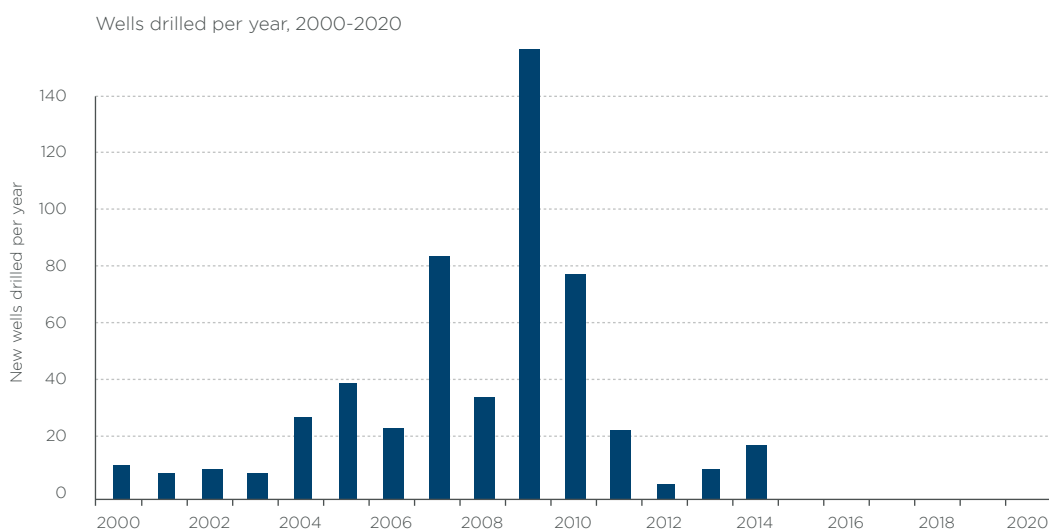
The lack of strategic gas supplies therefore poses a risk to the NSW Government's target for net zero emissions by 2050. Conversely, gas is a potent fossil fuel, emitting carbon dioxide and methane as it burns. While some emissions from gas can be offset through carbon sequestration, gas cannot continue to perform traditional functions in a net zero economy.

The NSW Government and national energy agencies will need to determine the long-term strategic role gas will play in the energy system. Governments will then need to start sending appropriate investment signals to the private sector about gas extraction and conservation.

THE EAST COAST GAS SHORTAGE

Development of the east coast gas shortage began some years ago. In the years before 2010, improved technology and rising gas prices fed rapid expansion in gas exploration and extraction from coal seams, particularly in Queensland. At the same time, exploitation of shale gas boomed, particularly in the United States.

FIGURE 5.16: NEW NSW COAL SEAM GAS EXPLORATION PEAKED IN 2010



Source: CSIRO Gas Industry Social and Environmental Research Alliance (GISERA); NSW Treasury.

This boom in unconventional gas, together with the granting of many NSW exploration licences, brought the sector into the spotlight (see Figure 5.16). Debates over perceived environmental and social impacts grew (Mitchell & Angus, 2014).

Water security and pollution were central to environmental objections. Hydraulic fracture stimulation ('fracking') is needed in some cases to extract gas from coal seams. This technique

requires large quantities of water and may compete with other water uses, such as agriculture. There are also concerns that water removed from coal seams with high concentrations of naturally occurring chemicals could leak into aquifers or surface water. Broader environmental concerns include fugitive greenhouse gas emissions and use of gas itself as a fossil fuel. Finally, there is a perceived incompatibility with agricultural and residential land uses.

In response to these community concerns, between 2010 and 2015, the NSW Government took several actions. These included:

- moratoria on fracking (April 2011) and on coal seam gas (CSG) exploration (March 2014)
- a review of CSG by the Chief Scientist and Engineer (September 2014), which found environmental impacts could be managed through regulation
- the NSW Gas Plan, which accepted the Chief Scientist's recommendations (November 2014)

- the Strategic Release Framework (December 2015) to replace the CSG moratoria.

The Strategic Release Framework governs exploration and planning process for CSG. But the cost, delay, and uncertainty associated with the above actions had a substantial effect on the industry. Since 2015, no new exploration wells have been drilled in New South Wales (see Figure 5.17).

FIGURE 5.17: GAS PRICES HAVE PROVED VOLATILE OVER THE PAST FOUR YEARS



Source: AEMO.

The outlook for gas improved in 2020. The NSW Government committed to a target of injecting 70 petajoules of gas per year into the Australian market by 2022.³² Santos's Narrabri Gas Project was approved by the Independent Planning Commission in September 2020 (see Box 5.16). An increase in the capacity of Australian Industrial Energy's Port Kembla Gas Terminal was also approved.

The Port Kembla facility will address near term domestic shortages by allowing import of LNG from Western Australia and overseas. Current plans include a carrier vessel, floating storage

and regasification unit, wharf, and a pipeline connection to the existing east coast gas transmission network. The terminal will have annual import capacity of up to 100 petajoules. The 2021 Gas Statement of Opportunities modelled the impact of Port Kembla and found it would push the forecast gas shortage from 2023 to 2026 at the earliest.

Narrabri was not included in the 2021 forecasts because enabling pipeline connections—the Western Slopes Pipeline and the Queensland-Hunter Pipeline—are currently classified as 'proposed', rather than 'committed' or 'anticipated' (Box 5.17).

³² The State signed a Memorandum of Understanding with the Australian Government. A gas market review will take place if this target is not met by 2022.

BOX 5.16: THE NARRABRI GAS PROJECT

The Narrabri CSG field will be developed over 20 years. It represents a significant component of the State's untapped gas resources and is forecast to supply 70 petajoules per annum—up to 50 per cent of domestic gas demand. That will support diversification of domestic supplies.

For an investment of \$3.6 billion, the project is estimated to contribute \$12 billion to the NSW economy, including \$3 billion in royalties and taxes. Unacceptable impacts will be avoided by capping total water extraction over the life of the project and requiring compliance with strict standards, including site rehabilitation and biodiversity offsets (Department of Planning, Industry and Environment, 2020).

BOX 5.17: WESTERN SLOPES AND QUEENSLAND-HUNTER PIPELINES

Western Slopes Pipeline is a 460-kilometre proposal by APA Group to link the Narrabri gas field with the State's transmission network. The exact route is yet to be finalised, but would run in a south-westerly direction, linking to the Moomba-Sydney Pipeline, the main natural gas transmission pipeline running east-west across the State. An Environmental Impact Statement is currently being prepared for the project, which has been designated State Significant Infrastructure.

Jemena's Queensland-Hunter Pipeline was approved in 2009 but has not yet been subject of an investment decision. The proposed pipeline would run from the Wallumbilla gas hub in Queensland to the Narrabri Gas Project in New South Wales, through the Hunter Region, to Newcastle. Prospects for the project have improved since Narrabri's approval.

A further option is the Newcastle Gas Terminal, which would comprise a floating storage and regasification unit, wharf, and connection to the existing Sydney to Newcastle transmission network. It will have capacity of up to 110 petajoules per year and has been designated as State Significant Infrastructure. An environmental impact statement is currently being prepared.

Regasification terminals serve the future role of gas as a flexible firming source of electricity generation. LNG can be stored for regasification at relatively short notice—for instance, when low renewables generation is forecast in the next few days.

As part of the east coast solution, AEMO has identified two further solutions:

- Victoria lifted its ban on conventional onshore gas production in July 2021. How much this will help will be unclear until exploration recommences.
- Greater gas pipe connectivity between states will potentially improve reliability and security.

THE FUTURE OF GAS

AEMO forecasts that demand for gas will flatten. But in the medium term, demand may rise as coal generators close.

Stakeholders—from industry to the ACCC to the Commonwealth Government—have expressed concern at the upward trend in gas prices. Between 2017 and the start of the pandemic, east coast wholesale prices rose from between \$4 and \$6 to between \$8 and \$10 per gigajoule (Australian Energy Regulator, 2020). This rise coincided with the commissioning of new LNG export facilities in Queensland, which effectively integrated Australia into the global gas market. Market forces then drove domestic prices into line with international prices.

This pressure operated in reverse in 2019 and 2020, when lower Asian prices and higher Queensland production helped drive falls in domestic spot prices. International spot prices have slumped more recently because of COVID-19, but futures markets indicate these will eventually rebound.

The ACCC's most recent gas inquiry found domestic prices should have fallen even further than otherwise. It attributed the lack of greater price falls to insufficient competition (Australian Competition & Consumer Commission, 2021). More likely, however, international demand, together with the higher cost nature of existing and committed domestic projects, are holding domestic prices up. The least costly conventional onshore gas fields tend to be exploited first, followed by offshore fields and, eventually, unconventional gas resources. Narrabri, for example, features unit costs of \$6 per gigajoule, excluding transportation costs.

Developments at the national level will help shape the industry's future. The Australian Domestic Gas Security Mechanism, agreed in 2017, will allow the Commonwealth energy minister to limit export of gas outside of existing contracts in the event of a domestic shortage. While this approach could be justified in emergencies, other proposals could have adverse impacts.

The Commonwealth's National Gas Infrastructure Plan indicates 'where the Government will step in if the private sector doesn't invest' in 'nation building projects' to ensure a 'gas-fired recovery' from COVID-19. It flags streamlined approvals, underwritten projects, and/or the establishment of a special purpose vehicle with a capped contribution. Shifting costs and risk away from industry and onto taxpayers without clear evidence of market failure would be a retrograde step. The same is true of the National COVID-19 Coordination Commission's objective of reducing domestic prices rather than assuring security of supply.

Regulation should be fit for purpose to guarantee strategic supply

Committed and potential projects will alleviate the east coast gas shortage. But long-term gas needs will not be met without the removal of regulatory barriers that impede gas extraction without good reason.

Regulatory improvement will boost productivity if it allows feasible projects to proceed while not compromising other objectives. To achieve this, action needs to be taken now to reduce or eliminate unjustified impediments to exploration and planning approvals.

Exploration and approvals have long lead times. When poorly designed or implemented regulation deters planning and investment, gas production can be affected for years to come. Moreover—as electricity generation has shown—the risk faced by private investors rises when governments do not clarify how their broader objectives are to be achieved. Finally, poor policy design risks locking in technologies that will make the adjustment more costly later.

Strategic planning should maximise the effective use of land and benefits to the New South Wales community, accounting for all social, market, and environmental impacts.

The Government's Strategic Regional Land Use Policy (SRLUP) and the Strategic Release Framework may reduce land use conflicts. But by restricting possible uses, they preclude those that could maximise net benefits to the community. Some land use conflict is unavoidable and not all opposition to change of use is reasonable. The Commonwealth Productivity Commission (2020b) highlights COAG's Multiple Land Use Framework (Standing Council on Energy and Resources, 2013) as good practice.

New South Wales has had mixed success in implementing policies to these standards. By not excluding gas extraction on agricultural land (as in other states), the SRLUP aligns with some of the principles of the Multiple Land Use Framework. But policy should focus on overcoming issues with mixed land uses, not adding barriers to the ability of mining to compete with agriculture.

Similarly, the Strategic Release Framework was developed as a transparent approach to gas exploration and management of competing uses. But in five years, only Narrabri has been approved. And no new areas have either been re-released for exploration or assessed for potential release for unconventional gas.³³ This record does not favour long-term security for strategic gas supplies.

Both the SRLUP and Strategic Release Framework should be reviewed to ensure they are:

- evidence based, with quantification of costs and benefits wherever possible
 - appropriately balanced between competing land uses
 - cost effective in achieving desired outcomes.
- carefully managed demand for scarce gas supplies
 - be clear on how net zero emissions will be achieved by 2050.

As with any regulatory review, the regulations should comply with the NSW Government's Guide to Better Regulation (NSW Treasury, 2019b). The review should also draw on the final findings of the Commonwealth Productivity Commission's Resources Sector Regulation study (Commonwealth Productivity Commission, 2020d).

Demand management and certainty on emissions are also needed to lift productivity

New South Wales can complement more efficient land use planning with greater clarity on how to deliver objectives under the Climate Change Policy Framework. As discussed, there is likely to be a critical role for gas in a low emissions energy system, thanks to its flexibility and back up capacity. But conventional uses of gas in residential and commercial buildings and in manufacturing at the same time is likely to be very costly. Moreover, without greater clarity, private sector risk is likely to increase with time.

In short, the Government needs to:

RECOMMENDATION 5.14: EFFICIENT LAND USE AND DEMAND MANAGEMENT

Revise the NSW Gas Plan, including a demand management strategy for gas.

Review the Strategic Regional Land Use Policy and Strategic Release Framework to ensure they reflect competitive neutrality and maximise benefits of land use.

RECOMMENDATION 5.15: ACHIEVING NET ZERO EMISSIONS

Establish an economic review into the NSW Government's net zero emissions by 2050 target to report on cost effective policies to deliver on the commitment.

³³ The assessment process has only once been triggered, for conventional gas exploration only (not CSG) in Far West NSW, but the PRIA appears to never have been completed (NSW Government, 2017).

Improving NSW energy governance

Governance of the energy sector in New South Wales is dispersed across a wide range of agencies, some with overlapping responsibilities. Besides those national agency responsibilities noted in section 5.8 above, other state agencies also play a regulatory role:

- The Department of Planning, Industry and Environment:
 - accredits service providers that carry out contestable works (such as electricity networks)
 - oversees safety and licensing of pipelines and gas networks.³⁴
- NSW Fair Trading:
 - accredits electricians and gas installers
 - regulates meters and meter technicians, including setting training requirements
 - enforces compliance of safety and technical requirements for remote de-energisation and re-energisation of customer premises via electricity meters
 - enforces compliance with distributed energy resource product standards and consumer law
 - conducts community education and awareness campaigns.

Submissions supported consolidating state functions into a single regulatory agency that would:³⁵

- license/accredit operators and service providers of both electricity and gas networks

- monitor and report on compliance with gas and electricity technical and reliability standards
- monitor and report on compliance with safety regulations, with SafeWork NSW retaining worker safety responsibilities.

This proposal could provide the following benefits:

- a specialised agency for administrative decisions with clear lines of responsibility and reporting
- cost savings through economies of scale and reduced duplication
- consistency in regulation, compliance, and enforcement for the entire sector.

As a first step, roles and responsibilities for energy policy across NSW Government should be reviewed to ensure the current regulatory arrangements are cost effective and fit for purpose. The case is strong to relieve IPART of its responsibility for regular monitoring of the retail electricity market. Presently, IPART is one of four agencies performing this function, along with AEMC, AER, and ACCC. This duplication comes at a cost to taxpayers, retailers, and, ultimately, consumers. The benefits are questionable, given the other agencies are better positioned, informed, and resourced. Relieving IPART from this role would allow it to perform other functions, such as investigating NSW-specific matters.

RECOMMENDATION 5.16: RATIONALISE ENERGY REGULATION

Review responsibilities for regulating the energy sector across NSW Government, with consideration to establishing a single regulator to perform these functions.

³⁴ The licensing role of distribution networks is administered by IPART.

³⁵ IPART notes in its submission that consumer protection responsibilities should remain with NSW Fair Trading.

Better target energy rebates

The NSW Government currently spends more than \$300 million a year on six rebates to assist low income and vulnerable households pay their energy bills:

- Low Income Household Rebate
- Gas Rebate
- Medical Energy Rebate
- Life Support Rebate
- Family Energy Rebate
- Seniors Energy Rebate.

Other support programs for low income and vulnerable households are:

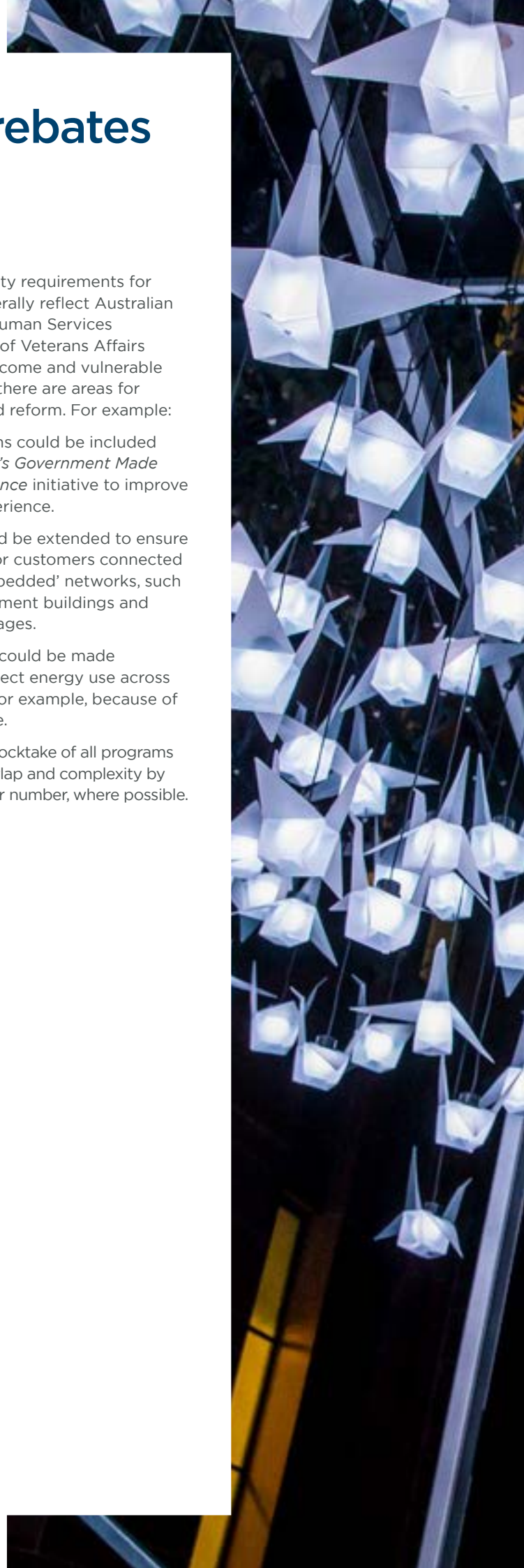
- the Energy Account Payment Assistance scheme
- trialling of the Solar for Low Income Households program for customers that agree not to receive the Low Income Household Rebate
- the Empowering Homes program to support rollout of up to 300,000 solar-battery systems over 10 years.

The rebates and support programs are known collectively as the Energy Social Programs. Around 900,000 unique customers benefited from these programs in 2018-19, with the majority receiving an average 17.5 per cent reduction in their energy bills.

Currently, eligibility requirements for each rebate generally reflect Australian Department of Human Services and Department of Veterans Affairs criteria for low income and vulnerable status. However, there are areas for improvement and reform. For example:

- These programs could be included in the *Premier's Government Made Easy: Tell Us Once* initiative to improve customer experience.
- Eligibility could be extended to ensure accessibility for customers connected to certain 'embedded' networks, such as some apartment buildings and retirement villages.
- Fixed rebates could be made variable to reflect energy use across households—for example, because of household size.

More broadly, a stocktake of all programs could reduce overlap and complexity by consolidating their number, where possible.



RECOMMENDATION 5.17: IMPROVE AND RATIONALISE ENERGY REBATES

Improve the efficiency of energy rebates by incorporating them into the *Government Made Easy: Tell Us Once* initiative.

Review the suite of rebate and assistance measures with a view to consolidating their number and better targeting those most in need.



06 | A better mix of state and local taxes will encourage growth



Recommendations

RECOMMENDATION 6.1: SET OUT A PROGRAM TO MOVE TO EFFICIENT STATE TAXES

Replace the State's least efficient taxes with more efficient ones. Start by replacing stamp duty with a broad-based property tax. Consult widely with stakeholders and community members on the implementation of this reform. Then replace other inefficient taxes in order of economic burden. For any replacement tax, identify:

- how various designs will improve the economy and the State Budget
- how to implement the new tax while minimising the adverse impacts on various groups.

Work with the Commonwealth Government to ensure that federal financial arrangements encourage states to undertake productivity-boosting reform.

RECOMMENDATION 6.2: REFORMING THE PAYROLL TAX SYSTEM

Propose, to the Board of Treasurers, the establishment of a single payroll tax coordination body. This body would develop a consistent approach to payroll tax administration across all states and territories. Individual jurisdictions would still be able to set their own payroll tax thresholds and rates.

Investigate the extent to which startups contribute to sustained new employment in the economy.

Identify options to alleviate the impact on startups from payroll tax for the first five years of operation.

RECOMMENDATION 6.3: ABOLISH MOTOR VEHICLE DUTY AND REPLACE WITH A ROAD USER CHARGE FOR ELIGIBLE ELECTRIC VEHICLES

As soon as practicable, introduce a distance-based road user charge (RUC) for eligible battery electric and plug-in electric hybrid vehicles (eligible EVs) of 1.5 cents per kilometre. At the same time, abolish motor vehicle duty for these vehicles.

Phase-in the RUC so that it is set at a rate of 6 cents per kilometre in today's terms so that it addresses the excise and motor vehicle duty revenue shortfall without materially impacting the uptake of eligible EVs.

RECOMMENDATION 6.4: REFORM SYSTEMS FOR RATE SETTING AND INFRASTRUCTURE CONTRIBUTIONS

Implement Recommendation 3.1 of the *Review of Infrastructure Contributions* (local government rate peg reform). This will allow councils' general income to increase with population, letting them meet the needs of a larger population.

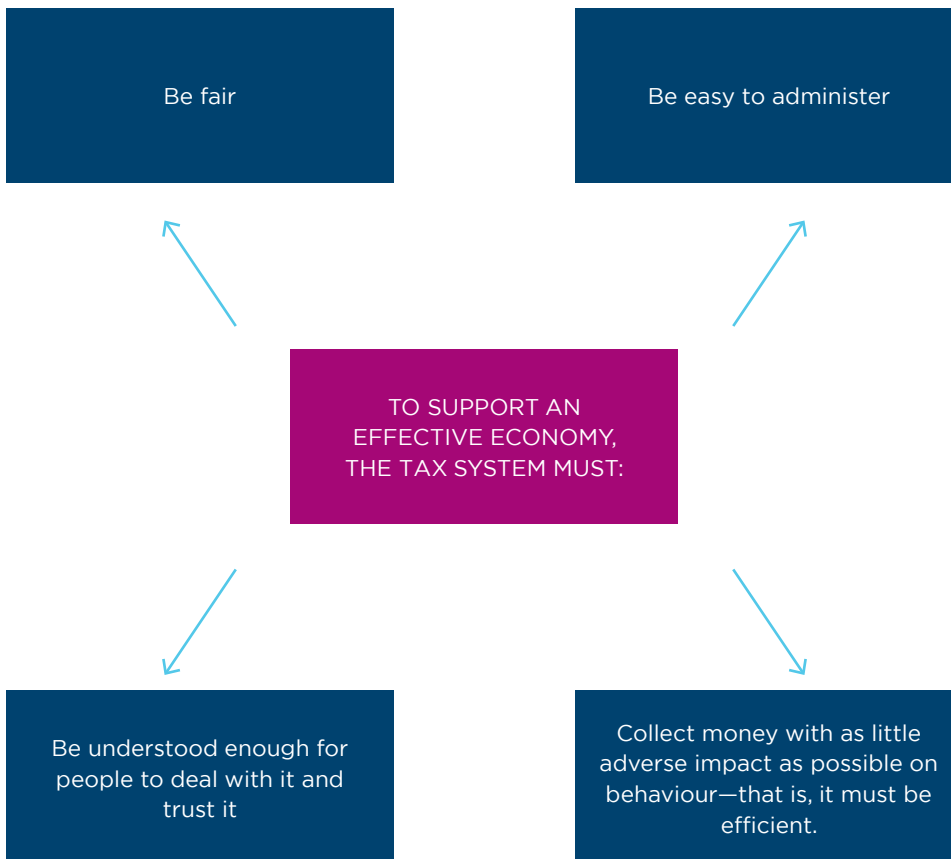
Once this is in place, and if funding is still insufficient, the NSW Government should permit councils to hold local plebiscites within four years, to test support for abolishing the rate peg.

6.1 | The right tax mix will raise productivity growth

New South Wales must fund and deliver services for a growing population. Through history this task has challenged governments, from Chinese emperors and French medieval kings to the heads of today's superpowers.

Our taxation system aims to fund the provision of vital services and infrastructure such as hospitals, schools, and police. It should do so as equitably and efficiently as possible.

NSW taxes include not just state taxes but rates imposed by local government.¹



¹ Rates are a type of property tax that local government collects from households to pay for local services such as parks, road maintenance, and rubbish collection. In this report, except where noted, the term 'taxes' is used in its most general sense and includes duties, rates, and levies.

...As Australia sets itself on the path to economic recovery after the shocks of COVID-19, serious consideration should be given to how policy settings can be reset to drive productivity, stimulate investment and catalyse economic growth. A broad-based tax reform agenda should be part of those considerations.

PROPERTY COUNCIL OF AUSTRALIA SUBMISSION

Given the economic challenges ... due to COVID-19 induced recession, it is urgent that action be taken to reform inefficient taxes which depress wages, consumption and economic growth, and diminish State government revenue.

FINANCIAL SERVICES COUNCIL SUBMISSION

The last point is significant. Some taxes seriously distort incentives in the economy. Taxes may inhibit particular work or investment by making it much less attractive. Or they may change the purchases of goods and services by making them cheaper or more expensive.

The economic and fiscal impacts of COVID-19 make the task of improving state taxes much more urgent.

In its October 2019 discussion paper, the *NSW Review of Federal Financial Relations* (FFR) summarises the State's taxing problem as follows (NSW Treasury, 2019c): **As the State of New South Wales grows and evolves, it will be necessary to review the State's revenue arrangements to ensure it is capable of meeting the needs of citizens now and into the future. With limited revenue-raising powers, states depend on revenue streams that can be volatile, unpredictable and damaging to productivity.**

Since the FFR discussion paper, governments and the economy have faced three catastrophic disasters: bushfires, COVID-19, and floods. These events reinforce the call for productivity-enhancing tax reform in the review's Draft Report (NSW Treasury, 2020c).

Rather than focusing on narrow reforms to individual taxes, this chapter outlines the case for delivering broader reforms. If implemented, these would substantially improve our State's tax system. That system would be fairer, more competitive, more efficient, and less complex. It would encourage investment and help to create new jobs. In doing so, it would better foster the productivity of the NSW economy.

With economic recovery now a priority, the question facing the Review is how state governments can provide taxpayers with reliable, quality government services, while keeping the taxes they pay as low as possible. To do this, we need to identify practical ways to maximise the value we get per dollar of tax raised. We need to make taxes as simple as possible, and limit the impact they have upon citizens' lives, such as the decision about when to move house and whether to insure.

NSW REVIEW OF FEDERAL FINANCIAL RELATIONS (2020C)

6.2 New South Wales relies on high-cost taxes

SOME TAXES WORK BETTER THAN OTHERS

Most taxes introduce a burden on the economy, because they change the behaviour of households and firms.² For example:

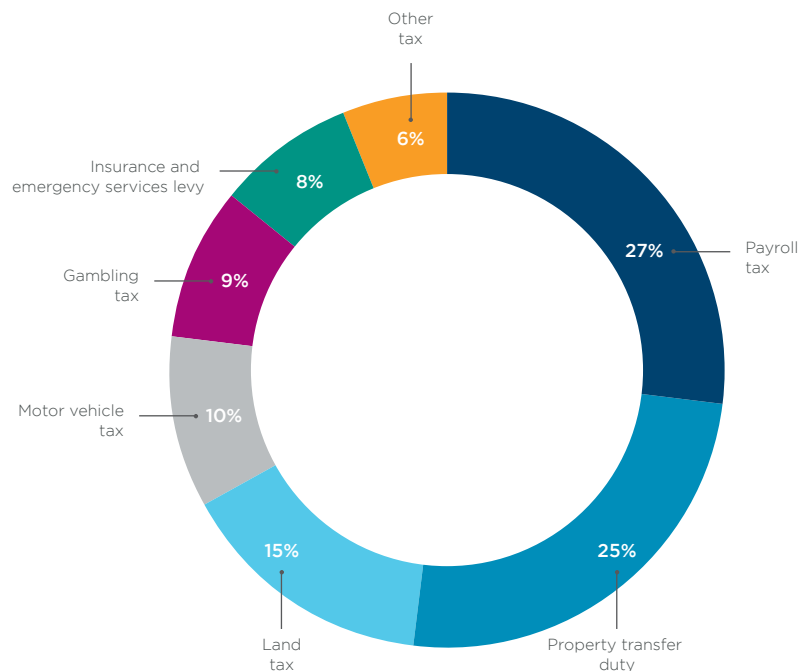
- Income and payroll tax can reduce the after-tax return on labour, causing people to work less.
- Profit-based taxes can reduce after-tax returns on capital, discouraging investment and incentivising profit shifting.

- Consumption taxes can change the relative prices of goods and services, causing consumers to switch their patterns of demand.
- Transaction taxes can deter exchanges that would otherwise be mutually beneficial.

Figure 6.1 shows the different taxes New South Wales collected in 2020-21. Notably, it shows that just two taxes—property transfer and payroll—together raise more than 50 per cent of our tax revenue. Figure 6.2 shows that reliance on relatively volatile property transfer tax brings it own budget management challenges.

FIGURE 6.1: PAYROLL AND PROPERTY TRANSFER TAXES DOMINATE NSW TAX

Composition of NSW tax revenue, 2020-21³

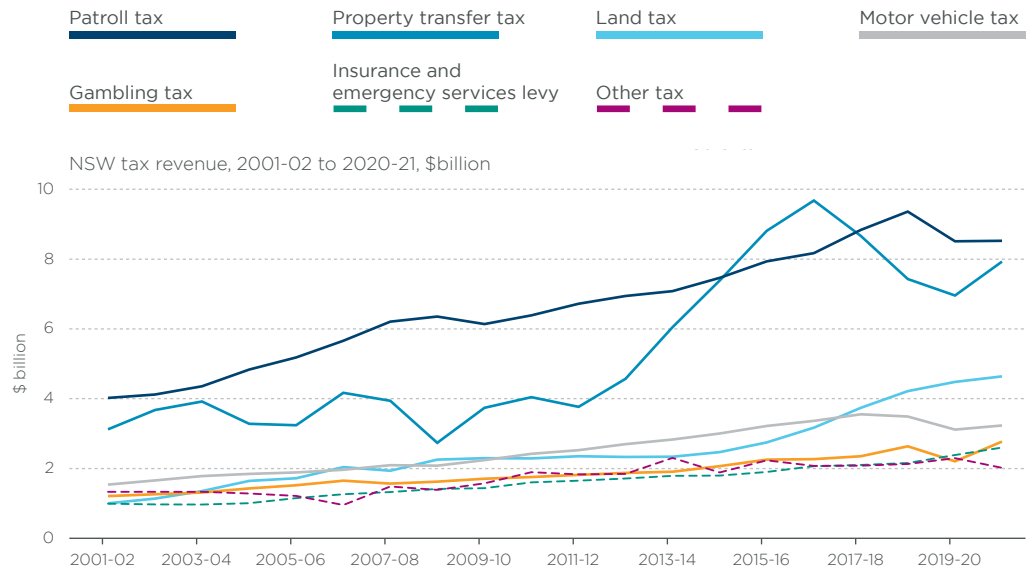


Source: NSW Budget 2020-21 (NSW Treasury, 2020a).

² The exception is so-called 'sin taxes' such as those applied to gambling and tobacco.

³ In this paper, except where noted, 'insurance taxes' include the Emergency Services Levy.

FIGURE 6.2: THE PROPERTY TRANSFER TAX TAKE JUMPS AROUND

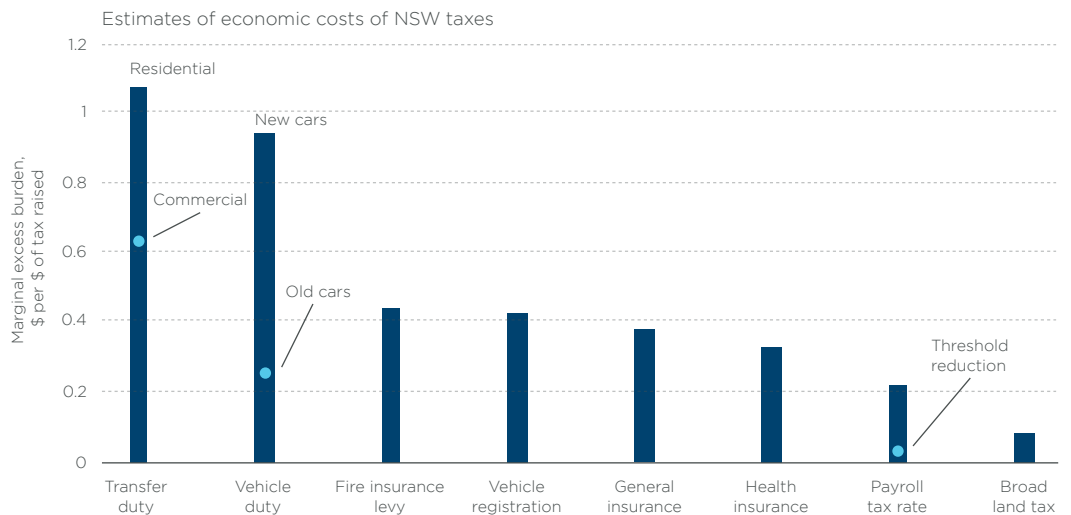


Source: NSW Budget Papers (various years).

Figure 6.3 shows the estimated loss of economic activity from each extra dollar of tax revenue raised, illustrating which taxes are least efficient. Replacing inefficient taxes will greatly reduce the taxation burden on the NSW economy.

As an example, one estimate is that every dollar collected in property transfer duty carries an economic burden of 107 cents. In contrast, every dollar collected from a broad-based land tax creates a burden of only 8 cents.

FIGURE 6.3: PROPERTY TRANSFER TAXES COST THE MOST



Note: Marginal excess burden refers to the economic value destroyed for every additional dollar raised, resulting from individuals and businesses making less than ideal choices. The marginal excess burden of gambling taxes has been obtained from a range of previous estimates. Property transfer taxes are mostly stamp duty.

Source: Centre of Policy Studies (Nassios et al., 2019).

6.3 | We can have a lower-cost tax mix

The NSW tax system will be more efficient if we:

- switch the tax mix towards taxes that cost our economy less
- reform these lower-cost taxes to widen their base.

PAYROLL TAX

Payroll tax is a stable and reliable form of revenue. It is also efficient compared with other state taxes. But its current design makes it less efficient than it could be.

This is because the exemption for firms with an annual payroll of less than \$1.2 million imposes an economic cost: small firms are discouraged from hiring additional staff when hiring would take them above the \$1.2 million tax threshold.

Reducing the threshold would remove this distortion and would enable the State to collect the same amount of tax while cutting the payroll tax rate. But reducing the payroll tax threshold would simply shift the problem; a lower threshold would still discourage some firms from employing additional staff. And small firms brought into the payroll tax net would face increased administrative burden, for a relatively small gain in payroll tax revenue. If the threshold were removed entirely, small firms and micro-businesses would face a disproportionate increase in their administrative burden.

An alternative would be a graduated transition, with a lower rate for lower payrolls. That would reduce the step change at any particular threshold.

NATIONAL PAYROLL TAX ISSUES

The payroll tax distortion is compounded when different states and territories apply different payroll tax thresholds and administration. Such interstate competition can encourage firms to locate operations in more favourable payroll tax jurisdictions where they are not necessarily more efficient.

Employers operating in more than one state and territory would benefit from a common set of rules for payroll tax administration. Their tax would be simpler and their compliance costs would fall. A national, harmonised payroll tax system would bring considerable efficiency improvements.

New South Wales has made progress on this front. The Government has committed to implementing the recommendations of the NSW Productivity Commissioner's *Review of Payroll Tax Administration in New South Wales* (NSW Productivity Commission, 2018). The Board of Treasurers will be responsible for securing broader adoption by other states. If implemented nationally, a harmonised tax system could boost the entire Australian economy.

Australia can build upon these reforms. A single body could coordinate a consistent approach to the administration of the payroll tax system in different jurisdictions. It could also ensure that uniform procedures and definitions (such as the definition of 'employee') are applied across the country.⁴

Fast-growing small firms are the greatest net creators of jobs in Australia. During the period from 2004 to 2014, small young firms (startups) contributed around 80 per cent of net job growth (Bakhtiari, 2019).

Startups therefore can potentially make an invaluable contribution to improving productivity and growing the economy. Further work should be undertaken to determine the extent to which startups contribute to sustained new employment in their first five years. If confirmed that they do make a contribution to employment growth, options to alleviate the impact on startups from payroll tax for five years from commencement could be identified to improve the competitiveness of these job-creating firms.

⁴ This change would not preclude jurisdictions setting different payroll tax thresholds and tax rates.

STAMP DUTY AND OTHER PROPERTY TRANSFER TAXES

Property owners pay taxes when they buy a property. In New South Wales, the most important of these is stamp duty.

These property transfer taxes are the most inefficient major state taxes. They discourage people from moving home when it would otherwise be beneficial. Studies have estimated that residential property transfer taxes impose economic costs of between 34 cents and 107 cents for every additional dollar of tax collected (Nassios et al., 2019; KPMG Econtech, 2010). They are also volatile, as they are heavily linked to the property cycle; revenue can rise or fall by up to 40 per cent year on year (Figure 6.2).

Former Commonwealth Treasury Secretary Ken Henry, who led the 2009-10 national tax system review known as the Henry Review (Henry et al., 2010), has described property transfer taxes as ‘diabolical’ and ‘indefensible’ (Janda, 2019). Various stakeholders have expressed versions of this view.

Transfer duty on new vehicles is the next least efficient major tax that New South Wales levies, imposing an estimated economic cost of 97 cents per dollar.

Removing new vehicle transfer duty will further reduce the economic burden of the NSW tax mix. Alternative taxes such as fuel excises are much more efficient, with an estimated burden of 15 cents per dollar of tax collected (KPMG Econtech, 2010).

In a submission to the NSW Productivity Commission Green Paper (NSW Productivity Commission, 2020a), Professor John Freebairn suggests new vehicle transfer duty (among other vehicle taxes) be replaced by a road user charge.

INSURANCE DUTIES

Insurance duties also carry high economic costs. They reduce incentives to take out insurance, which helps protect people from losses caused by adverse events. The Henry Review found that for every dollar New South Wales raises from insurance duties, we impose a relatively high burden on the economy (see Figure 6.3). Insurance duties also make insurance less affordable for low-income people, who are the least able to bear the losses that we typically insure against (Henry et al., 2010).

LAND TAX

Commercial and residential property owners pay NSW land tax each year on the value of their land, with an exemption for property that is your principal place of residence. This tax on land ownership is by far the most efficient existing NSW tax; it is estimated to carry an economic cost ranging from 8 cents to 17 cents per additional dollar (Nassios et al., 2019). But the high tax-free threshold and exemptions for principal place of residence tend to make land tax less efficient than it would otherwise be.

WE GAIN FROM CHANGING PROPERTY TAXES

Stamp duty and other property transfer taxes are important to New South Wales. In a typical year, they are the State’s second-highest revenue source, behind payroll tax. In some years, they have been the largest revenue source (see Figure 6.2).

We pay stamp duty when we buy a home; first homebuyers are exempt if they pay less than \$700,000. For most NSW homebuyers, then, stamp duty is a tax on moving home. It discourages us from moving when we have the opportunity to live in a new place, such as when we want to take up a work opportunity or move closer to family.

THE CASE AGAINST STAMP DUTY

Because housing costs so much, and because it shapes the quality of our lives, the tax system should not discourage people from living where they want to live. Stamp duty interferes in just this way.

Most taxes discourage desirable activities—work, investment, spending, and so on. Stamp duty is so inefficient in part because it taxes people’s attempts to adjust to their circumstances—and because people in turn sometimes react by deciding not to adjust at all, even though they would like to. Ken Henry has noted that such taxes ‘discourage transactions, which are the means by which resources are allocated to their highest-value use’ (Henry, 2021).

New South Wales has one of the least efficient tax bases of any state or territory. Replacing stamp duties with general property taxes would produce a big economic payoff...

**GRATTAN INSTITUTE
SUBMISSION**

[Current property taxes] involve relatively high costs of foregone productivity in the use of property relatively to a world with a comprehensive base and flat rate land tax collecting the same revenue.

**PROFESSOR JOHN
FREEBAIRN SUBMISSION**

- ‘Empty nesters’ may want to downsize, which would free up housing for younger families living in units. But stamp duty imposes a significant acquisition cost on the empty nester buying a unit of their own and selling their house to a younger family with children. Both families may end up staying put, even though each is in a home that would suit the other better.
- People who are considering a new and better job may not relocate because of the tax costs of buying a different house.
- First-time buyers face a new hurdle to buying a home: they have to save up more.

Australian and international evidence suggests that with stamp duty removed, the number of property transactions would increase by about 50 per cent in the long run (Malakellis and Warlters, 2020).

The size of this change emphasises its real effect on people’s lives. People want to live in the homes that suit them, and they often want to change their homes as their life circumstances change.

Stamp duty is an obstacle to this adjustment. In the years ahead, this problem may worsen. New South Wales’ population is ageing. By 2061 NSW Treasury estimates that 25 per cent of the population will be aged 65 and over, up from 16 per cent today.⁵ As people age they tend to move out of larger homes and into smaller ones better suited to their stage of life. That in turn should free up more family homes for other people. Stamp duty is getting in the way of that process.

On top of this, the current system leaves renters paying more than owner-occupiers. Investors in rental property must pay land tax on properties they own, and they pass part of this on to people who rent those properties (Freebairn, 2020, p.6).

These factors explain why studies estimate the economic costs of stamp duty are between 34 cents and 107 cents for every additional dollar of tax collected.

Most submissions on the NSW Productivity Commission Green Paper supported the principle of replacing transfer duty, recognising the negative effects on mobility and housing affordability (NSW Productivity Commission, 2020a). Stakeholders highlighted that people are freer to move when they are not taxed on property transfers.

THE CASE FOR A LAND TAX

Stamp duty is a particularly unattractive option because a clearly better alternative exists: a regular tax on the value of the property or land.

Land tax is supported by two widely accepted economic principles:

1. The *mobility principle* recognises that the higher the mobility of the tax base, the higher the economic cost of the tax. Land is an immobile base that has a fixed supply in any desired location. Other tax targets can move away more easily. Labour is semi-mobile and may shift to another location when under pressure. Capital is a highly mobile base that will readily shift to another location offering higher returns. Pushing a taxpayer out of the tax base altogether is, in one sense, the ultimate in unproductive behaviour for a taxing government.⁶
2. The *narrowness principle* recognises that taxes with a narrower base are generally less efficient. This is because people can more easily avoid them by changing behaviours.

During consultations, the Commissioner heard repeatedly from experts and stakeholders who said that property transfer taxes distort decisions and prevent property from being allocated to its most valued uses and users.

⁵ NSW Treasury projections.

⁶ This higher mobility of capital is the main reason that many economists favour lowering taxes on capital generally, even though this may be viewed as unfair to the less well off, who don’t own capital.

[G]ood ideas are like air bubbles in water: it's hard to keep them down. Abolishing stamp duty in favour of land tax is a good idea whose time has well and truly come.

JESSICA IRVINE
SYDNEY MORNING HERALD
SENIOR ECONOMICS
WRITER (IRVINE, 2020)

Without GST or other replacement revenues in the mix, a simple tax swap would result in either a politically unpalatable new land tax on the family home or a disproportionate burden being borne by commercial property owners.

PROPERTY COUNCIL OF AUSTRALIA SUBMISSION

Economic commentators have also called for a move to a broad-based land tax.

Despite the general support, property-related stakeholders expressed concern about the distributional impacts of tax changes. The Property Council of Australia raised in their submissions their concerns that the commercial sector would face substantially higher tax burdens under a replacement tax.

However, the Centre of Policy Studies (CoPS) estimates that replacing stamp duty with land tax could boost the NSW economy overall by more than 2 per cent in the long run (Nassios et al., 2019). This growth in the economy can be used to assist with offsetting some of the potential distributional impacts.

The transition from stamp duty to land tax will require extensive consultation to ensure the appropriate model and mechanism is implemented.

Over time, good tax reforms leave the whole economy better off. They do this by promoting higher economic growth, boosting both our overall welfare and the size of the tax base.

WE GAIN FROM CHANGING OTHER TAXES

Stakeholders also expressed the need to transition away from insurance duties. They noted that these duties encourage individuals and businesses to underinsure. Often the underinsured are those who are least able to afford insurance.

Underinsurance can raise costs to government, such as the cost of providing public assistance after natural disasters like our recent bushfires.⁷

The Australian Competition and Consumer Commission (ACCC) has highlighted the benefits of transitioning away from insurance duties. Its first interim report on Northern Australia Insurance (Australian Competition and Consumer Commission, 2018b) is examining the supply of residential building (home), contents, and strata insurance.

Stakeholders also mentioned the need to either broaden the payroll tax base or levy it on a comprehensive uniform national tax base. Current thresholds not only favour small businesses but encourage them to constrain employment so as to maintain their payroll tax exemption. The Grattan Institute submission argued that this distorts labour away from its highest-value use and lowers wages for all workers. The Financial Services Council argued New South Wales should coordinate with other states on a joint approach to payroll tax.

It has been widely acknowledged that stamp duties on insurance contracts are an inefficient form of taxation. The report found that removing all insurance-based stamp duties across Australia, including the Emergency Services Levy in New South Wales, and replacing them with commensurate increases in municipal land rates, would lead to a net increase in real private consumption across Australia of \$5.52 billion, and a net increase in tax revenue collected by state and local governments of 0.69 per cent.

ACCC
NORTHERN AUSTRALIA INSURANCE INQUIRY FIRST INTERIM REPORT

⁷ See the Insurance Council of Australia's submission to the Discussion Paper and the Financial Services Council's submission to the Green Paper.

6.4 | The transition is the biggest obstacle to tax reform

Following recommendations in the NSW Productivity Commission Green Paper (NSW Productivity Commission, 2020a), the *NSW Review of Federal Financial Relations* (NSW Treasury, 2020d) and elsewhere, the NSW Government is consulting on a policy framework for changing NSW property taxes. The proposed framework replaces both stamp duty and land tax with an annual charge on the unimproved value of land—the property tax—on an opt-in basis (see Box 6.1).

The proposed property tax satisfies the mobility principle by taxing land, an immobile factor of production. It also satisfies the narrowness principle by being broad-based; it covers all residential and commercial land.

The property tax would replace transfer duty as well as land tax. For buyers who opted in, and who would otherwise pay land tax (that is, buyers who are not owner-occupiers), the property tax would replace both transfer duty and land tax. While land tax is already relatively efficient, a unified single property tax is simple to administer and easily understandable.

THE TRANSITION MAY BE LONG

New South Wales has several transition options to move the tax mix towards more efficient taxes. Nevertheless, stakeholders acknowledge the practical challenges. The Property Council of Australia submission noted that the path had been ‘elusive’, because stamp duty brings in significant revenue. Any replacement involves a significant funding gap for a period of time to phase in a broad-based efficient revenue source (NSW Treasury, 2020b).

Once a property was subject to the property tax (‘opted in’), all subsequent buyers of that property would also be subject to property tax. The property tax would be revenue neutral over the long term, as the share of properties opting in increased.

... a large and sudden shift to land taxes may result in tax/ratepayer resistance and affect their willingness or capacity to pay necessary increases in council rates.

**LOCAL GOVERNMENT
NSW SUBMISSION**





BOX 6.1: THE PROPOSED NSW GOVERNMENT PROPERTY TAX REFORMS

The NSW Government has proposed a system for replacing stamp duty (property transfer duty) with an annual property tax on unimproved land values.

At the time of purchase, buyers would choose to pay either the new annual property tax or the existing stamp duty (and land tax, where applicable). The property tax rate would depend on the type of property they bought, and its intended use (Table 6.1).

TABLE 6.1: THE PROPOSED NEW PROPERTY TAX

PROPERTY TYPE	POTENTIAL PROPERTY TAX RATE
Residential (owner occupied)	\$500 + 0.3 per cent of land value
Residential (investment property)	\$1,500 + 1.0 per cent of land value
Farmland (primary production)	\$0 + 0.3 per cent of land value
Commercial	\$0 + 2.6 per cent of land value



It is anticipated that the land tax burden would fall disproportionately on commercial property owners – which has seen commercial rates become nine times higher than residential rates ...

PROPERTY COUNCIL OF AUSTRALIA SUBMISSION

The NSW Review of Federal Financial Relations...notes the ACT approach 'prolongs any community opposition to the transition, and therefore the reform may not be sustained. It would be preferable to use approaches that are less susceptible to reversal.

FINANCIAL SERVICES COUNCIL SUBMISSION

During the transition period, the NSW Government would forgo transfer duty and land tax. Left unmanaged, these revenue shortfalls could create a fiscal challenge. To manage these shortfalls, the number of properties that could opt in at any given time could be restricted based on their price. Price thresholds could be used to limit the number of properties that could choose the property tax.

To illustrate how the property tax might work, consider a young family looking to buy a house for \$700,000. Under the current tax system the family would pay around \$23,200 in stamp duty at the time of purchase. The purchase price would determine the amount of duty they paid.

If the family wanted to avoid upfront stamp duty, it could instead opt to pay the property tax. The house has a land value of \$420,000, so the annual property tax would be \$1,760 (\$500 plus 0.3 per cent of \$420,000). When the family sold the house, the next buyer would not have a choice, and would continue to pay the property tax.

Central to the proposed property tax is the element of choice. A buyer could choose to pay either the annual property tax or the one-off transfer duty on sale (and land tax, where applicable). There would be no impact on or consequences for properties that did not undergo a change of ownership, and so there would be no imposition on existing owners.

The proposed choice improves flexibility for buyers. Compared with transfer duty, the property tax would collect significantly less revenue in the early years of reform. While the tax would be designed to be revenue-neutral in the long term, in the short and medium terms additional revenue or debt would be needed to cover the transition shortfall. Opting in would be more attractive for those who expect to retain a property for a shorter period.

A long transition might also create distortions in the property market. The Urban Development Industry Association suggested that a shift to a broad-based land tax could create a disincentive to relocating, as buyers sought to avoid paying the new tax. Some stakeholders questioned the impact of short-term changes in the tax burden, particularly on commercial-sector landholders.

After the Henry Review (Henry et al., 2010), the Australian Capital Territory (ACT) was the one jurisdiction to start shifting its tax mix away from narrowly-based transaction taxes towards a broad land tax base levied through general rates. The ACT aims to gradually replace stamp duty and insurance taxes with rates over two decades from 2012-13.

Many stakeholders referred to the ACT experience, taking issue with the redistribution of tax burdens across landholder types (particularly for the commercial sector, which bears the higher burden of the new property tax). In its submission, the Financial Services Council pointed to transition challenges in the ACT and advocated for a reform approach that is less susceptible to reversal in the future.

TAX REFORM SHOULD NOT UNDULY PENALISE NEW SOUTH WALES

A broad-based tax on the value of land would boost the productivity of the NSW economy. Modelling by CoPS predicts that the proposed property tax would boost gross state product (GSP) by around 0.3 per cent in the near term. In the long run, GSP would increase by 1.7 per cent and employment by 1.4 per cent (Nassios et al., 2019). These benefits would not be confined to New South Wales. Increased output and employment in New South Wales would also flow through to the Commonwealth through income tax, and to other states through GST receipts.

Despite these benefits, aspects of the current national system of horizontal fiscal equalisation can discourage the states and territories from progressing major tax reform.⁸ Under existing application of the system by the Commonwealth Grants Commission, New South Wales would not retain most of the revenue dividend from reform. Instead, their benefits would be redistributed to the other states and the Commonwealth, with New South Wales enduring funding shortfalls in the transition process (Commonwealth Productivity Commission, 2018).

Some submissions qualified their support for property transfer duty reform based on whether New South Wales would receive additional revenue from the Commonwealth. The Property Council of Australia noted the potential for tax

⁸ Horizontal fiscal equalisation is the transfer of fiscal resources between jurisdictions with the aim of offsetting differences in revenue-raising capacity and the cost of delivering services. It aims to allow sub-national governments to have the potential to provide similar standards of public services at a similar tax burden.

reform to place a disproportionate burden on the commercial sector if there is no GST or other replacement revenue.

Building on recommendations in the *NSW Review of Federal Financial Relations*, the Housing Industry Association suggested that any revisions to the horizontal fiscal equalisation system should remove the disincentives for states to progress major tax reform.

Removing the reform penalty could come through an adjustment to the

current carve-up of the GST revenue among states. Or it could come through some other reform of the Commonwealth Grants Commission's distribution methodology. In either case, engagement with the Commonwealth and other states could prevent New South Wales being effectively penalised for engaging in productivity-enhancing tax reform. Agreement with the Commonwealth on this change should be made prior to any rollout of a broad-based land tax.

RECOMMENDATION 6.1: SET OUT A PROGRAM TO MOVE TO EFFICIENT STATE TAXES

Replace the State's least efficient taxes with more efficient ones. Start by replacing stamp duty with a broad-based property tax. Consult widely with stakeholders and community members on the implementation of this reform. Then replace other inefficient taxes in order of economic burden. For any replacement tax, identify:

- how various designs will improve the economy and the State Budget
- how to implement the new tax while minimising the adverse impacts on various groups.

Work with the Commonwealth Government to ensure that federal financial arrangements encourage states to undertake productivity-boosting reform.

RECOMMENDATION 6.2: REFORMING THE PAYROLL TAX SYSTEM

Propose, to the Board of Treasurers, the establishment of a single payroll tax coordination body. This body would develop a consistent approach to payroll tax administration across all states and territories. Individual jurisdictions would still be able to set their own payroll tax thresholds and rates.

Investigate the extent to which startups contribute to sustained new employment in the economy.

Identify options to alleviate the impact on startups from payroll tax for the first five years of operation.

THERE IS WORK TO BE DONE BEYOND LAND TAX

There is a consensus that the tax system in New South Wales can be more efficient if the system moves towards taxes that cost the economy less. Replacing transfer duty is the highest priority in NSW tax reform. But other opportunities to improve the tax mix also exist.

Both the Housing Industry Association and the Financial Services Council supported reform to the administration of payroll tax, especially where the administrative burden falls on businesses.

The Insurance Council of Australia submission argued that states including Victoria, South Australia, and Western Australia have successfully changed their emergency services funding source.

Where once they used an insurance levy, they now use a broad-based property levy. The Council argued that New South Wales should take a similar approach.

Regardless of which tax is reformed—property transfer duty, insurance duties, payroll tax—stakeholders suggested careful consideration of the effects. Most stakeholders raised concerns around the cost of transition or unanticipated negative distributional consequences. Stakeholders also urged the NSW Government to thoroughly understand likely impacts before implementing a change.

For any replacement tax, the Government should explore, model and assess the various options, their impacts, and the trade-offs that can be made to ease the transition to a better tax system.

MOTOR VEHICLE DUTY REFORM

There is an opportunity to pursue tax reform with a more efficient approach to road user charging and funding. At present, there is a mismatch of taxes and charges levied by the Commonwealth and states on road users. Petroleum products excise is levied by the Commonwealth and raised a net \$11.3 billion in 2020-21, of which 29 per cent (or \$3,422 million) is estimated to have been raised in New South Wales (Commonwealth Government, 2020b).⁹ The NSW Government also levies Motor Vehicle Duty, which raised \$852 million in 2020-21 (NSW Government, 2020a).

Petroleum products excise revenue is currently deposited into Commonwealth Consolidated Revenue, notwithstanding multiple instances in Australian history where it has been hypothecated to road funding. It nonetheless represents a *de facto* case of distance-based road user charging for vehicles powered by internal combustion engines fired by petrol and diesel. The Commonwealth provides grants to states and territories for specific road projects, particularly in regional areas. Increasing uptake of electric vehicles (EVs), however, will constrain future petroleum excise revenue.

It is projected that EVs will make up around half of all cars operated in New South Wales, and a third of all motor vehicles overall, by 2036 (NSW Government, 2019). This is up from less than 1 per cent of both light vehicles and all vehicles today. Presently, greenhouse gas emissions from transport account for around 21 per cent of the State's total emissions.

There is an opportunity for the NSW Government to expedite electric vehicles uptake in support of its commitment to net zero emissions by 2050 while simultaneously progressing productivity-enhancing tax reform. One of the barriers to electric vehicle purchases over internal combustion engine vehicles is upfront cost. Average prices are respectively \$85,000 and \$40,000 in 2019-20. Motor vehicle duty represents, respectively, about 3.9 per cent and 3 per cent of these costs.

Motor vehicle duty is considered one of the least efficient state taxes, with an estimated economic cost of 97 cents per dollar raised. A distance-based road user charge, petroleum excise being one example, by contrast, carries economic costs of about 15 cents per dollar raised. Substitution of a distance-based charge *in lieu* of duty, for a given amount of revenue raised for eligible battery electric and plug-in electric hybrid vehicles (eligible EVs), would provide a significant productivity payoff.

The NSW Government should consider implementing a distance-based charge for eligible EVs in place of motor vehicle duty. Duty would be maintained for vehicles powered by internal combustion engines to reduce the relative purchase price of electric vehicles. This would also contain the upfront fiscal impact of this reform.

A distance-based charge *in lieu* of duty is estimated to be 1.5 cents per kilometre for overall revenue neutrality. This is estimated at \$200 per year for the average light vehicle, compared to an average \$1,500 one-off charge in duty.

As the uptake of electric vehicles increases and Commonwealth road funding grants decline with petroleum excise revenue, the distance-based charge will need to be increased to address the revenue shortfall.

The increase in the road user charge (RUC) needs to be phased in so that it does not materially impact the uptake of eligible EVs while in their infancy. However, removing motor vehicle duty and failing to replace with a revenue stream to compensate for the loss of excise and motor vehicle duty will result in revenue shortfalls and challenge the Government's ability to sustainably deliver services and infrastructure. To address the revenue shortfall, the RUC should be phased-in and increased to a rate of 6 cents per kilometre without materially impacting the uptake of eligible EVs.

⁹ Estimate based on NSW light passenger vehicles as a share of national.



RECOMMENDATION 6.3: ABOLISH MOTOR VEHICLE DUTY AND REPLACE WITH A ROAD USER CHARGE FOR ELIGIBLE ELECTRIC VEHICLES

As soon as practicable, introduce a distance-based road user charge (RUC) for eligible battery electric and plug-in electric hybrid vehicles (eligible EVs) of 1.5 cents per kilometre. At the same time, abolish motor vehicle duty for these vehicles.

Phase-in the RUC so that it is set at a rate of 6 cents per kilometre in today's terms so that it addresses the excise and motor vehicle duty revenue shortfall without materially impacting the uptake of eligible EVs.



6.5 Local government funding deters growth

In December 2016, the Independent Pricing and Regulatory Tribunal (IPART) delivered its *Review of the Local Government Rating System Final Report* (IPART, 2016e). Among other things, it recommended the NSW Government allow councils' general income to grow with the size of their community. Since releasing the Productivity Green Paper, there have been two related developments:

- In November 2020, the NSW Productivity Commissioner delivered his *Final Report for the Review of Infrastructure Contributions* (NSW Productivity Commission, 2020b). The Commissioner proposed a package of 29 recommendations, including reform of the local government rate peg. (See below for more detail on the remaining recommendations.) The NSW Government endorsed all the recommendations in March 2021 (NSW Government, 2021b).
- In December 2020, the Minister for Local Government requested IPART review the local government rate peg. The Minister's terms of reference sought a methodology that allows councils' general income to account for population growth (Hancock, 2020). IPART has released its Issues Paper for comment and will release its draft report in June 2021, with IPART's final report expected in September 2021.

LGNSW has consistently advocated for the removal of rate pegging ... a more flexible and less constrained rating system would reduce dependence on infrastructure contributions and would lead to rebalancing of council's revenue bases.

**LOCAL GOVERNMENT
NSW SUBMISSION**

LOCAL GOVERNMENT'S ROLE IS EXPANDING

Councils play an important role in our economy and provide a range of infrastructure and services to ratepayers in their local government areas. To fund their costs, councils:

- levy rates on property owners in their local government area
 - charge fees for the use of specific services
 - receive grants from the State and Commonwealth governments
 - either collect local infrastructure contributions and development consent levies on developers or enter into planning agreements with developers
 - raise funds through debt.
- Over time, councils have been subject to increasing demand for services:
- As their communities grow, councils must provide services to new residents and businesses.
 - Community expectations as to the level and types of services to be provided have risen.
 - Meanwhile, other levels of government have shifted costs onto councils.

COUNCILS LACK AUTONOMY OVER THEIR INCOME

The Henry Review described local government rates as one of the most efficient taxes levied by Australian governments. Because land cannot be moved, land taxes such as rates need not change household and business behaviour in undesirable ways. The Henry Review found states should allow local governments 'a substantial degree of autonomy to set the tax rate applicable to property within their municipality'.

To date, New South Wales has not provided this autonomy. Concern about the constraints posed by local government rate pegging is reflected in recent IPART and NSW Productivity Commissioner recommendations for rate reform.

The *Local Government Act 1993* sets down the basis for the setting of NSW rates. Assessments are based on a proportion of the unimproved land value of the rateable property, as determined by the NSW Valuer General, plus a base amount.

Ending rate-pegging now needs to be a priority reform. A flexible and responsive rating system is the most efficient way of helping councils to meet the rising costs of serving their communities.

SOUTHERN SYDNEY REGIONAL ORGANISATION OF COUNCILS INC. SUBMISSION

UDIA along with other groups raised concerns about the Council rate peg, and the disincentive it provides on growth. We consider there is merit in reforming the rate peg ...

URBAN DEVELOPMENT INSTITUTE OF AUSTRALIA SUBMISSION

Despite the relative efficiency of local rates, their application is constrained by the Minister for Local Government who applies a 'rate peg' that limits annual increases in councils' rate revenue.

The rate peg is administered by IPART under delegation. Increases are limited to the 'local government cost index' (LGCI), which estimates changes in the costs councils face to deliver services. It is based on a notional 'basket' of goods, materials, and labour used by an average council. IPART deducts from the LGCI a productivity factor to ensure ratepayers share in council efficiency gains. The resulting increase, called the 'rate peg', was set at 2.7 per cent for 2019-20 and 2.6 per cent for 2020-21, and will be 2 per cent for 2021-22.

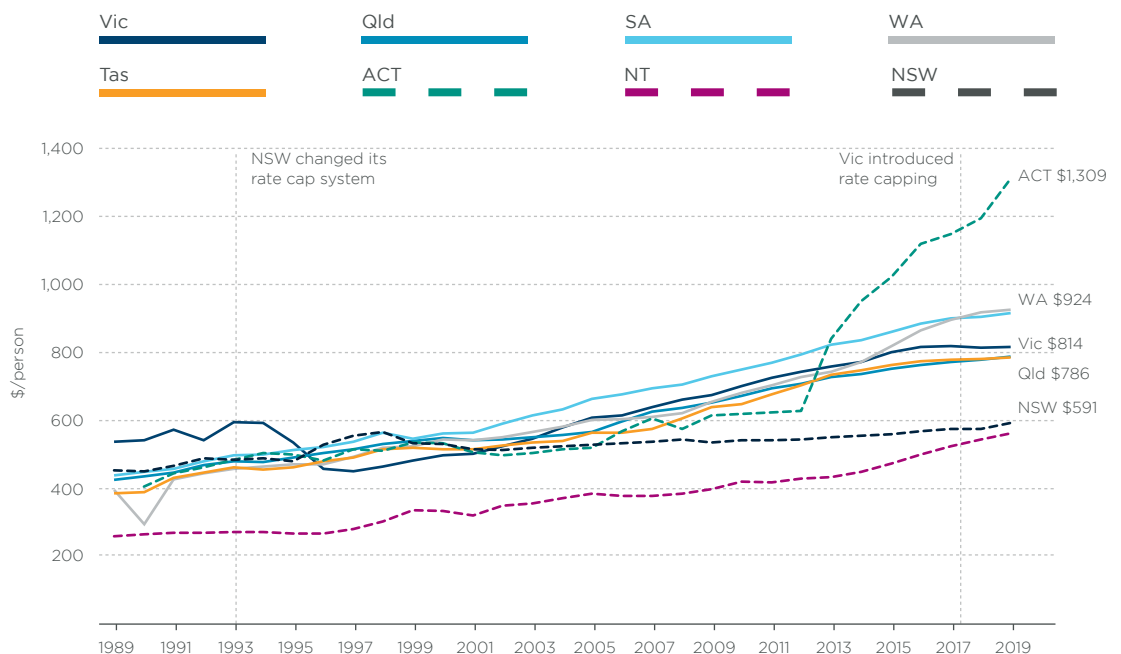
A council can apply to IPART for an additional increase above the rate peg, known as a special variation. IPART considers these applications against NSW Office of Local Government guidelines. The criteria include the level of community awareness and how efficiently the council has been managing its finances.

IPART can grant a general income variation for up to seven years. Over that time, the council can set its own rates and fees, but its total general income from those sources must stay within the agreed increase.

THE RATE PEG CONSTRAINS LOCAL GOVERNMENT REVENUE COMPARED WITH OTHER STATES

The NSW rate peg has had significant impacts. While councils' rates revenue has grown over time, it has not grown as quickly as other revenue components. As a result, rate revenue has declined as a proportion of total revenue. Stakeholders highlighted this. The Urban Development Institute of Australia noted in its submission that, 'New South Wales has failed to keep up in the growth of rate revenue per capita compared to Victoria and Queensland, which do not apply a rate peg' (see Figure 6.4.).

FIGURE 6.4: RATES REVENUE PER CAPITA BY JURISDICTION¹⁰

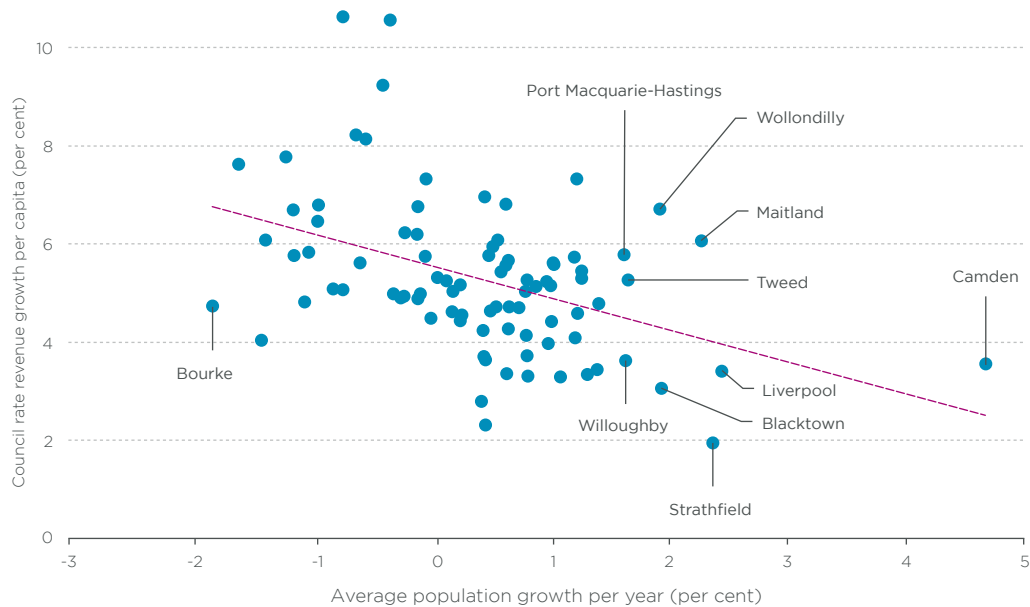


Note: Municipal rates revenue is measured on a cash basis up to 1997-98, and on an accrual basis thereafter. Each state's council rates are adjusted using the All Groups consumer price index for that state's capital city.

Source: CIE for NSW Productivity Commission (Centre for International Economics, 2020b).

¹⁰ As the ACT does not have a separate local government, the ACT's land taxes are classified as council rates in the Australian Bureau of Statistics taxation revenue release. The sharp increase in recent years reflects in part that the ACT has been increasing land tax collections in order to fund a reduction in property transfer duty.

FIGURE 6.5: HIGH POPULATION GROWTH LEAVES COUNCILS WITH LOWER PER-PERSON GROWTH IN RESIDENTIAL COUNCIL RATES



Note: Excludes local government areas that did not exist for the entire sample period and those whose borders changed (Albury, Lithgow & Oberon, Hills, and Hornsby).

Source: CIE for NSW Productivity Commission (Centre for International Economics, 2020b).

Alternative funding sources for councils are limited. The local infrastructure contributions system funds capital expenditure that is linked to new developments. But the Infrastructure Contributions Review found councils are gold-plating their infrastructure investment and making *ad hoc* use of planning agreements to avoid future maintenance costs that they cannot fund from their limited rates base.

An efficient contributions system should charge developers the service costs arising from their developments. Identifying these service costs is straightforward; they are the capital expenditures that councils will avoid if a development does not proceed. When governments charge developers the service costs arising from their private activity, this aligns the amount and location of development with the interests of the community.

But as a result of rate pegging, many councils have done one of two things:

- They have relied more heavily on alternative funding streams such as infrastructure contributions to cross-subsidise infrastructure provision and maintenance costs. This could render developments unfeasible, even though they make the community better off.

- Or they have provided less of the infrastructure needed to support growth and/or have reduced the quality of services provided.

The rate peg discourages councils from accepting growth in their local government areas. Except for higher user charges, councils do not have an alternative funding source to service a larger population or to maintain and operate a larger capital stock.

This has three consequences. Councils:

- may need to **lower services** to existing ratepayers to service new residents
- **require supplementary income**—such as additional Commonwealth or state grants—that must be sourced from State and Commonwealth tax bases that are less efficient than the rates base
- have an increased incentive to block development (although there may be other reasons beyond the rate peg for councils to do this in particular cases).



Infrastructure contributions reform



Will deliver net benefits of **\$12 BILLION** over 20 years



Will provide an annual boost to GSP of more than **\$600 MILLION**

Likewise, IPART highlights how ‘the current system undermines council incentives to pursue growth and urban renewal, because they do not receive a commensurate increase in rates revenue to service new developments (IPART, 2016e).

WE NEED RATE PEG REFORM FOR OTHER PRODUCTIVITY REFORMS

The NSW Productivity Commission’s Green Paper echoed IPART’s earlier proposal for rate peg reform. It recommended that the Review of Infrastructure Contributions explore a more sustainable system of local service funding. This was supported in public submissions by Local Government NSW and the Property Council of NSW, which both support removal of the rate peg entirely.

The 29 recommendations of the *Infrastructure Contributions Review Final Report*—now proceeding to implementation—establish the following principles for more sustainable local service funding:¹¹

- The avoidable costs associated with a development—**development-contingent costs**—are recoverable through local contributions.
- The **general costs** that councils incur to service their communities should be funded by other means.

Moreover:

- Capital expenditure—when it is the most cost-effective means of delivering a minimum required level of service—should be sourced from the infrastructure contributions system.

- Recurrent expenses—operations and maintenance—should be funded by some combination of user charges and own-source revenue.

A necessary component is to reform the rate peg to account for population growth. This will remove the need for unjustified items to be included in local contributions plans, while continuing to prevent excessive rate increases. It will also remove a major disincentive for councils to support development. It is estimated that infrastructure contributions reform—including reform to the rate peg—will deliver net benefits of \$12 billion over 20 years and provide an annual boost to GSP of more than \$600 million.

WHERE WE GO FROM HERE

Once the recommendations of the *Infrastructure Contributions Review* are implemented, the reformed system should be evaluated within four years to determine whether councils have sufficient funding to provide the services their communities expect. Should local service funding still be insufficient, the NSW Government should permit councils to hold a plebiscite to test whether their communities support abolition of their rate peg. Where approved, this would allow councils full autonomy over rates applied within their own municipality.

RECOMMENDATION 6.4: REFORM SYSTEMS FOR RATE SETTING AND INFRASTRUCTURE CONTRIBUTIONS

Implement Recommendation 3.1 of the *Review of Infrastructure Contributions* (local government rate peg reform). This will allow councils’ general income to increase with population, letting them meet the needs of a larger population.

Once this is in place, and if funding is still insufficient, the NSW Government should permit councils to hold local plebiscites within four years, to test support for abolishing the rate peg.

¹¹ Recommendation 2.1 of the NSW Productivity Commissioner’s 2020 *Review of Infrastructure Contributions in New South Wales* (Final Report).

07 | Planning for the housing we want and the jobs we need



Recommendations

RECOMMENDATION 7.1: IMPROVE HOUSING SUPPLY POLICY

Introduce an Urban Development Program that monitors and reports on unmet housing demand, capacity for growth, and alignment with Government objectives (such as a '30-minute city').

Establish a whole-of-government housing supply council to advise on housing targets.

Identify and report 5-, 10- and 20-year housing targets by local government area based on a standard method, drawing on the Department of Planning, Industry and Environment's Urban Development Program and Urban Feasibility Model.

Develop and implement a system of incentives to encourage all local governments to deliver on housing targets.

RECOMMENDATION 7.2: BUILDING BETTER DESIGN REGULATION

Evaluate prescriptions in the proposed Design and Place State Environmental Planning Policy (SEPP) in a detailed Better Regulation Statement to both identify where regulation is justified and ensure it applies proportionate responses, including non-regulatory approaches wherever possible.

Draft the SEPP and *Apartment Design Guide* to:

- Include the regulations where benefits to society are greater than the costs.
- Outline the principles that councils should use to guide their implementation of the standards, where flexibility is needed.
- Specify to councils what characteristics should not be subject to regulation (whether through development control plans or development assessment).
- Encourage councils to investigate non-regulatory alternatives, such as providing financial incentives to developers or co-investment to achieve mutually beneficial objectives.

Retain the cap on parking requirements in the *Apartment Design Guide* and review the *Guide to Traffic Generating Developments* to ensure it reflects current and anticipated future travel behaviour and the best approach to traffic management.



RECOMMENDATION 7.3: CUT NSW PLANNING'S ASSESSMENT GAP

In developing the Design and Place SEPP, work with industry to address concerns with the operation of design panels.

By 2023, deliver an end-to-end review of the NSW planning system relative to other jurisdictions, and use this process to identify drivers of delay and uncertainty in planning processes.

By 2025, implement measures to address the drivers of delay and uncertainty, and bring New South Wales in line with best-practice.

RECOMMENDATION 7.4: CONSOLIDATE EMPLOYMENT ZONES

Progress reforms to employment zones, including the following:

- Rationalise existing business and industrial zones in the Standard Instrument Local Environmental Plan to reduce the number of zones.
- Broaden the range of permissible activities to ensure prescriptions are reserved for genuinely incompatible land uses.

Progress reforms to expand complying development assessment pathways.

RECOMMENDATION 7.5: OPTIMISE INDUSTRIAL LAND USE

Evaluate the retain-and-manage approach to managing industrial and urban services land in Greater Sydney against alternative approaches, to identify what would maximise net benefits to the State.

Adopt the approach that maximises the State's welfare in the next update to the Greater Sydney Region Plan.

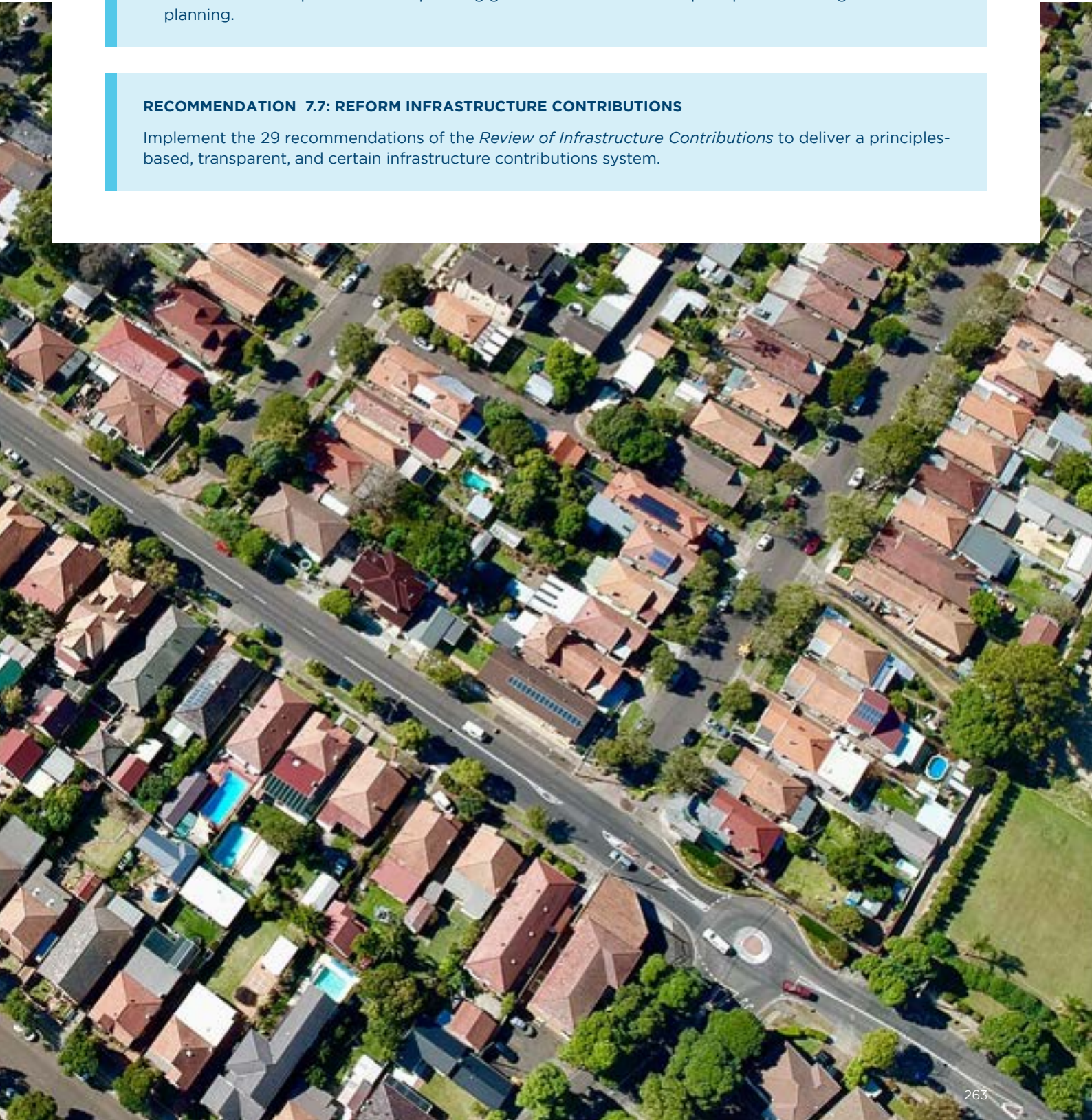
RECOMMENDATION 7.6: MAKE THE MOST OF OUR OPEN AND GREEN SPACE

Progress development of:

- a consistent approach to measuring benefits to community welfare from the provision of open and green space
- evidence-based options for incorporating green infrastructure and open space in strategic land use planning.

RECOMMENDATION 7.7: REFORM INFRASTRUCTURE CONTRIBUTIONS

Implement the 29 recommendations of the *Review of Infrastructure Contributions* to deliver a principles-based, transparent, and certain infrastructure contributions system.



7.1 | The role of planning in productivity growth

GOOD TOWNS AND CITIES RAISE PRODUCTIVITY

The way we regulate the use of land is fundamental to productivity. In regional areas, primary industries such as agriculture and mining derive their value from the nutrients and minerals in the land. In cities and towns, the value of land comes more from its proximity to employment centres, infrastructure, and other amenities.

Cities bring together large numbers of people and businesses on relatively small parcels of land, enabling larger and more efficient markets for goods and services—and the essential ingredients that make them possible (land, capital, labour). This agglomeration lifts productivity in several ways:

- With more people within their reach, **businesses can be more connected to both suppliers and markets for their goods and services**, producing more, and driving down unit costs.
- More **competition between businesses** pushes firms to be more efficient than their rivals, offering goods and services that are better and cheaper to their customers.
- A **deeper and more dynamic labour market** enables employees to specialise and employers to find the skills they need for their business.

Well-located housing is a particularly important feature of productive cities. The location of housing determines the jobs that are available within a reasonable travel time (and by the same token the size of labour markets accessible by businesses). It also determines households' access to services and other amenities that contribute to enjoyable lives.

While there are benefits to agglomeration, development of productive cities is often associated with increasing road congestion, pollution, noise, reduced personal space, more intensive use of existing infrastructure, and higher land prices.

A good planning system can help to maximise the benefits of agglomeration while minimising its costs.

Good regulation may help to address market failures and support growth by ensuring the coordinated delivery of housing, jobs, and infrastructure.

- Land use plans can ensure that households get the amenities and infrastructure—such as parks and local roads—that they need to live productive fulfilling lives. Many of these would not be provided by the private sector as they have characteristics of **public goods** (e.g. parks and reserves), or because it might be more efficient to have a central coordinating body (e.g. local roads).
- Building codes can give purchasers and users of buildings the confidence that they are built to certain construction standards—information that would be impossible or highly impractical to assess as an outsider. This reduces **information asymmetry**, the situation where some people lack the information to make the right decision.
- Assessment processes can ensure that developments do not impose excessive costs on neighbours and the environment. These **negative externalities**—costs that a person's actions impose on others who are otherwise not part of a transaction—are to some degree inevitable in cities where people live and work close to one another.

Too much regulation, however, can constrain growth and *increase* coordination failures, leading to shortages of housing and infrastructure.

CONFLICTING OBJECTIVES NEED TO BE BALANCED

A good planning system should seek to maximise welfare by considering the competing interests within the community and finding a balance. For example, change to accommodate future residents needs to be weighed against the preferences of existing residents; the ability of homeowners to invest in their home, with the impacts on neighbours; the employment benefits of greater business activity, with the

The City welcomes discussion on improving the planning system so it is efficient, transparent, provides certainty, ... produces quality outcomes and protects the public interest.

**CITY OF SYDNEY
SUBMISSION**

A stronger focus on an outcomes-based planning system will have an immediate positive impact on productivity and deliver on key policy considerations for the government, including issues of affordability, liveability, and sustainability.

**PROPERTY COUNCIL OF
AUSTRALIA SUBMISSION**

environmental impacts. In New South Wales, these goals are embodied in the objectives of the *Environmental Planning and Assessment Act 1979* to promote economic and social welfare, housing affordability, and cultural and environmental protection.

Reconciling these potentially conflicting objectives is often a challenge as there will always be some that are unsatisfied with the outcomes. Many people are in favour of adequate housing to meet the needs of the population, for example, but their direct interests may trump those of the public if a development is proposed in their neighbourhood. Planning should look through the interests of specific groups—whether they are vocal resident groups or developers—to meet the needs of the community as a whole.

This chapter focuses on how New South Wales can meet these planning challenges—and meet them in ways that increase the productivity of the NSW economy.

**TO BOOST PRODUCTIVITY, WE NEED
A MORE RESPONSIVE AND FLEXIBLE
PLANNING SYSTEM**

Submissions from businesses, councils, community groups, and individuals all agreed there was a need to improve the planning system to ensure it achieved better outcomes. There was, however, less agreement as to where the weaknesses of the planning system lie.

There was broad support for improving the efficiency of development assessments to speed up the process and reduce the costs to all parties involved. Improvements to system flexibility were generally supported. But stakeholders held different views on the forms and amount of flexibility that were needed. Many stakeholders expressed resistance to changing specific regulations that support their interests or priorities.

Successful strategic planning depends on a shared commitment to a specific vision for a city or region. But what councils and planners saw as a commitment to the common goal, industry saw as an inability to adapt to the changing needs and preferences of residents and businesses.

Strategic planning also needs to be flexible to deal with alternative futures. Hard commitment to a specific vision also comes with risk when it depends on the private decisions of vast

numbers of individuals and businesses over extended periods. Policymakers need to be open to the possibility that innovation, changing preferences, and unforeseen events may not align with initial assumptions and can complicate projections. For example, the COVID-19 pandemic accelerated take-up of remote working practices and online shopping. These developments may produce deep changes in land use over the years ahead.

So, while ambitious objectives such as a ‘three cities vision’ and a ‘30-minute city’ can guide planners, we need to properly canvass options and identify uncertainties.

We also need to consider costs. To deliver on their plans, governments will often regulate to restrict household and business activities. Regulation can be a relatively easy and superficially cheap way for governments to change behaviours. But regulation also imposes administration costs on both regulators and those being regulated. And compliance can reduce valuable economic activity and stifle innovation. This tends to increase the cost of living and reduce public welfare.

Recognising this, the NSW Government has set out what characterises good regulation, and the process that should be taken to achieve it, in its *Guide to Better Regulation* (NSW Treasury, 2019b). Good regulation should:¹

- have an established need and clear objective
- be in the public interest, with a range of options (including non-regulatory options) assessed on their costs and benefits
- be effective and proportional
- be informed by consultation with businesses and the community
- be periodically reviewed, and where necessary, simplified, repealed, modernised, or consolidated.

If planning is to enhance our lives, this is the way to do it. Strategic plans should be viewed as living documents, responsive to unforeseen events or outcomes, rather than ‘set and forget’ procedures, and controls should carry defined objectives for cost-effectively addressing market failure.

A better planning system can make New South Wales a more productive and affordable place for everyone.

1 Based on the Better Regulation Principles.

REFORM CAN ASSIST OUR ECONOMIC RECOVERY WHILE IMPROVING LONG-RUN PRODUCTIVITY

In response to COVID-19, the Government introduced a range of temporary arrangements to ensure the planning system responded to extraordinary circumstances:

- Retail premises such as supermarkets, pharmacies, and corner stores could operate 24 hours a day to ensure the community had easy access to food, medical supplies, and essential household goods.

- Retailers could receive deliveries 24 hours a day.
- Food trucks and 'dark kitchens' could operate with fewer restrictions.²

Parliament has enacted legislation to extend some of these reforms to the end of March 2022. This additional time will allow for evaluations of these reforms. They can then be retained as permanent reforms where there is a net public benefit (see Section 4.2).

The Government has also introduced a broader suite of planning reforms (see Box 7.1).

BOX 7.1: DELIVERING A BETTER PLANNING SYSTEM FOR NEW SOUTH WALES

Planning reforms announced during COVID-19 include the following:

- The Planning Reform Action Plan, which aims to reduce the time and uncertainty associated with planning processes. It includes benchmarks for the duration of rezoning and development assessment processes.
- Employment zones reform, which aims to deliver a simplified set of zones with greater flexibility around land uses.
- Complying development reforms to expand the use of fast-track assessment pathways for low-impact development.
- The Industrial Lands Review, which aims to ensure that Sydney's industrial lands are managed and used in a way that delivers the best outcomes for businesses and the broader community.
- Infrastructure contributions reform to implement all 29 of the recommendations of the NSW Productivity Commissioner's 2020 review

Source: NSW Department of Planning, Industry and Environment.

Planning reform has been an invaluable part of the NSW Government's COVID-19 Recovery Plan (NSW Government, 2020a). This chapter examines further opportunities for how reform can be progressed:

- Sections 7.2 and 7.3 explore ways to ensure we have the right amount of housing, of the right types, in the places people want it.
- Section 7.4 identifies opportunities to streamline planning processes to reduce delays and uncertainty for industry.
- Section 7.5 highlights opportunities to increase the flexibility of employment zoning to increase activity.
- Section 7.6 encourages more innovative thinking about how we can get the most value out of open space and green infrastructure.
- Section 7.7 covers recent developments on the NSW Productivity Commissioner's *Infrastructure Contributions Review*.

² Dark kitchens are delivery-only restaurants with no physical front-of-house; they usually trade solely through food delivery apps.

7.2 Reforms to let us build more housing

HOUSING IS AN IMPORTANT INGREDIENT IN PRODUCTIVE ECONOMIES

Housing is essential infrastructure in any economy. While it might seem like a relatively passive asset, housing produces services—shelter, a place to sleep, and a base from which to access other goods and services.

Housing outcomes have a substantial impact on productivity too. Anthropological evidence suggests humans have a limited tolerance, on average, for daily trips from home.³ Excessive commute times have a cost in time and in welfare, and to some degree constrain the jobs that are accessible to workers. They also limit the supply of labour that businesses can call on. Societies must therefore reconcile the need for efficient city transport infrastructure and the costs needed to provide it.

Housing location is critical. Locating housing close to jobs reduces the cost of providing transport infrastructure, while maximising the size and quality of the labour market available to businesses. Housing close to good schools and health services can build human capital. Housing close to family, social networks, and leisure activities can improve individual wellbeing.

Clearly, we do not always find it easy to make sure housing is close to everything. Topography, waterways, and major infrastructure all present hard constraints. Household preferences may change over time too, as remote working and e-commerce change the way we interact with businesses. Ultimately, households choose dwellings that best suit their individual preferences. That is reflected in the price they are willing to pay.

NEW SOUTH WALES IS NOT BUILDING ENOUGH HOUSING

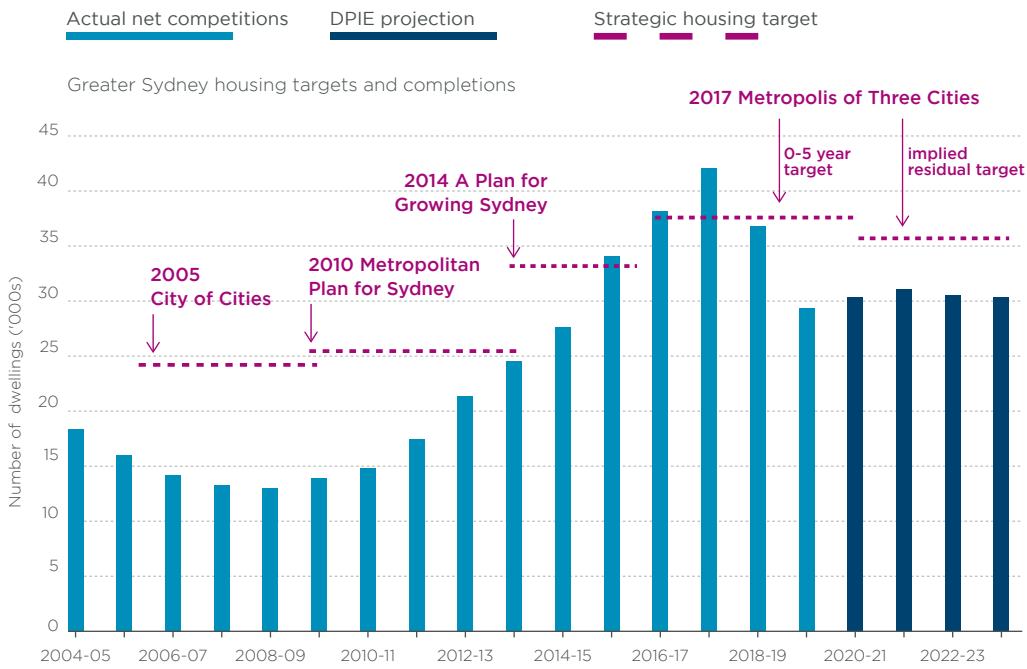
Much evidence suggests that our State, and Sydney in particular, has not delivered enough housing over many years.

Of many possible contributing factors, two stand out. First, population growth has exceeded expectations. Forecasts made in 2005 predicted that Sydney's population would reach 5.2 million by 2031. More recent projections are for a population of around 6.2 million by this time (NSW Department of Planning, Industry and Environment, 2019).

Second, housing supply policy has not achieved the desired results. Even during the more recent housing construction boom, the number of dwellings completed has, on average, fallen short of planning targets (see Figure 7.1).

³ Italian physicist Cesare Marchetti and others have suggested that the average human will tend to spend one hour commuting each day (Marchetti, 1994). Marchetti posited that this period of time has been constant since Neolithic times, though advances in transport technology have allowed distances travelled to increase. This would explain why urban sprawl is closely associated with expansion of mass transit and growth in private vehicle ownership.

FIGURE 7.1: HOUSING SUPPLY IS NOT KEEPING UP WITH OUR NEEDS



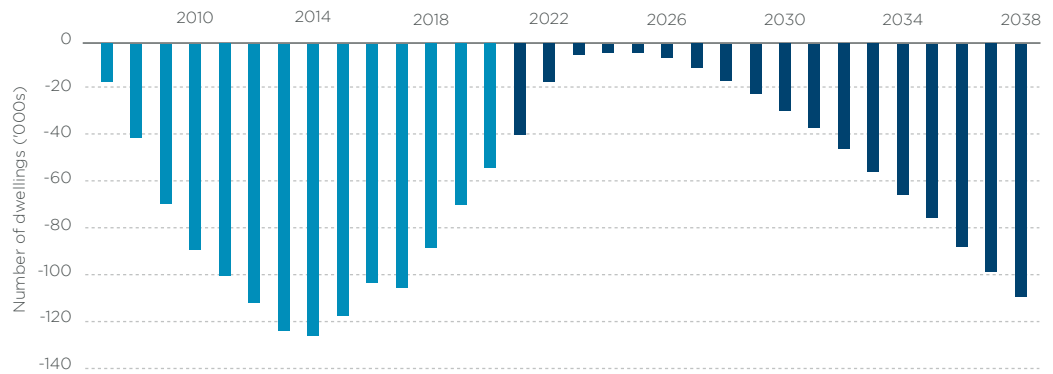
Sources: NSW Treasury; NSW Department of Planning, Industry and Environment (and past NSW planning departments).

Since 2006, NSW housing supply has not kept pace with demand or State targets. That has created an accumulated underlying shortage of dwellings. The 2016 NSW Intergenerational Report estimated an accumulated shortage of 100,000 dwellings. The high levels of completions since 2016, along with declines in net immigration due to border closures, have brought the estimated shortage down to around 54,000 dwellings in 2020 (Figure 7.2). The shortage is expected to shrink further in the near term as border closures constrain population growth and hence housing demand.

Undersupply is expected to continue and increase if we do not change the way we plan for housing. If future undershooting of targets is assumed to be consistent with the past, undersupply is projected to gradually build again to more than 100,000 dwellings by 2038 (see the right-hand side of Figure 7.2). This highlights the urgency of unlocking additional housing, both now and into the future.

FIGURE 7.2: HOUSING SUPPLY IS NOT KEEPING UP WITH OUR NEEDS

Cumulative difference since 2006 between actual and projected underlying demand and supply of housing



Technical note: Underlying demand is derived from population growth and pre-2006 longer-run household formation trends. Future population projections are based on projections underlying the NSW 2020-21 Budget Half-Yearly Review.

Projected supply is based on DPIE projections of post-pandemic housing construction for the next five years, and GSC housing targets and DPIE projected dwelling need in the longer run. The scenario presented assumes new housing supply falls short of targets by 15 per cent, based on historical experience.

Sources: Australian Bureau of Statistics; NSW Department of Planning, Industry and Environment (and past planning departments); Greater Sydney Commission; NSW Treasury.

WE ARE NOT BUILDING WHERE PEOPLE WANT TO LIVE

When we think about housing needs, we think about one of housing’s most important characteristics—location. Dwellings in different parts of New South Wales are not perfect substitutes for each other. Our location determines the type of work we have access to, as well as how far, and for how long, we must travel to get there.

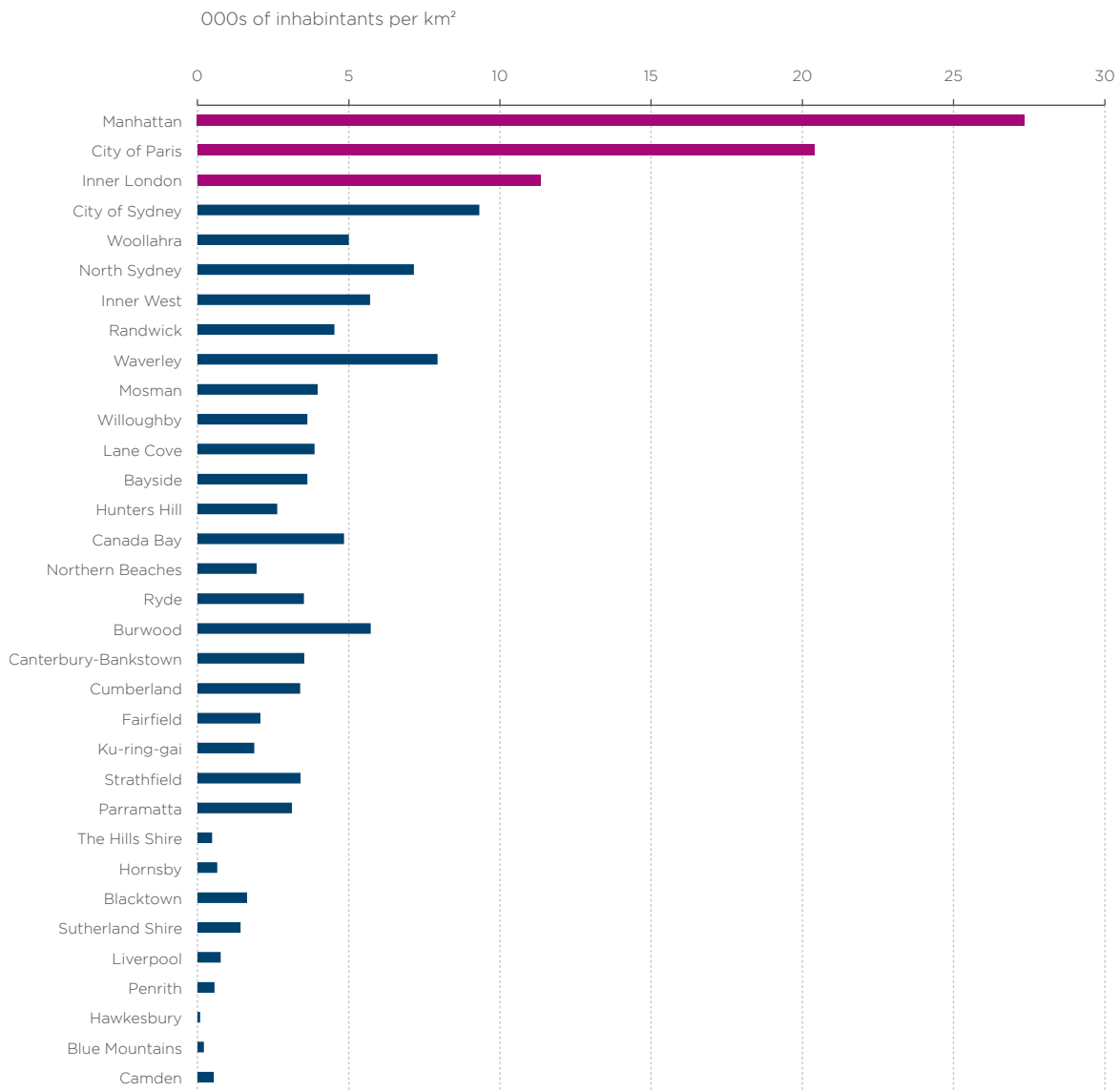
High housing prices and rents in eastern Sydney reflect the quality of local employment opportunities, its high levels of amenity and a limited supply of housing because of a restrictive planning system. Were the planning system less restrictive, higher prices would increase development feasibility, encourage construction, and eventually ensure wider housing choice.

By international comparison, Sydney’s innermost suburbs have low population density. The densest local government area (LGA) is the City of Sydney, with just over 9,000 people per square kilometre. This contrasts with:

- New York City’s Manhattan borough, with around 27,000 people per square kilometre
- the City of Paris with around 20,000 people per square kilometre
- inner boroughs of London at 11,000 people per square kilometre.

Several of the innermost Sydney LGAs, including Woollahra, Randwick, and Mosman, are less dense than middle-ring areas such as Burwood and Canada Bay (Figure 7.3).

FIGURE 7.3: INNER SYDNEY HAS RELATIVELY LOW POPULATION DENSITY^{a, b}



^a Sydney LGAs are ordered by median commute distance. Sydney densities calculated based on the estimated resident population divided by the area of the LGA (net of protected areas such as national parks).

^b Sydney and London densities are based on estimated 2020 populations, City of Paris is based on 2018 population, and Manhattan is based on estimated 2021 population.

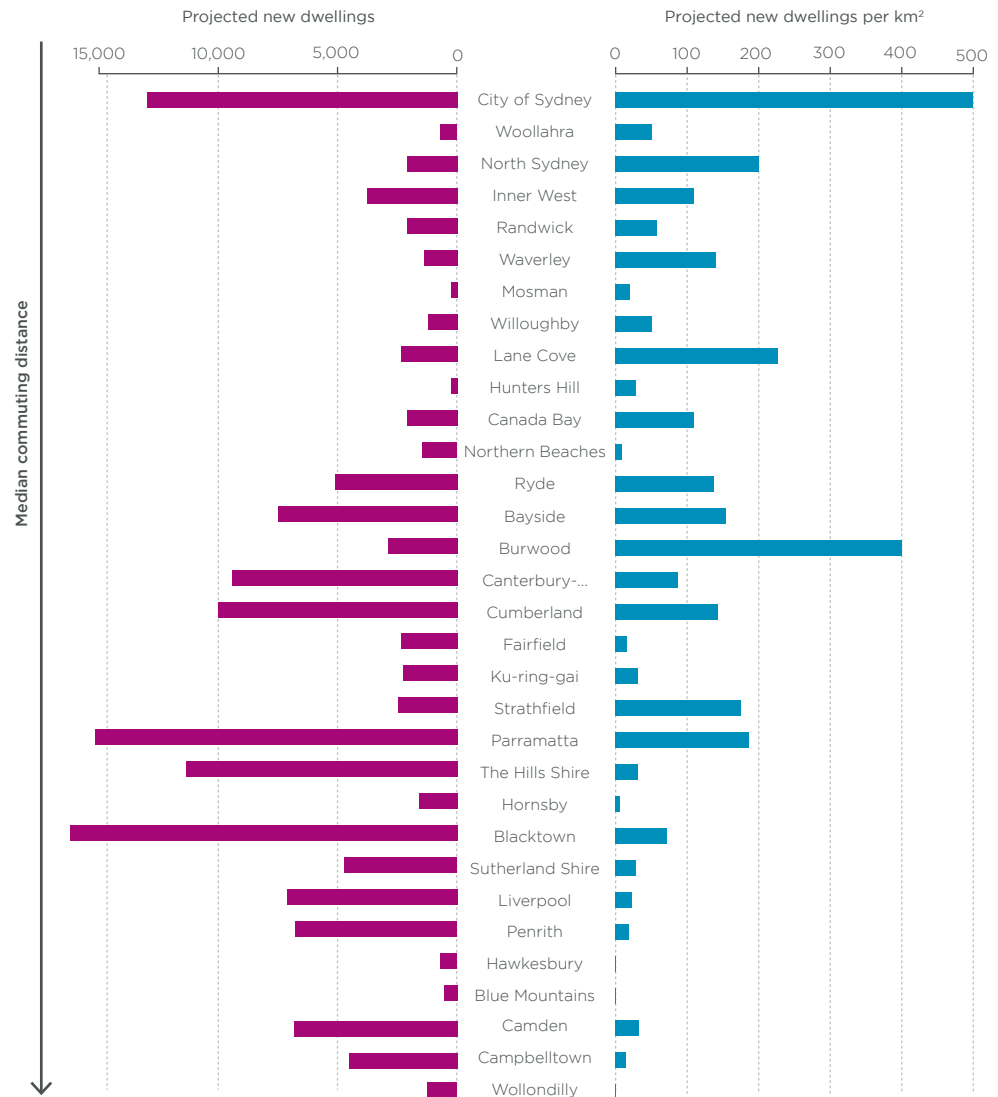
Sources: Australian Bureau of Statistics, Greater London Authority, Statista (City of Paris), World Population Review (Manhattan).

The mismatch between housing preferences and location is set to continue. While a few inner LGAs are projected to accommodate more housing (for example, City of Sydney, Lane Cove, and North Sydney), middle and outer suburbs will do most of the

heavy lifting (Figure 7.4). Housing supply forecasts project that only around 20 per cent of new dwellings will be built in LGAs within 10 kilometres of the Central Business District (NSW Department of Planning, Industry and Environment, 2021d).

FIGURE 7.4: WHERE SYDNEY IS SET TO GROW

Projected distribution of new dwellings over the five years to 2024-25



Note: Dwellings per km² are calculated using total LGA land size minus the size of protected land for that LGA, including national parks, nature reserves, Indigenous protected areas and other protected areas not available for housing.

Sources: NSW Department of Planning, Industry and Environment; NSW Treasury.

AN UNRESPONSIVE HOUSING MARKET COSTS NEW SOUTH WALES

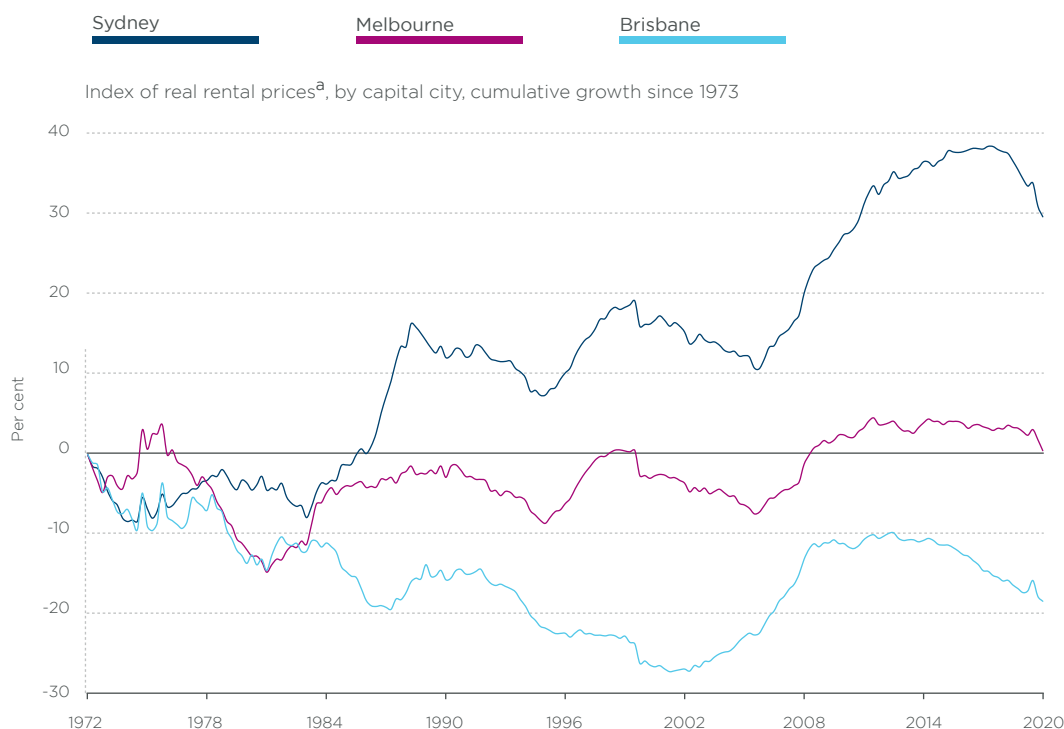
The persistent undersupply of housing, both in aggregate and in the right places, imposes significant costs.

For households, the mismatch between preferences and supply increases the cost of living by inflating rents and house prices. That leads to cost-of-living pressures and high levels of household debt. Rents in Sydney have grown substantially faster than consumer price inflation in Sydney, while Melbourne and Brisbane have seen rental price growth below inflation. This disparity widened during the 2000s as undersupply grew (Figure 7.5).

Likewise, home ownership has become less attainable for many, partly due to housing supply’s failure to keep up with fast-growing demand. While interest rates have been a strong driver of housing demand and price increases, Sydney’s unresponsive housing market has increased the sensitivity of house prices to interest rates (Glaeser, 2019).

This means that households need to spend a larger share of their income on housing and cut back spending on other goods and services.

FIGURE 7.5: SYDNEY RENTS HAVE FAR OUTSTRIPPED INFLATION



^aDeflated by capital city All Groups CPI.

Source: ABS, NSW Treasury.

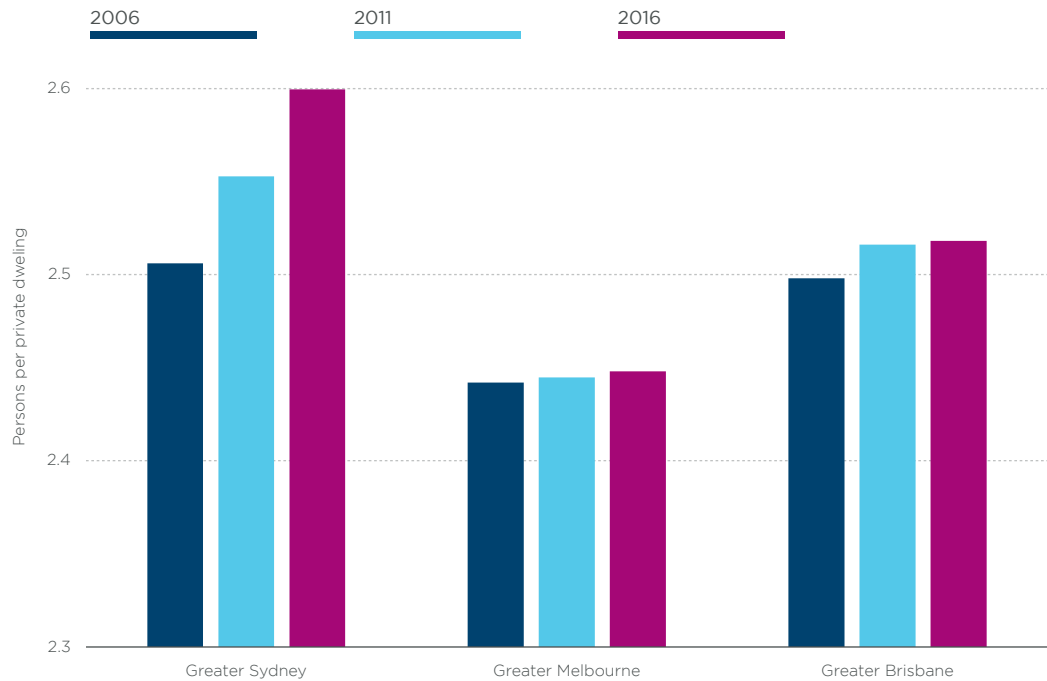
Alternatively, people may choose to live in less preferable arrangements. They may stay longer in their parents' homes, share housing (often with people with whom they have no other relationship with), move to places with better housing outcomes, or even delay starting a family.⁴ There is some evidence that this is already occurring:

- After a long trend of decreasing household sizes, the average Greater Sydney household began to increase again from 2006 (Figure 7.6). In Melbourne and Brisbane average household size remained steady despite experiencing faster population growth.
- New South Wales has seen a dramatic increase in the number of young adults (18 to 29-year-olds) living with their parents. The proportion of young adults living 'at home' rose from 23.6 per cent in 2010 to 32.4 per cent in 2018. Unaffordable housing has been found to be a key reason for this rise (Wilkins et al., 2020).
- Young people are also deferring forming independent households. As a result they are having children later (BankWest, 2020). In New South Wales, the median age of a woman at childbirth rose from 30.9 in 2012 to 31.5 in 2019 (Australian Bureau of Statistics, 2020b).
- The number of residents living in severe overcrowding—considered a form of homelessness—has increased dramatically, and far more in New South Wales than other places.⁵ Between 2011 and 2016, it rose by 74 per cent. That was a higher rise than for Victoria, at 48 per cent, or Australia overall, at 23 per cent (Australian Bureau of Statistics, 2018a).

⁴ Prior to the pandemic, there had been a steady flow of migrants from New South Wales to Victoria and Queensland; this is often attributed to more affordable housing in those locations (Burke, 2019).

⁵ The Australian Bureau of Statistics defines a severely overcrowded dwelling as where four or more additional bedrooms would be required to meet the Canadian National Occupancy Standard (a benchmark for how many bedrooms are required for particular living arrangements).

FIGURE 7.6: SYDNEY'S POPULATION IS BEING SQUEEZED



Source: ABS.

An unresponsive housing supply also imposes broader costs on a city's households. Just as well-located housing brings benefits, poorly located housing forces people to commute further, reducing their time for work (lowering their contribution to gross state product) and leisure (lowering their economic welfare).

Those household costs have knock-on effects on businesses. When potential employees are spending more on housing, businesses must offer higher wages to both attract them and stop them leaving for locations where housing costs less. Sydney's 'wage premium' is estimated to be one of the highest in the world (Centre for Economics and Business Research, 2016). A more dispersed population also reduces the size of the labour pool available to businesses when hiring, as some people will not be willing to devote such a long time to travel.

A lack of housing close to jobs and the resulting long commute times impose costs on governments by requiring substantial investment in transport infrastructure. Motorways, arterial roads, and bus, ferry, and rail services are all costly investments. The benefits and savings to commuters and government

from active transport—along with the health and environmental benefits—also ebb away as commuting times and distances rise.

Improving the housing market's responsiveness to the needs of households and businesses will bring substantial and wide-reaching economic benefits. Planning restrictions in Sydney have been estimated to contribute around 41 per cent to the cost of an apartment, compared with 16 per cent in Melbourne (Jenner & Tulip, 2020). Closing this gap by just half would have the following macroeconomic effects:⁶

- Lower housing costs (in rents and prices) would boost average annual real wages by 0.4 per cent across the State by 2041 (or around \$400 per year in 2021 dollars). That would leave more income for households to spend on other things. It would also enable more people to realise their preferred living arrangements—for instance, without having to share with others.⁷
- Higher real wages would attract more workers to New South Wales, boosting our population by around 0.3 per cent (or around 27,000 people) by 2041.

⁶ Victoria University (VU) was commissioned to estimate the economy-wide impacts of some of the final recommendations using a computable general equilibrium (CGE) model. The Victoria University Regional Model (VURM) was used, a CGE model that analyses the short-run and long-run impacts of policy changes affecting Australia and its states.

⁷ The CGE model used in this modelling captures living according to preference as demanding a greater quantity of housing.

- The NSW economy would expand, with the benefit to gross state product (GSP) growing to \$5 billion per year by 2041.

REGULATING LAND USE IS NO FREE LUNCH

So what is holding back housing supply? Why have we consistently fallen short of strategic housing targets? And why do inner suburbs fail to get denser, despite their desirable characteristics and high land values?

One of the fundamental determinants of housing supply in New South Wales is the strict regulation of land use. The planning system applies an array of regulations to control where and how much new housing can be built. It also regulates many characteristics of new dwellings and building methods. Among the regulatory instruments:

- Local Environment Plans (LEPs) specify what use land is zoned for—residential, commercial, industrial, or rural. They also set out the intensity of use—maximum building height and floor space ratio.
- Development Control Plans set out more detailed requirements, such as those relating to a development’s density, appearance, size, setback, and car parking.
- State Environmental Planning Policies override local planning controls where there is a matter of state or regional environmental planning significance, such as corridor protection or environmental conservation.

Restrictions on the density of development have the effect of reducing housing supply where constraints are binding—that is, in locations where developers would like to build more apartments than the regulations allow. These locations are typically inner suburbs close to jobs. These restrictions push more of the population into middle and outer suburbs, reduce the number of dwellings overall, increase the cost of dwellings, and prompt more people to share dwellings (Kulish et al., 2012).⁸

Moreover, housing supply can be reduced when assessment processes are excessively long or unpredictable, slowing supply and harming

development feasibility. Assessment of development applications take longer in New South Wales than in other states. For some types of development, such as high-density residential, assessments take double the time of the next slowest state (Mecone, 2019). And assessment times have only increased in recent years (see Section 7.4).

Some stakeholders disagreed with the view that planning regulations were the main constraint on housing supply. They noted the substantial amount of capacity allowed for in existing plans, and pointed out that councils approved more development applications than actually progressed to construction.

Stakeholders proposed a range of reasons why this might be the case:

- Delays in infrastructure delivery may in turn delay the release of new land.
- Fragmented land ownership in some areas means that developers must coordinate the purchase of several sites to create one large enough to be feasible for development.
- Some stakeholders suggested that developers were ‘banking’ land rather than developing it, either hoping for future windfall gains from rezoning or to avoid flooding the market.⁹
- A local council’s vision for a place may not be feasible, either because demand is not strong enough in a particular location or because the envisioned form of housing does not allow enough of an increase in density—for instance, by restricting density to dual-occupancy dwellings in high-demand areas.

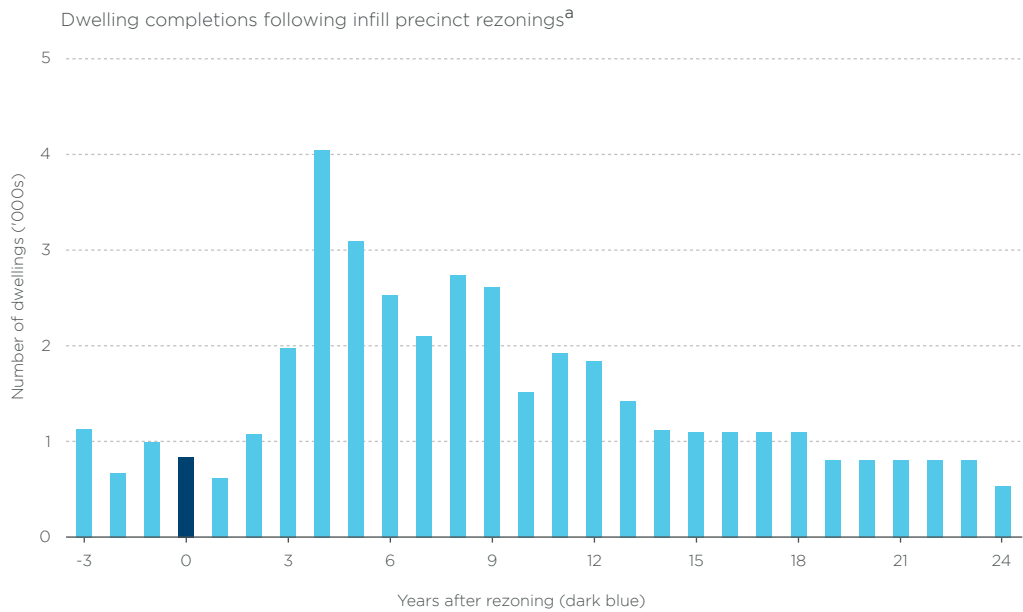
The NSW Government can address some of these barriers. For example, it can improve the coordination of infrastructure and land use planning to reduce unnecessary delays. Evidence suggests the Government’s new ‘planned precincts’ are efficiently delivered, with development quickly following rezoning (Figure 7.7). This may be because the Department of Planning, Industry and Environment and Landcom play a coordinating role and because planned precincts tend to be delivered in high-feasibility locations.

⁸ Tulip (2020) provides a broader survey of estimates of the supply-side impacts of density restrictions.

⁹ There is evidence at the firm level that greenfield developers hold substantial pipelines of land and ‘drip feed’ supply into the market to avoid depressing prices (Murray, 2019).

DPIE also plays a role in approving local councils' housing strategies. This provides an opportunity to work with councils to examine the causes of delays—for example, where current planning controls are constraining the feasibility of developing land or where are infrastructure constraints holding back supply.

FIGURE 7.7: STATE-LED REZONING LEADS TO GREATER SUPPLY



^aIncludes State-led rezoning between 2011-12 and 2015-16, and projected completions from 2019-20 (that is, year four for 2015-16 rezonings).

Source: NSW Treasury.

HOUSING WILL CONTINUE TO FALL SHORT UNLESS HOUSING TARGETS ARE REFORMED

Housing targets are an essential tool for the NSW Government to meet the State's housing needs.

The interests of local councils and the broader NSW community are not always aligned. That creates a major barrier to growth. Councils are directly responsible for most land use regulation affecting their local areas, and they act as consent authority for most development applications. But they often have an incentive to resist change, even when it would benefit prospective new residents. Even a small group of vocal opponents can make it politically challenging for councils to accept development (Box 7.2).

The aim of setting housing targets for councils is to overcome that barrier and ensure we plan for housing where it will be most valued, not just where there is the least resistance (or none at all). Community concerns should not be disregarded, but they should be considered within the context that more housing will benefit society at large.¹⁰

The Greater Sydney Region Plan, *A Metropolis of Three Cities*, identified the need for an additional 725,000 new dwellings over the 20 years to 2036, allocated across five districts (Greater Sydney Commission, 2018a).¹¹ To meet the dwelling need for the first five years, councils and the Greater Sydney Commission agreed on an allocation of '0-5 year' targets that largely reflected the existing housing construction pipeline.

¹⁰ The Centre for Independent Studies has investigated examples of densification in Sydney, showing that new development has had no discernible impact on desirability overall, as measured in relative house prices (Tulip & Lanigan, 2021).

¹¹ This target was based on the NSW Government's 2016 projections for population and household formation.

Three years since the Plan's adoption, however, the Greater Sydney Commission has yet to identify how its strategic housing target will be met beyond 2021.

As noted above, the years from 2016 to 2019 brought a brief boom in housing completions. But this is expected to be largely undone in coming years. On current projections, housing supply will fall short of the Greater Sydney Region Plan's 0–5 year targets. And forecasts for the 6–10 year window suggest we will fall well short of what needs to be delivered then too. By 2026, we will already be 30,000 dwellings behind in progress towards the Plan's strategic target.

Beyond 2026, the challenges may become even greater. Resistance from existing residents and tension with competing uses may rise as easier sites are developed and Sydney becomes denser. Without significant change to planning regulations, housing choice in areas of greatest demand will be increasingly scarce. At that point, Sydney's housing supply will increasingly depend on growing house prices making high-density living viable in the outer suburbs.

Further, monetary policy is unlikely to provide the same support in future. Falling interest rates have boosted housing demand over the past decade, increasing housing prices and making development more feasible. But this cannot be relied upon to support housing construction in the future. While the Reserve Bank of Australia has committed to current low rates for the next three years, their eventual increase will only make development less feasible and the supply of new housing will, again, slow.

To avoid a cycle of ever-increasing housing undersupply and deteriorating affordability, we need housing targets that are:

- transparent and evidence-based
- sufficiently forward-looking to ensure timely service provision and allow for community engagement
- flexible enough to evolve with the economy and societal trends
- supported by strong governance that monitors progress and mitigates risks and uncertainties as they arise.

BOX 7.2: KU-RING-GAI'S DRAFT LOCAL HOUSING STRATEGY

Ku-ring-gai Council drew headlines in 2020 when it chose to reject housing targets that it had previously agreed on with the Greater Sydney Commission (Thompson, 2020).

Ku-ring-gai's target of 3,000 to 3,600 new dwellings was small relative to the estimated need of around 180,000 required across Greater Sydney. The original plan, as set out in the draft Local Housing Strategy, had been to increase density around key local centres, such as Lindfield, to deliver on this target.

Consultation on the original draft strategy attracted 250 submissions. Among the submissions' claims were the following (Ku-ring-gai Council, 2020a):

- **The pandemic had reduced the need for growth** in the area.
- The allocated **target was unfairly large** compared with other North Shore areas, such as Mosman and Hunters Hill.
- A shift to medium- to high-density residential buildings would damage **impact heritage and environmental values and local character** in an area that people moved to for a single-dwelling lifestyle.
- **Infrastructure was already at full capacity.**
- There was **no explicit government policy** mandating that the council meet the targets.

Council also observed that some submissions considered that the proposed population and dwelling growth was unsustainable and undesirable in general.

The Council voted to redraft the strategy to meet growth only through existing planning controls—and so to make no further land available for development (Ku-ring-gai Council, 2020b).

Western Sydney is generally not serviced by the same level of State-based infrastructure as in the inner and middle-ring suburbs, leaving a backlog of inadequate infrastructure ... [T]he density of development in the [North West Growth Area] is far exceeding the NSW Government's planned estimates, which has significant implications for infrastructure and servicing.

BLACKTOWN CITY COUNCIL SUBMISSION

PLAN TO BUILD THE SUPPORT AND INFRASTRUCTURE NEEDED FOR GROWTH

The current approach develops housing targets, at most, five years in advance. That time span provides little opportunity to:

- engage with the community on the need for change
- guide amendments to LEPs
- ensure infrastructure, services, and open space are delivered in a timely way.

Poorly coordinated infrastructure and service delivery can delay housing supply and cause rationing of existing facilities. That fuels community opposition to growth.¹² A recent audit report of public school infrastructure found the current infrastructure program would not meet demand beyond 2022. It also found that 34,000 existing classrooms needed upgrading to be fit-for-purpose. It recommended adopting a 10-year planning time frame to provide certainty about meeting demand growth (Audit Office of New South Wales, 2021).

Well-planned development, serviced by the appropriate infrastructure, can give communities greater confidence that service standards will be maintained or improved in the face of growth, thereby reducing the extent of objections (see Section 8.2).

The lack of medium- and long-term housing targets in strategic plans is an anomaly because councils' Local Strategic Planning Statements and Local Housing Strategies already include 5-, 10- and 20-year targets. Moreover, these strategies are reviewed by the Greater Sydney Commission and the Department of Planning, Industry and Environment (DPIE) and are expected to be evidence-based. But these strategies reflect the housing needs of the local government area; they do not necessarily reflect the housing needs of the broader community. Councils' strategies are nonetheless required to be consistent with targets in District Plans (NSW Department of Planning and Environment, 2018).

To plug this gap, the Government should identify achievable 10- and 20-year housing targets that demonstrate where sufficient housing can be delivered to meet projected demand. These targets should be determined transparently and objectively based on the benefits and costs to NSW citizens.

Long-run housing targets will no doubt need to be more flexible than five-year forecasts. Many things can change over 20 years. A delay in the delivery of major infrastructure might mean that sites are less feasible than they were projected to be. Conversely, faster than expected population growth might make an area feasible for development earlier than anticipated. For this reason, the long-run targets should be reviewed regularly as part of the five-yearly updates of the Greater Sydney Region Plan.

The NSW Government is moving towards a five-year review cycle for Local Strategic Planning Statements, consistent with the Greater Sydney strategic plans. The Government has also announced a plan to align the guidance on Local Housing Strategies with the regional plan cycle. That will provide an opportunity for a refresh and reallocation of long-run housing targets.

PROVIDE THE DATA NEEDED TO GUIDE AND MONITOR HOUSING TARGETS

The lack of a transparent, evidence-based method for allocating housing targets casts doubt on whether growth is allocated in the most efficient way and sparked criticism of the planning system's fairness.¹³

Dissatisfaction with accommodating housing growth is not unique to New South Wales. California's housing target system, for example, has been criticised for allocating more development to lower-income communities than to wealthy, predominantly white communities (Osterberg, 2020). One recent study found locations further from downtown Los Angeles, with more residents of colour, and higher levels of poverty were allocated higher housing targets (Ling, 2018).¹⁴

¹² A 2018 newspaper report provides examples of how a lack of infrastructure capacity (transport, schools, healthcare, and open space) can fuel community opposition, but also notes the importance of less tangible reasons, including character, heritage, and mistrust of developers (Ticher, 2018).

¹³ For example, submissions on an earlier draft of the Ku-ring-gai Council's Local Housing Strategy justified opposing housing targets on the grounds that other councils (Mosman, Hunters Hill and other lower north shore) did not need to accommodate increased dwellings (Ku-ring-gai Council, 2020a).

¹⁴ This is consistent with other research that finds that exclusion is either an effect or even a motive of restrictive land use policy (Glaeser & Ward, 2009; Goytia et al., 2015; Gyourko et al., 2008; Kling, 2020; Lens & Monkkonen, 2016; Quigley et al., 2004).

The planning system sets the framework (capacity) and issues approvals to build housing. Developers lodge development applications and/or activate development consents. The Green Paper overstates the relationship between the strategic planning framework and the delivery of housing on the ground.

CITY OF NEWCASTLE SUBMISSION

LGNSW would welcome a comprehensive and transparent system of monitoring and evaluation of housing targets that is co-designed with councils and that does not create onerous reporting requirements

LOCAL GOVERNMENT NSW SUBMISSION

On top of this, governments risk underdelivering on housing targets if those targets are not based objectively on where housing is needed. Council submissions emphasised they cannot directly influence housing supply and see their role as delivering capacity. To some extent this is true—but the *location* and *nature* of the capacity can affect development feasibility. If targets are too high in areas of low development feasibility, or if strict constraints (such as density limits) are placed on capacity in high-feasibility areas, there is a greater chance that capacity is not taken up. That will leave housing supply falling short of the projected need.

Stakeholders broadly agreed that a transparent and evidence-based system for allocating and monitoring the delivery of housing targets is needed. This was consistent with stakeholder input into the NSW Housing Strategy, which suggested that ‘the Government can better use comprehensive research and data to inform housing supply targets and monitor the success of the strategy’.

Urban Development Institute of Australia recommended the creation of a Sydney-wide Urban Development Program to improve the prioritisation and coordination of infrastructure and housing delivery. Lake Macquarie City Council and City of Newcastle noted a similar framework currently exists through the Hunter Urban Development Program, and there was scope to expand this model across the State.

The Department of Planning, Industry and Environment (DPIE) is currently developing an Urban Development Program for Greater Sydney that aims to improve strategic planning, housing, and infrastructure delivery to:

- provide access to detailed housing supply and employment data
- undertake broader and earlier engagement with stakeholders to ensure greater acceptance of data and evidence
- ensure better coordination between infrastructure delivery, housing supply and employment-generating activities.

The Urban Development Program dashboard should be improved by incorporating:

- indicators of **demand**, such as apartment prices and rents, to capture where there is likely unmet demand and where development is likely to be feasible in the short term
- indicators of **growth capacity**, encompassing a broad range of infrastructure types (such as transport, schools, hospitals, and green space), and showing the share of lower density zoning
- the Government’s desired **outcomes** (such as the estimated number of jobs within a 30-minute commute).

The dashboard could also aid in monitoring progress towards housing outcomes and show where blockages might be occurring. Including data on development applications, approvals, and construction starts would help governments identify factors that might be delaying housing delivery.

STRONG GOVERNANCE WILL BUILD COMMUNITY CONFIDENCE

The governance structure for housing supply policy in New South Wales is unclear. *The Greater Sydney Commission Act 2015* stipulates that promoting housing supply is a principal responsibility of the Commission. But the Commission’s main instruments for achieving this—targets—largely reflect the current pipeline of construction. Councils decide medium-term targets in their Local Housing Strategies based on their own assessment of need. And failing to deliver on targets carries no explicit consequences.¹⁵

This ‘bottom-up’ approach poses a serious risk to the housing needs of the State. Setting targets to reflect what is largely already happening does nothing to ensure it is provided in the right places and reduces community confidence in the fairness of the process.

Further, under the current arrangements, statutory responsibility has been split:

- The Commission is responsible for setting targets and is accountable to the Premier.
- DPIE holds most of the housing supply expertise, including demographic projections, estimated housing needs, feasibility and capacity, and reports to the Minister for Planning and Public Spaces.

¹⁵ The Minister for Planning has, however, indicated that the Government might intervene if councils ‘don’t want to lead planning for growth at a local level’ (Stokes, 2020).

Separation of statutory responsibility for promoting housing supply from public capabilities in this area introduces risks and coordination failures in the management of this crucial policy area. In particular it:

- creates unnecessary barriers to information flows that could lead to poor policy design
- weakens accountability for achieving outcomes.

Other jurisdictions have much stronger governance and accountability arrangements for housing supply policy.

In California, the Department of Housing and Development develops eight-year targets based on a transparent (albeit imperfect) methodology. It publishes these with instructions to local jurisdictions to implement them in detailed housing strategies (Kirkeby, 2020).

In England, the Ministry of Housing, Communities and Local Government allocates the nation's housing need among local authorities based on a standard method. It uses a system of incentives to ensure councils achieve growth. It pays grants to local authorities that deliver housing above a certain benchmark under the New Homes Bonus (UK Ministry of Housing Communities and Local Government, 2021). At the same time, it assesses local authorities' housing supply performance annually against requirements.

Shortfalls are addressed through a three-tier sanction:

- Those that miss the target by 5 per cent or more must produce an action plan showing how they intend to boost delivery.

- Those that miss the target by 15 per cent or more must have a 20 per cent buffer on their housing land supply.
- Those that miss the target by 25 per cent or more are subject to a 'presumption in favour of sustainable development'.

The 'presumption' requires local authorities to approve development applications unless adverse impacts would 'significantly and demonstrably outweigh the benefits', or where there is a need to 'protect areas or assets of particular importance'.¹⁶

A set of improvements should be made to address these serious shortcomings with the current system:

- Expand the scope of the Urban Development Program to capture the evidence needed to set fair and achievable housing targets that reflect the needs of NSW citizens and plan for supporting infrastructure.
- Establish a housing supply council that draws on relevant stakeholders and expertise from across the NSW Government relating to housing supply and supporting infrastructure. The group should advise on housing targets, identify coordination issues, monitor progress, and investigate challenges as they arise.
- Drawing on an improved evidence base, develop 5-, 10- and 20-year housing targets by local government area and publicly report these targets, the rationale behind them, and an assessment of the infrastructure that would be needed to meet the targets.
- Develop and implement a system of incentives to encourage councils to contribute their share of growth.

RECOMMENDATION 7.1: IMPROVE HOUSING SUPPLY POLICY

Introduce an Urban Development Program that monitors and reports on unmet housing demand, capacity for growth, and alignment with Government objectives (such as a '30-minute city').

Establish a whole-of-government housing supply council to advise on housing targets.

Identify and report 5-, 10- and 20-year housing targets by local government area based on a standard method, drawing on the Department of Planning, Industry and Environment's Urban Development Program and Urban Feasibility Model.

Develop and implement a system of incentives to encourage all local governments to deliver on housing targets.

¹⁶ See paragraph 11 (and footnote 7) of the National Planning Policy Framework (UK Ministry of Housing Communities and Local Government, 2019).

The impact of building regulations on housing supply

Where market failures exist, they can provide a strong justification for governments to intervene in the development of residential and commercial buildings. Two failures in particular, commonly justify regulation of building design:

- **Information asymmetry** exists. It is not reasonable to expect purchasers and users of a building to know important details about that building's construction. The building itself generally hides aspects of construction such as structural integrity and fire safety, so that even construction experts cannot easily inspect them.
- **Negative externalities** can arise where private developments impose costs on the broader community, such as overshadowing, reduced privacy or pressure on local infrastructure. These should, however, be balanced against any positive externalities, such as additional infrastructure, schools, shops, restaurants, and jobs that come with growing density.

The ADG is fundamentally a sound policy which works to improve the base standard of design quality and maintain trust in the standard of product provided to the market.

PLANNING INSTITUTE OF AUSTRALIA SUBMISSION

The ADG was not originally intended to be strictly enforced but rather applied as a guideline ... In many if not most cases, council planners and planning panel members are enforcing strict compliance with disregard to its discretionary status – using the ADG as a minimum which must be met 'in order to pass go'.

PROPERTY COUNCIL OF AUSTRALIA SUBMISSION

The NSW Government regulates apartment construction through the *Apartment Design Guide* (ADG) under State Environmental Planning Policy No 65 (SEPP 65).¹⁷ It prescribes design criteria.

Stakeholders in general supported the ADG, suggesting that it has improved the quality of apartments and ensures consistent design guidance across New South Wales. As an increasing share of NSW residents live in apartments, some stakeholders believed that the ADG increases trust in the product. Some suggested that better design more generally would also encourage existing residents to accept greater density in their communities (see Box 7.3).

¹⁷ The full name of the SEPP is *State Environmental Planning Policy No. 65 - Design Quality of Residential Apartment Development*.

BOX 7.3: CENTRAL PARK

Central Park is a newly developed precinct in central Sydney, commonly held up as an example of how cities can accommodate greater density and urban renewal well. The 5.8 hectare site had been home to breweries from 1835 until 2003, when the Carlton United Brewery closed its doors.

Initially both community and Council opposed the development of the precinct, raising concerns around the planned increase in density, height of buildings, overshadowing, heritage, open space, changes to local character and other issues. The developer successfully advocated high density, however, demonstrating this was in the public interest given the close proximity of the CBD, Central Station, major universities, and other community facilities.

Key to the success of Central Park was the delivery of high quality, well-designed public space—providing places to gather and relax and facilitating pedestrian thoroughfare. This acts as a central focus for the precinct, creating a strong sense of a vibrant and connected community. The precinct also created opportunities for outdoor dining, including the popular “Spice Alley”, a food and retail precinct situated in and around heritage listed former workers cottages. Central Park has also been well received for its high-quality buildings, preservation of several historic buildings, and sustainability measures.

Central Park is regarded as a success story as it demonstrates that high-density development can retain or even improve local character through good precinct-level planning, well designed buildings, and consideration of public amenity.

DO NOT REGULATE THE OBVIOUS

In some areas, the Guide goes beyond addressing market failure. Several clauses recommend design elements that are clearly observable for prospective purchasers and renters. For example, the Guide regulates dwelling dimensions—such as minimum internal area, balcony size, and internal storage requirements—which are obvious even on fleeting inspection.

None of these elements impose negative externalities either.

But they do affect housing choice and affordability. While many buyers may wish to have larger apartments, balconies, and plenty of internal storage, there will always be some that value those characteristics less and are less willing to pay for them. Imposing these requirements add cost to the development process and reduce project feasibility, restricting housing supply and choice for those looking for lower-cost dwellings.

DELIVER THE HOMES PEOPLE WANT TO BUY

Apartments play an important role in the housing markets of the world’s most productive cities. They allow small amounts of land to accommodate large numbers of people. They let these people be close both to each other and to jobs. A wide variety of apartment sizes gives buyers and renters many choices. Small apartments play an important role in many places in New South Wales, letting people trade off space to live in a better location, or to live in a building with better facilities (see Box 7.4).

Even New South Wales was once willing to embrace smaller dwellings. A 27-square metre Darlinghurst flat was awarded ‘Australia’s Best Apartment’ within weeks of new regulations setting in that effectively banned private studios smaller than 35 square metres (Croaker, 2015).

BOX 7.4: THE RISING TREND OF SMALL APARTMENTS ACROSS THE GLOBE

- Many Parisians live in micro-apartments in elegant buildings located in the most expensive parts of the city for relatively low cost. Chambres de bonne, typically 9–12 square metres in area, were originally built in the top level of 19th century apartment buildings to house domestic workers for the apartments below (Bertaud, 2014).
- Downsized living in Tokyo is a growing trend in response to land scarcity and high property prices. Tiny apartments, ranging between 9–13 square metres, are a popular choice for young professionals due to their affordability and inner-city convenience (Martin, 2019).
- In Canada, ‘micro-condos’ are gaining traction to satisfy a growing need for downtown real estate. Starting at around 25 square metres, these units appeal to younger people early in their careers and seeking to save on rent in Toronto’s expensive real estate market (Bykova, 2016).
- Small living arrangements have also been embraced in high-density, expensive urban markets in the United States—Boston, New York, and San Francisco. Many micro-units are under 32 square metres. In San Francisco, apartments as small as 20 square metres are allowed subject to certain conditions (Urban Land Institute, 2014).

There is concern that some industry proponents may exploit these minimum sizes to gain maximum yield and return at the expense of amenity considerations.

LOCAL GOVERNMENT NSW SUBMISSION

PEOPLE UNDERSTAND HOUSING CHOICES

Regulations on minimum apartment size (and other observable design features) are intended to raise liveability for the residents. But research supports the conclusion that these dwellings give people choices that they want and understand. ‘Micro-apartment’ occupants in one study seemed able to assess the trade-off between space and other factors (such as location); they ‘generally reported high levels of satisfaction with their dwellings’ (Clinton, 2019).

Over time, people are finding innovative ways to do more with less space. One 2014 United States’ study (Shore, 2014) found changing attitudes, preferences, and technology are all making it possible to live more comfortably in smaller homes:

- technological advancements such as flat-screen televisions, laptops, online cloud storage and streaming services mean we do not need to store as many books, CDs, DVDs, and paper files as we used to
- increased interest in living more sustainably, with fewer material possessions
- availability of functional design, such as multi-functional and space-saving furniture and fixtures.

Saving space saves money. ‘Micro-apartments’ have been found to have, on average, 20–30 per cent lower monthly costs than conventional studios (Urban Land Institute, 2014).

But regulations on apartment size reduce the scope for NSW households

to realise these savings. Industry claims that ‘the biggest impact by far’ on the cost of NSW apartments comes from minimum apartment sizes (Urban Taskforce Australia, 2017).

Despite research on occupant satisfaction, concern persists that an unconstrained development industry would just produce dwellings that no one wants to live in (Williams, 2015). These fears were reflected in some submissions.

An unintended consequence on this effort to protect consumers is to force them to bear higher costs. Minimum apartment sizes restrict choice. In the absence of affordable smaller apartments in their preferred location, households will instead be forced to:

- spend a larger proportion of their income on housing than they would have liked
- live in a less preferred location, with lower convenience and/or lower amenity
- share housing instead, with costs to privacy and freedom and risk of dysfunctional domestic relationships.

It is not clear that any of these outcomes would improve the welfare either of housing consumers or the broader society.

These regulations also reflect a presumption that consumers are incapable of making sensible trade-offs for themselves, or that the development industry would produce thousands of apartments that nobody wanted to buy, which is at odds with its commercial interest.

Some narrow instances allow for the building of micro-apartments in New South Wales. The Affordable Rental Housing SEPP encourages the development of entire buildings of micro-apartments.¹⁸ These niche ‘new generation boarding houses’ target students, retirees, and young workers. Supply of these dwellings, however, is limited by community opposition to whole buildings of affordable dwellings, and the requirement to be commercially operated.

The Department of Planning, Industry and Environment (DPIE) has proposed a new ‘Housing Diversity’ SEPP that prescribes more specific dwelling types, splitting out student housing and ‘co-living’ from more traditional boarding houses. Industry has expressed concern the SEPP may further constrain the ability to provide smaller, affordable dwellings (Urban Development Institute of Australia, 2020; Urban Taskforce Australia, 2020).

CAR PARKING REQUIREMENTS NEED TO BE REFRESHED

Off-street parking requirements can add substantially to the cost of a development. The Austroads’ *Guide to Traffic Management* estimates that land and construction costs on Australian off-street parking spaces can vary between \$50,000 and \$80,000, depending on building design and location (Austroads, 2020). This may be justified if off-street parking is preferred by households and on-street parking is scarce.

Where off-street parking is delivered but demand is weak, costs exceed willingness to pay and may not be able to be recouped from the sale of the car park. This adds costs to the development process and may affect feasibility. Alternatively, space with limited development envelopes that could otherwise be used for more dwellings is allocated to parking, limited housing supply.

Excessive parking may also impose costs on the broader community. Several local government areas with ‘walkable’ centres and good public transport access—including the City of Sydney, City of Parramatta, and North Sydney—

have actually *limited* the number of car spots. Their justification is that excessive parking encourages car use, increasing congestion and pollution (City of Parramatta, 2017).

Decisions about parking requirements are, generally, best made at the lowest level possible. Developers seem best placed to understand the parking needs of home purchasers, but may have less consideration for broader social impacts. Councils, meanwhile, are better placed to understand and manage the social costs (congestion and pollution) and benefits (reduced demand for on-street parking), but have less understanding of the private benefits and costs.

The current *Apartment Design Guide* aims to find a balance. Councils are left to determine minimum parking requirements except where apartments are within 800 metres of train or light rail stations in Sydney, or 400 metres from a business centre in regional areas. In these locations the *Guide* limits councils’ ability to force developers to build parking. It caps requirements at minimum parking rates set out in the *Guide to Traffic Generating Developments* (NSW Roads and Traffic Authority, 2002).

The *Guide* also suggests that councils use parking restrictions (such as permit parking) to manage demand for on-street parking.

While the *Guide*’s caps are sensible, a review of their design and level is well overdue. The rates set out in the *Guide to Traffic Generating Developments* were last updated in 2002. Sydney has changed considerably since then:

- The city has become denser, with apartments becoming an increasing share of the housing stock.
- Use of car sharing schemes is widespread (GoGet became Sydney’s first car share operator in 2003).
- More people are working from home for at least part of the week, particularly since the onset of the pandemic.
- Transport networks—bus, trains, cycleways, and light rail—have expanded considerably.¹⁹

¹⁸ The full name of the SEPP is State Environmental Planning Policy (Affordable Rental Housing) 2009. Boarding houses are subject to a maximum room size of 25m² (excluding any private kitchen or bathroom space).

¹⁹ More than \$5.3 billion is being invested in Transport for NSW’s ‘More Trains, More Services’ program, which has delivered 24 new Waratah Series 2 trains and more than 1,700 additional weekly services since 2017 (Transport for NSW, 2021).

Stakeholders supported a review of existing parking controls to ensure they reflect current travel behaviour and the best approach to traffic management. Many agreed that car parking requirements should be reduced where customers have a relatively good choice of public and active transport alternatives. But some councils believed they should be left to set requirements.

PROPOSED DESIGN AND PLACE SEPP AND APARTMENT DESIGN GUIDE REVIEW

DPIE has proposed a new Design and Place SEPP to supersede SEPP 65 and subsume the Building Sustainability Index SEPP (BASIX). The new policy will provide updated guidance for apartment design.

The Explanation of Intended Effect, released in February, flags the following improvements:

- revision of car parking rates to ensure they reflect current travel behaviour
- greater flexibility in the provision of communal open space, with the amount of space determined by the unit mix rather than being set as a percentage of the site area.

The proposed SEPP's aim is to move to a more flexible, principles-based approach, but the Explanation of Intended Effect proposes additional prescriptions, which risk reducing flexibility in building design and adds further costs to development.

Some of these prescriptions may be justified. But before we impose additional costs, they should be weighed against the benefits through a detailed Better Regulation Statement.

For example:

- Stronger amenity standards, including access to direct sunlight and natural ventilation are hard for an end user to observe and may be justified. It is still important to assess whether the policy objective of the regulation (e.g. energy savings and health benefits) justify the additional cost of meeting these standards in the building's design.

- Increased minimum deep soil zones that allow larger trees may be justified to provide urban cooling where the benefits to the residents are sufficient (externality and information asymmetry).
- Increased bicycle storage requirements may generate health benefits and reduce congestion in some locations. But the scale (secure storage for one bicycle per bedroom, regardless of location) should be demonstrated to be proportionate to the additional costs.

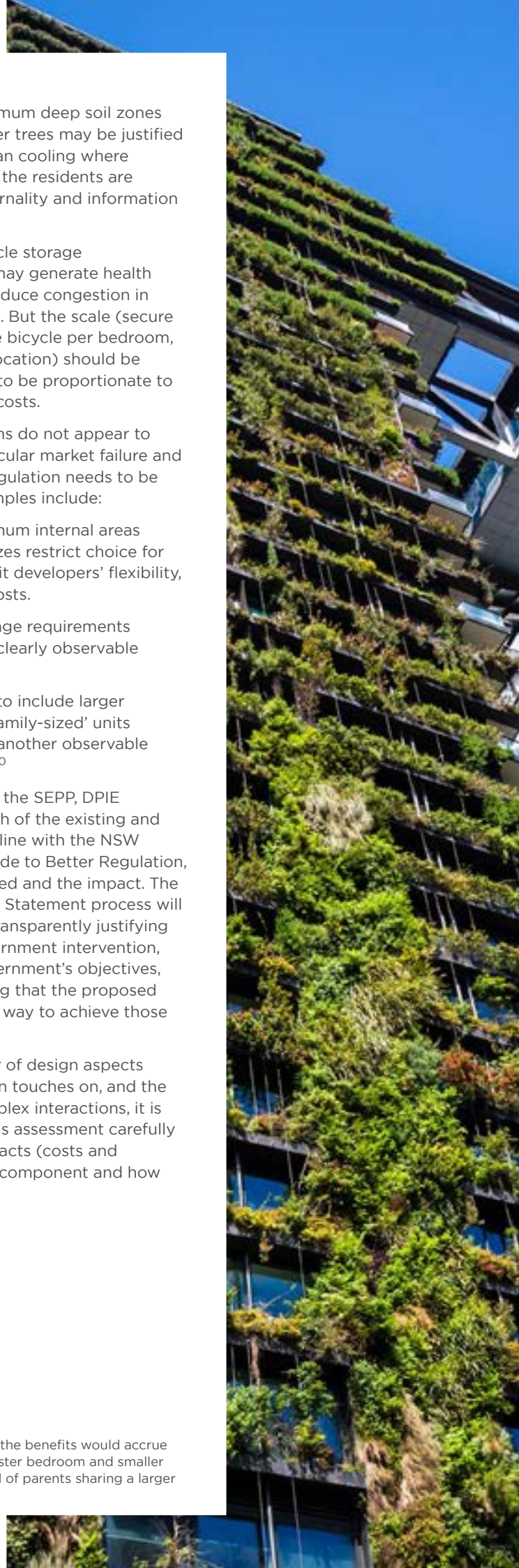
Other prescriptions do not appear to address any particular market failure and so the case for regulation needs to be made. Some examples include:

- Retained minimum internal areas and balcony sizes restrict choice for consumers, limit developers' flexibility, and increase costs.
- Increased storage requirements add cost for a clearly observable characteristic.
- Requirements to include larger bedrooms in 'family-sized' units are regulating another observable characteristic.²⁰

When developing the SEPP, DPIE should assess each of the existing and new standards in line with the NSW Government's Guide to Better Regulation, justifying their need and the impact. The Better Regulation Statement process will be important in transparently justifying the need for government intervention, outlining the Government's objectives, and demonstrating that the proposed option is the best way to achieve those objectives.

Given the number of design aspects that the regulation touches on, and the potential for complex interactions, it is important that this assessment carefully examines the impacts (costs and benefits) of each component and how they interact.

²⁰ While there might be demand for larger bedrooms, it would seem that the benefits would accrue to flat-sharers rather than families. The approach of having a larger master bedroom and smaller secondary bedrooms is generally based on the traditional family model of parents sharing a larger room and children living in smaller rooms.



... the approach to traffic and carparking needs to be customised to the development and the urban context. UDIA members catering for downsizers report that in some areas downsizers would not accept an apartment with fewer than two car spaces, as they are used to two to four in their existing home. In practice, many of these cars are not used.

Whereas, in more urban environments connected to public and active transport car parking may not be necessary, and therefore fewer car spaces could be provided, particularly where there are shared cars provided.

URBAN DEVELOPMENT INSTITUTE OF AUSTRALIA SUBMISSION



It is also important to consider the distributional effects of a higher regulatory burden on the construction of apartments. While planning regulations can be used to achieve equity benefits, they can also have an exclusionary effect. Regulators therefore need to take a broader view and carefully consider the balance between the interests of ‘insiders’ and ‘outsiders’ to the housing market.

The SEPP and updated Apartment Design Guide should be clear as to:

- which standards are requirements—that is, a council must require them on new developments because there is a demonstrated benefit from regulation
- which standards are left to the discretion of the councils—where it is demonstrated that there is a need for regulation in line with the Guide to Better Regulation, but where flexibility is needed to suit the needs of the local area

- which characteristics councils should be constrained from regulating—where regulation does not have a demonstrated need or is unlikely to benefit society more broadly, and should not be a consideration in development assessment.

Refinement of the proposed SEPP on this basis could generate substantial benefits in terms of reduced construction costs and more housing supply. As an indicator, evaluation of two regulations suggests that a revision to these areas alone would yield net benefits to the State of \$1.3 billion over 10 years in net present value terms (see Box 7.5).

BOX 7.5: ECONOMIC EVALUATION OF SELECTED REFORMS IN THE ADG

The NSW Productivity Commission commissioned the Centre for International Economics (CIE) to evaluate the costs and benefits of two existing regulations as case studies: minimum internal areas for apartments, and car parking requirements. Beyond these two, CIE also identified the potential for further gains from removing other prescriptions that appear to address no clear market failure—requirements for balconies, communal space, and storage.

Minimum apartment sizes

The net benefit from changing the SEPP and ADG to enable smaller apartments would be around \$1 billion in net present value terms (Centre for International Economics, 2021a).

The market for smaller apartments is likely to be niche. In analysing the distribution of apartment sizes (by number of bedrooms), CIE observed that the minimum standards were most binding on one-bedroom apartments and studios. Against a minimum size of 50 m², these were 53 m², on average. Most 2–3-bedroom apartments are much larger than the minimum standards, so the impact of minimum sizes was not assessed in the analysis.

Allowing developers to build smaller units would enable them to meet a clear market demand. Consumers would benefit by having housing that better suits their needs and budgets.

Car parking requirements

CIE’s analysis of car parking requirements found the existing state-wide minimum car parking rates creates an oversupply of parking spaces across New South Wales. The net cost to society of building excessive parking in Greater Sydney is \$264 million in present value terms.²¹

This is likely a conservative estimate as it does not include the costs of *undervalued* car parking—i.e. parking that is being used but where the buyer would not have paid the cost for if they had the choice.

CIE’s analysis suggests that there would be a substantial benefit to both home purchasers and industry from reducing the cap on minimum parking rates.

21 A central assumption is that developers across Greater Sydney build to the minimum required by the Guide to Traffic Generating Developments. In reality, some councils may have lower requirements, and some may have higher requirements; further, developers will build more than the minimum if there is demand.

FURTHER ANALYSIS WILL INFORM PARKING REQUIREMENT CHANGES

DPIE is also reviewing the guidance on parking in the *Apartment Design Guide*, with Transport for NSW reviewing the *Guide to Traffic Generating Developments*. Five policy options are being considered:

- **Review existing minimum ratios:** Reduce the minimum requirements for apartments within proximity to public transport or where there is an oversupply (or potential for oversupply) of parking.
- **Apply maximum ratios:** Mandate maximum rates for apartments (subject to criteria such as proximity to public transport) where developers cannot exceed car parking provision above this threshold.
- **Unbundling:** Separate parking ownership from housing (and therefore from rents and dwelling prices).
- **Adaptive travel plan:** This option is aimed at larger developments, where developers can, as part of travel plans, demonstrate the case for reduced parking where public and active transport and car-pooling can meet remaining travel demand.
- **Increased provision of car share spaces:** Introduce an incentive-based system for providing car share spaces to replace private car spaces.

Some of these initiatives are promising. Unbundling, for example may flexibly reduce the need for minimum parking requirements and may even discourage car use, especially in areas where there is a shortage of parking. On-title car parking hides the true marginal cost of car storage, which ranges from \$60 to \$240 per week in cities, by bundling the cost in with the rent or sale price of a property (Parkhound, 2021). This increases the incentive to own and use a car relative to other transport modes, contributing to greater congestion. The viability of this option may depend on:

- other regulations—for example, those affecting the supply of car parks such as minimums or maximums
- the breadth of application—such as whether non-apartment owners are permitted to own or use car spaces, broadening the market for these spaces
- administrative challenges—there are likely to be some implementation and maintenance costs involved for buildings with unbundled car spaces.

A cap on minimum parking requirements should continue. But reviews by DPIE and Transport for NSW should consider lower rates.

RECOMMENDATION 7.2: BUILDING BETTER DESIGN REGULATION

Evaluate prescriptions in the proposed Design and Place State Environmental Planning Policy (SEPP) in a detailed Better Regulation Statement to both identify where regulation is justified and ensure it applies proportionate responses, including non-regulatory approaches wherever possible.

Draft the SEPP and *Apartment Design Guide* to:

- Include the regulations where benefits to society are greater than the costs.
- Outline the principles that councils should use to guide their implementation of the standards, where flexibility is needed.
- Specify to councils what characteristics should not be subject to regulation (whether through development control plans or development assessment).
- Encourage councils to investigate non-regulatory alternatives, such as providing financial incentives to developers or co-investment to achieve mutually beneficial objectives.

Retain the cap on parking requirements in the *Apartment Design Guide* and review the *Guide to Traffic Generating Developments* to ensure it reflects current and anticipated future travel behaviour and the best approach to traffic management.

Closing the assessment gap

The NSW planning system has become too complex making the planning less efficient and more frustrating for many planners and others associated in the development and environment sector.

PLANNING INSTITUTE OF AUSTRALIA SUBMISSION

The NSW planning system is rife with inefficiency and wasteful costs, involving feedback loops and often the provision of unnecessary reports ... [which] delay required progress.

URBAN TASKFORCE OF AUSTRALIA SUBMISSION

'Streamlining' the system by removing planning controls to reduce the regulatory burden must be approached in a measured way so as to not result in perverse or unintended outcomes which only benefit private interests at the expense of the public good.

LOCAL GOVERNMENT NSW SUBMISSION

THE PLANNING SYSTEM MOVES TOO SLOWLY

Planning works best when it signals where and how people can or cannot build, in a **timely** and **certain** way. In contrast, frictions to construction such as long and uncertain development assessment periods add to the cost and risk involved with development.

The time taken to determine NSW development applications has grown substantially in recent years (Mecone, 2019). Assessment times in Sydney in particular are long and account for the bulk of the increase in the State numbers:

- Between 2015-16 and 2017-18, the mean gross days for a development application determination increased from 79 to 114 days (a 44 per cent increase) in the Sydney metropolitan area.
- Between 2015-16 and 2017-18, the State's mean gross days for a development application determination increased from 59 to 84 days (again a 44 per cent increase).
- In 2017-18 determinations in Sydney typically took 30 days longer than the State average.

Compared to other Australian jurisdictions, development applications for some types of development take significantly longer to be approved in New South Wales than in other states. In some cases, approvals take more than twice as long than the next slowest state—a substantial 'assessment gap' (Mecone, 2019). This is shown in Figure 7.8.

- For medium-density housing developments, development application determinations by high-activity councils take an average of 200 days in New South Wales compared to 70 to 105 days for other jurisdictions.

- For high-density housing developments assessed by high-activity councils, development application determinations take again significantly longer than in other jurisdictions—an average of 190 business days compared to other jurisdictions' average of 105 days.
- For greenfield sub-divisions determinations take 130 days on average in New South Wales, 23 per cent longer than in the next slowest state, Queensland.

Assessment times vary significantly even within New South Wales. The median number of 'stop-the-clock' days—days where a council pauses the assessment process while it waits for additional information from the applicant—varied between 1 and 114 days in 2018-19 for inner-middle ring Sydney suburbs with similar numbers of determinations. This accounted for much of the variation in their median determination times.²³

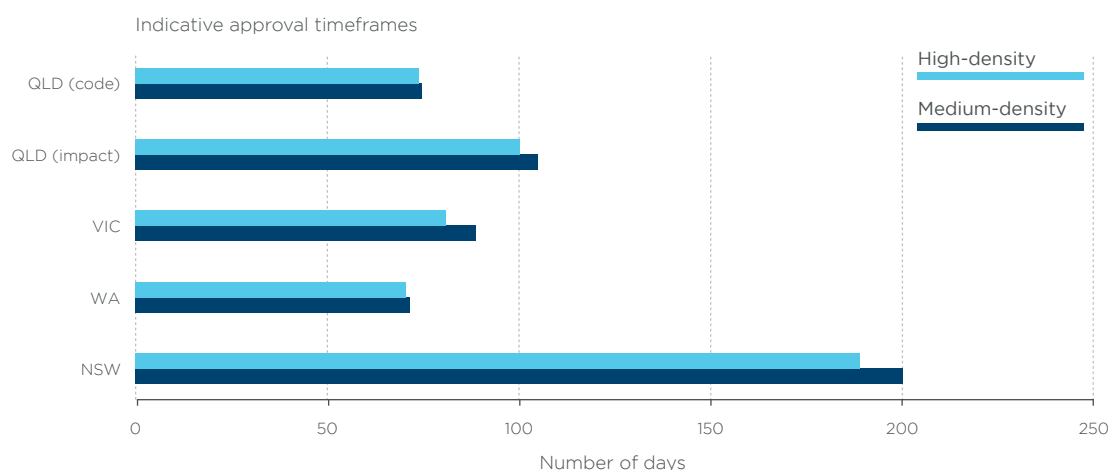
During consultations, stakeholders generally agreed that the NSW planning system has become too complex and inefficient. There was a common belief that New South Wales can improve its development assessment times to deliver a more streamlined planning system.

While supportive of increased efficiency, council submissions (City of Newcastle) and the Planning Institute of Australia cautioned against treating all planning regulation as 'red tape' and rushing to speed up approval times at the expense of assessment quality.

Stakeholders raised a wide range of areas for improvement, some of which are being addressed as part of the NSW Government's ongoing planning reforms. In 2020, the NSW Government made planning reform a priority in its COVID-19 Recovery Plan (NSW Government, 2020a). Throughout the year several initiatives aimed at creating a more streamlined planning system were progressed (see Box 7.6).

²³ Both residential and commercial applications are included in these figures; it is possible that some of this variation is driven by some councils needing to assess more complex commercial developments.

FIGURE 7.8: DEVELOPMENT APPLICATIONS TAKE LONGER IN NEW SOUTH WALES THAN IN OTHER STATES



Note: Approval times are the average of the LGAs with the greatest number of dwellings of that type constructed between 2016 and 2019. For New South Wales, the times are based on council reports by development type and considered accurate; for Victoria, the estimated timeframes are based on council reports across all types of development; for Queensland and Western Australia, they are based on Mecone's professional estimate.

Source: Mecone (2019).

BOX 7.6: PLANNING REFORM ACTION PLAN AND PLANNING SYSTEM ACCELERATION PROGRAM

The NSW 2020-21 Budget included \$260 million of new funding to support the delivery of the Government's Planning Reform Action Plan.²⁴ It is designed to streamline the planning process by reducing assessment times, getting rid of blockages, and giving the community greater transparency. Reforms are currently underway, with key initiatives outlined below.

- The **Faster Assessments Program** aims to significantly reduce assessment times for planning proposals, regionally significant development applications and major projects by June 2023. This is intended to cut:
 - 191 days from rezoning decisions (a 33 per cent time saving)
 - 91 days from decisions on development applications for larger, regionally significant projects (a 25 per cent time saving)
 - 20 days from decisions on major projects of significance to the State (a 17 per cent time saving).
- The **Planning Delivery Unit** works with proponents, councils, and NSW government agencies to navigate government roadblocks through three main channels:
 - coordination and mediation to resolve delays to significant or complex projects
 - a concierge service to help new investors navigate the planning system
 - improving systems and gathering ideas on how to improve the planning system.
- The role of the **Land and Environment Court** will expand to address the backlog of appeals. The appointments of four new Acting Commissioners will each allow the Court to consider up to 75 more matters each year. The Government is also investigating implementing a new class of appeals in 2021 for rezonings stuck in the system.

This followed earlier announced programs that formed part of the Planning System Acceleration Program, including:

- The \$250 million **Public Spaces Legacy Program**, which provides funding for planning, design, construction, or land acquisition relating to new open and public space to councils that achieve improvements in assessment activity between 1 September 2020 and 30 June 2021.
- The **Council Accelerated Assessment Program**, which works with interested councils to develop tailored programs to accelerate planning processes.

24 Accessible from: <https://www.planning.nsw.gov.au/Policy-and-Legislation/Planning-reforms/Planning-Reform-Action-Plan>.

The benefits of implementing ePlanning across the planning system are becoming increasingly apparent and the COVID-19 pandemic has accelerated its adoption by local councils.

PROPERTY COUNCIL OF AUSTRALIA SUBMISSION

EPLANNING HAS BEEN WELL RECEIVED BY INDUSTRY AND COUNCILS

The NSW ePlanning system (also known as the NSW Planning Portal) is also expected to improve planning processes and reduce assessment times. It provides an online environment where users can collaborate and access real-time data from 15 existing planning services on a single platform. This data includes lodgement and tracking of development applications and complying development certificates, and information from the concurrence and referral system. There are early indications that it is already reducing assessment times by up to several weeks (NSW Department of Planning, Industry and Environment, 2021e).²⁵

As part of its 2019 planning reforms, the NSW Government committed to a state-wide rollout of ePlanning to standardise planning application forms and processes. Since 1 July 2020, all 42 councils in Sydney, Illawarra, Newcastle, and the Central Coast have migrated to using ePlanning. By 1 July 2021, all 128 NSW councils are scheduled to be using the new system.

The Government plans to expand ePlanning over time, integrating more services to make the system more efficient. For example, as part of broader infrastructure contributions reform, contributions will be brought onto the platform. This will allow industry to estimate, calculate, and pay their contributions obligations through the portal, providing greater certainty and reducing development application time.

STATE AGENCY REFERRALS ARE A MAJOR SOURCE OF DELAYS BUT GOVERNMENTS ARE ACTING

Referral of development applications to State agencies such as to the NSW Rural Fire Service or Transport for NSW for approval ('concurrences') or advice ('referrals' or 'consultation referrals') is a major driver of delays. Stakeholders suggested that State agencies were insufficiently resourced to manage the load and that risk-averse consent authorities had a tendency to refer applications to agencies even where unnecessary.

²⁵ Average development assessment determination times fell by 21 per cent (to 67.8 days) between the first and second quarters of 2020.

The NSW Government has taken several actions to address these delays, nominating time frames for assessment of referrals, requiring councils to manage referrals through ePlanning, and tasking the Planning Delivery Unit with reducing the number of referral and concurrence requests by 25 per cent by mid-2023.

NON-COMPLIANT AND INCOMPLETE APPLICATIONS ADD TIME TO ASSESSMENT

Several council stakeholders suggested that the **quality of applications** also had a bearing on assessment times. Non-complying development applications require 'variations' and complicate the assessment process. Likewise, some councils noted that insufficient information is sometimes provided with applications, delaying assessment.

Industry saw complexity as a possible barrier to quality applications. The Urban Development Institute of Australia noted the substantial volume of local and State government policies make it 'potentially impossible' for participants—even governments—to understand them all.

Submissions made several suggestions to address some of these issues:

- Planning consultancy Urban Perspectives envisioned a less layered, more digitised system, for example by consolidating all policies (including LEPs and SEPPs) to ensure that only one environmental planning instrument applies to each site.
- Urban Perspectives also suggested that 'Clause 4.6' variations could be replaced with site-specific Development Control Plans tailored to the specific site's characteristics.
- The City of Newcastle proposed improvements to assessment pathways focused on applications that generally align with adopted strategies and plans to encourage greater compliance.

GREATER FOCUS ON STRATEGIC PLANNING TO ALLOW STREAMLINED DEVELOPMENT ASSESSMENT

Industry stakeholders viewed that an **over-reliance on 'merit assessment'** added cost and delays disproportionate to the risk or impact involved.

Planning involves several stages, from development of strategic plans to LEPs, Development Control Plans and then assessment of individual development proposals. Under the current system, projects need to justify their merit and undergo community consultation even if they are compliant with the agreed rules set out for the site in earlier stages.

The 2013 NSW Planning White Paper recognised this and recommended that the use of merit assessment be reduced to around 20 per cent of applications, which would reportedly have brought New South Wales in line with other states (NSW Government, 2013). By contrast, in 2018-19 over half of developments were assessed under the merit assessment 'DA' track.²⁶

The NSW Government has recently introduced a Low Rise Housing Diversity Code to make the complying development track available to complying low-medium density dwellings, including dual occupancies and terrace houses. DPIE has also proposed a range of reforms to expand the use of complying development for non-residential purposes (see Section 7.4). Further use of fast-track assessment presents a clear opportunity to reduce assessment times and improve certainty, while also promoting development consistent with local plans.

²⁶ The proposed 2013 planning reforms intended to increase community participation in the plan-making process to allow for more streamlined development where it could comply with the agreed plan. Despite extensive public consultation and amendment, the proposed reforms were blocked in the Upper House.

Other proposals raised by stakeholders are discussed in detail in Appendix 4 and attracted feedback in submissions to the 2020 Green Paper, *Continuing the Productivity Conversation*. Several councils opposed the introduction of ‘**deemed approvals**’ for referrals of development assessments. City of Newcastle suggested that this should be reserved for compliant non-major development applications lodged with sufficient documentation. Councils voiced similar concerns about minimising the use of ‘**stop-the-clock**’ provisions, noting that it should be the applicant’s responsibility to ensure appropriate information is provided at lodgement of their application.

PLANNING PANELS ARE STILL FINDING THEIR FEET

More complex development applications are now assessed by local and regional planning panels rather than local councillors. This shift was supported by the 2013 NSW Planning White Paper and mandated by the NSW Government in 2017. The goal of these panels is to improve the rigour and transparency of decision-making.

Stakeholders were dissatisfied with aspects of the panels. Industry (Meriton and Urban Development Institute of Australia) expressed two main concerns with the current approach. First, determination panels have minimal engagement with applicants and their projects, increasing the risk of last-minute surprises that may trigger a restart of the whole development application process. Second, in the case of planning proposals, planning panels advise but lack the power to make determinations, and therefore just add to assessment times. Two councils (The Hills Shire and Blacktown City) also suggested that planning panels add time to the development process.

In some cases, the additional rigour and transparency of a panel may justify the costs, particularly for complex or high-impact projects. But there are potential improvements to reduce *avoidable* costs. The Urban Development Institute of Australia proposed that applicants be given the opportunity to present to a panel and receive non-binding feedback on their application within 30 days of lodgement.

A CLEARER ROLE FOR DESIGN REVIEW PANELS AND STAGED ASSESSMENTS WILL REDUCE UNNECESSARY DELAYS

Industry expressed concern that SEPP 65 design review panels add cost and uncertainty for questionable design benefit in the development assessment process. They highlighted that an expanded role envisioned in the Design and Place SEPP Explanation of Intended Effect would add further time and cost.²⁷ Some of these concerns relate to:

- the iterative nature of the process
- doubts that the panel’s subjective views are necessarily more valid than those of qualified designers engaged on the project
- poor outcomes from competing views between panel members
- a lack of coordination between consent authorities (including planning panels) and design panels.

In developing the draft Design and Place SEPP and supporting guides, the role and operation of design panels should be reviewed and clarified to achieve required design review outcomes without imposing unnecessary costs on developments. This might involve, for example:

- restricting the mandate of panels to demonstrate why the proposal’s design is objectively incompatible with government policy, or
- making panels more accountable for the quality and timeliness of their feedback.

²⁷ See Urban Development Institute of Australia and Urban Taskforce submissions on the Design and Place SEPP Explanation of Intended Effect.



Proponents receive a 28-minute window to present to a panel, if a new issue arises, which the proponent is not aware of and then cannot address, then the process starts again at lodgement, costing at least 6 months in the process..

URBAN DEVELOPMENT INSTITUTE OF AUSTRALIA SUBMISSION



Relatedly, the use of **concept (staged) development applications** has expanded considerably particularly in Sydney. Staged assessment *doubles* assessment time, as several steps (including notification) must be repeated in the detailed second stage assessment (Mecone, 2019). This stage could be streamlined to reduce duplication.

FURTHER WORK IS REQUIRED TO IDENTIFY AND ADDRESS LONG LOCAL ASSESSMENT TIMES

More work is needed to understand the drivers of long local development assessment times. Many of the announced reforms will help to reduce the council-led assessment times cited earlier, addressing some of the most cited impediments by rolling out ePlanning and improving the way referrals and concurrences are managed. But there is clearly still appetite from both councils and industry to improve the efficiency of planning assessments.

The Department of Planning, Industry and Environment (DPIE) is implementing its current round of reforms. In the meantime, DPIE is undertaking an end-to-end review of the NSW planning system and comparing it with other jurisdictions to identify best-practice, draw out insights and make recommendations to inform cross-jurisdictional performance comparison. This review will be critical in identifying the drivers of delay and uncertainty in NSW planning processes.

Once the analysis is complete, DPIE should implement measures to address the drivers of delay and uncertainty, and bring New South Wales in line with best practice by the end of 2025.

RECOMMENDATION 7.3: CUT NSW PLANNING'S ASSESSMENT GAP

In developing the Design and Place SEPP, work with industry to address concerns with the operation of design panels.

By 2023, deliver an end-to-end review of the NSW planning system relative to other jurisdictions, and use this process to identify drivers of delay and uncertainty in planning processes.

By 2025, implement measures to address the drivers of delay and uncertainty, and bring New South Wales in line with best-practice.

Unlock the potential of our employment and industrial zones

Increased flexibility in employment zones would be beneficial to not only the economy but also to the vibrancy of a local area.

URBIS SUBMISSION

The system of employment lands zoning is complex, which is driven by a desire to drive outcomes, which the market does not wish to deliver, and preserve uses in certain areas.

URBAN DEVELOPMENT INSTITUTE OF AUSTRALIA SUBMISSION

THE EVOLVING NATURE OF BUSINESS MODELS AND ACTIVITIES

The growth of the knowledge economy has made business clustering and human interactions more important to our prosperity. This has happened even as digitisation has provided scope to reduce the importance of proximity and face-to-face contact (Withers, 2007).

Innovative, creative, and knowledge-intensive businesses are essential to New South Wales' future national and international competitiveness. These businesses achieve economies of scale in dense urban centres—centres which give them easy access to a wide range of specialised firms and a large, skilled workforce. If the planning system is going to enable higher productivity, it must give business centres the greatest possible capacity and flexibility to do this.

MORE JOBS AND HOUSING THROUGH LESS PRESCRIPTIVE ZONING

Zoning regulations restrict uses for land as well as determine the form of built structures. They are a powerful tool for shaping our cities.

By constraining activities on certain land, they separate incompatible uses and enable coordination. But as with any regulation, they also impose costs.

There is a growing trend towards using zoning simply to preserve the status quo, with no clearly defined objectives. Zoning rules should therefore be subject to constant review—and their use should be limited to address clear and defined market failures or public policy objectives.

To enhance productivity, zoning must:

- maximise the benefits from using land
- manage potential costs and conflicts between uses, including negative impacts on communities' health, safety and amenity, and depletion of environmental resources
- not unduly limit consumer choice and business decisions.

Yet the State's system of business zoning is overly prescriptive and inflexible; limiting competition and innovation. This discourages business investment and hampers jobs growth.²⁸

The standard NSW zoning framework includes eight categories of business zones and four categories of industrial zones. These are set out in Table 7.1.²⁹

²⁸ This was highlighted by the Commonwealth Productivity Commission when it noted that excessively restrictive zoning 'results in higher prices and/or poorer quality and ranges of goods and services for the community' (Commonwealth Productivity Commission, 2017d).

²⁹ The zoning framework is set by the Standard Instrument—Principal Local Environmental Plan.

TABLE 7.1: BUSINESS AND INDUSTRIAL ZONES IN THE STANDARD INSTRUMENT LOCAL ENVIRONMENTAL PLAN

ZONE	NAME	DESCRIPTION
B1	Neighbourhood centre	<ul style="list-style-type: none"> • for small-scale retail, business and community-use services to the neighbourhood
B2	Local centre	<ul style="list-style-type: none"> • for business, entertainment and community use by neighbourhood and visitors • provides employment • policy should maximise public and active transport usage
B3	Commercial core	<ul style="list-style-type: none"> • for retail, business, office, entertainment, and community use for local and wider community • provides employment • policy should maximise public and active transport usage
B4	Mixed use	<ul style="list-style-type: none"> • for business, office, residential and retail • policy should maximise public and active transport usage
B5	Business development	<ul style="list-style-type: none"> • business, warehouse, and large-format retail
B6	Enterprise corridor	<ul style="list-style-type: none"> • for business along main roads • provides employment • policy should maintain economic strength of centres
B7	Business park	<ul style="list-style-type: none"> • office and light industrial • provides employment • allows other uses to meet needs of local workers
B8	Metropolitan centre	<ul style="list-style-type: none"> • for business, office, retail, entertainment, and tourism for participation in global economy • intensive land use • diversity of uses is characteristic of global status
IN1	General industrial	<ul style="list-style-type: none"> • industrial and warehouse • provides employment • policy should protect industrial land and minimise adverse industry impact on other land uses
IN2	Light industrial	<ul style="list-style-type: none"> • for light industrial, warehouse and related use • provides employment • caters to other uses needed by local workers • policy should protect industrial land and minimise adverse industry impact on other land uses
IN3	Heavy industrial	<ul style="list-style-type: none"> • provides land for industries that need to be separate • provides employment • policy should protect industrial land while minimising adverse industry impact on other land uses
IN4	Working waterfront	<ul style="list-style-type: none"> • for maritime-specific activities • hosts complementary industries that require direct waterfront access

Source: NSW Productivity Commission Discussion Paper.

Council staff support the recommendation and believes uses in business, and to a lesser extent, industrial zones could be relaxed... Council staff suggest planning policies and regulation should focus on building appearance and the relationship to the street, rather than concentrating on how the internal floor space is used.

LAKE MACQUARIE COUNCIL SUBMISSION

Local Environmental Plans add to the complexity for land users by applying the standard categories differently across LGAs. Industry stakeholders suggested the current approach to zoning:

- has too many rules, many of them unclear or inconsistently applied
- has overlaps between zones
- does not allow low-impact business uses by default but instead require costly action by tenants, developers, and regulators (for example, a planning proposal to allow a new additional use to a zone will add over one year to the development process).

Rationalising the standard business and industrial zones and broadening permissible uses within each zone will better accommodate the changing needs of businesses and households. Reform need not erode barriers between incompatible commercial and industrial activities.

Delivering on these reforms should be prioritised to ensure New South Wales' competitiveness. In 2013, Victoria reduced the number of business zones from five to two and reformed its industrial zones in recognition of the emerging needs of businesses.³⁰ Victoria has since included one more mixed-use commercial zone. Case Study 7.1 details these reforms.

Progressing reform should involve first establishing a modern set of employment zones with broad permissible activities. Where uses are not permitted, this should be clearly justified.

Overall, stakeholders supported greater flexibility in employment zones. Many agreed existing business and industrial zones could be consolidated where the range of permissible uses were similar, provided genuinely incompatible land uses were separated or their impacts mitigated. The simpler system would reduce development delays and encourage greater innovation and expansion of creative industries.

CASE STUDY 7.1: HOW VICTORIA OPENED UP ZONING

In July 2020, the Commonwealth Productivity Commission completed its case study on Victoria's system of commercial and industrial zoning (Commonwealth Productivity Commission, 2020e).

Compared to other jurisdictions, Victoria's arrangements are flexible but also simple to understand and apply. They are based on a few standardised zones—three commercial and three industrial—with a broad range of allowable (as-of-right) uses.

The current system was implemented in 2013, with additional change in 2018:

- In 2013, Victoria consolidated its five commercial and business zones into two: Commercial 1 (combining Business 1, Business 2, and Business 5) and Commercial 2 (combining Business 3 and Business 4 zones).
- It also redefined mixed-used zones to allow for as-of-right uses, including residential, and changed industrial zones to remove default floor space area restrictions and allow small-scale supermarkets in Industrial Zone 3.
- In 2018, Commercial 3 was added as a mixed-used employment zone to facilitate the growth of creative industries, small manufacturers, and start-up businesses.

The Commonwealth Productivity Commission concluded the changes had produced positive outcomes for industry through lower barriers to entry and set-up costs. Large-format retailers and Aldi stores expanded in areas where they were previously restricted, enhancing competition and improving consumer convenience and choice. For example, more people could access a large-format retailer within a 5–10 minute drive when those retailers expanded after the reforms.

Moreover, fears about the detrimental impacts on centres and loss of employment land from more flexible zoning have not borne out.

The Victorian experience demonstrates greater flexibility in zoning can generate positive economic outcomes without undermining the management of negative externalities and separating genuinely incompatible uses.

³⁰ Implementation in Victoria was relatively simple because the Victorian Government controlled all land uses within the zones. This contrasts with New South Wales where the councils set the permissibility. Implementation of similar changes in New South Wales would need to address this additional complexity.

A potential unintended consequence is that greater flexibility within the zones means less 'certainty' and this unrestricted nature of the zone could give rise to a wide range of expectations (from both industry and communities) on what may be permissible or is reasonable on a site by site basis.

LOCAL GOVERNMENT NSW SUBMISSION

The Planning Institute of Australia and some councils did not support a move to more flexible employment zones. They believed it would reduce councils' ability to deliver strategic planning outcomes. Some suggested that Victoria's reforms had made planning *more complex*, as councils had used a range of supplementary planning controls to compensate for the reduced number of zones. Local Government NSW suggested that more flexible zones would reduce certainty for business.

There are clearly valuable lessons to take into account in the design and implementation of a reformed zoning framework in New South Wales.

Stakeholders also supported expanding use of the complying development assessment pathway. The complying (and exempt) development pathway allows for a simpler and faster assessment process for straightforward developments, where projects that comply with strict planning and building controls.

Some considered that there was an opportunity for more activities to be assessed via the exempt development pathway. These include low-risk or low-impact activities (e.g. signage, garden sheds, fences) and minor building renovations. Industry considered that these reforms would give businesses more flexibility, certainty, and opportunities to invest without lengthy approval processes.

Blacktown City Council cited concerns that an expanded fast-track approval pathway might compromise existing

development quality. Local Government NSW suggested limiting its application to small, low-risk development; it also proposed that improvements be made to the private certification process to accompany the expansion of complying development to the new employment zones framework.

EMPLOYMENT ZONES ARE BEING REVIEWED

The Department of Planning, Industry and Environment (DPIE) is reforming employment zones to deliver a simplified, more flexible framework. It will review existing arrangements to:

- ensure employment zones are fit-for-purpose to support existing and emerging businesses increase flexibility to maximise productivity, while minimising land use conflicts
- allowing businesses and jobs to be created where they are needed while still allowing councils to realise their vision for a place.

In May 2021, DPIE publicly exhibited a draft framework proposing eight zones (see Table 7.2), with stakeholders consulted before DPIE writes the final framework. While not a direct translation of the existing zones in Table 7.2, the draft framework outlines the policy intent for each of the new zones and which existing zones would have fulfilled that role historically. DPIE will consider a range of options and subject them to economic evaluation to inform the revised Standard Instrument Local Environmental Plan. The new framework is scheduled to be in effect by mid-2022.

In the absence of an economic rationale to consolidate industrial and employment zones, PIA is concerned that an expansion of permissible retail uses would lead to windfall uplift in land value to a small number of landowners, loss of an economic land resource and promote unproductive land speculation and rent seeking.

PLANNING INSTITUTE OF AUSTRALIA SUBMISSION

TABLE 7.2: DRAFT EMPLOYMENT ZONES FRAMEWORK

ZONE	NAME	DESCRIPTION
E1	Local Centre	<ul style="list-style-type: none"> • for retail, business, entertainment and community use by neighbourhood and visitors • residential uses allowed in form of shop-top housing and board houses • <i>replaces</i> B1 Neighbourhood Centre and some B2 Local Centres
E2	Commercial Centre	<ul style="list-style-type: none"> • for large scale commercial, retail, business, and compatible associated uses like recreational and community services • employment and business focused • residential uses by exception (for high-density areas) if the primary employment focus is preserved • <i>replaces</i> B3 Commercial Core, possible extension to larger B2 Local Centres and some B4 Mixed Use and B7 Business Park areas
E3	Productivity Support	<ul style="list-style-type: none"> • covers a mix of services, low-impact and creative industries, manufacturing, warehousing, office and limited supporting retail • residential uses generally not appropriate • <i>replaces</i> B5 Business Development, B6 Enterprise Corridor, some B7 Business Parks and a small number of IN2 Light Industrial
E4	General Industrial	<ul style="list-style-type: none"> • accommodates light and general industrial and warehousing uses, with limited general retail • residential use not allowed • <i>replaces</i> IN1 General Industrial and IN2 Light Industrial
E5	Heavy Industrial	<ul style="list-style-type: none"> • covers heavy industry and associated storage and depot • residential and retail uses not allowed • replaces IN3 Heavy Industrial and some IN1 General Industrial
MU1	Mixed Use	<ul style="list-style-type: none"> • for residential, retail, light industry, and tourist accommodation • genuine mixed-use development • <i>replaces</i> B4 Mixed Use, some B2 Local Centres and potentially B8 Metropolitan Centre
SP4	Local Enterprise	<ul style="list-style-type: none"> • targeted at areas where detailed precinct planning has been undertaken • intended as a flexible zone, where land uses are determined by the consent authority
W4	Workforce Foreshore	<ul style="list-style-type: none"> • for maritime-specific activities • hosts complementary industries that require direct waterfront access • replaces IN4 Working Waterfront

Source: NSW Department of Planning, Industry and Environment.

Based on this framework, a set of mandated permissible uses will be developed for each zone. Mandated permissible uses are those which all councils must allow and are an important source of certainty for businesses looking to establish in New South Wales. The uncertainty about whether a use will be allowed, and the time taken to lodge a planning proposal to enable an additional use, are both substantial. To improve certainty and to avoid the need for regular changes to the framework as new uses arise, it is important that permissible uses are as broadly defined as possible.

Complying development reforms are being developed

Complementary to employment zones reform, DPIE is also pursuing reforms aimed at enabling more developments to be assessed through faster complying development pathways. An Explanation of Intended Effect has been exhibited, with outcomes used to inform changes to the Codes SEPP this year.

Proposed reforms include creating a complying development pathway for data centres to support the growing need for data storage and processing, and introducing standard retail and business operating hours from 7am to 10pm. According to DPIE, these reforms could unlock up to \$4.9 billion of annual economic benefit by allowing more activities to be undertaken as complying development without the need to undergo the full development application process (NSW Department of Planning, Industry and Environment, 2021a). This will accelerate the delivery of projects and create jobs to support our economic recovery.

Further amendments to the Codes SEPP should align to the reformed employment zones framework when it comes into effect next year.

RECOMMENDATION 7.4: CONSOLIDATE EMPLOYMENT ZONES

Progress reforms to employment zones, including the following:

- Rationalise existing business and industrial zones in the Standard Instrument Local Environmental Plan to reduce the number of zones.
- Broaden the range of permissible activities to ensure prescriptions are reserved for genuinely incompatible land uses.

Progress reforms to expand complying development assessment pathways.

FOSTER ECONOMIC GROWTH BY MANAGING INDUSTRIAL LAND MORE RESPONSIVELY

Across Greater Sydney, 28 per cent of all jobs are on industrial and urban services land.³¹ The allocation of employment uses are provided in Table 7.3.

Most industrial land in Sydney is in the Western City District (40 per cent) and Central City District (33 per cent). The remaining 27 per cent land is split across Eastern City, South and North districts (Figure 7.9).

Industrial and urban services land supports specific activities of a city's businesses and residents. Restricting land uses within narrow bounds suppresses economic activity, land values, and commercial rents. While permitted uses are able to locate on this land at low cost; a consequence is these lands are not used as intensively as they would otherwise be. That in turn restricts density and employment outcomes.

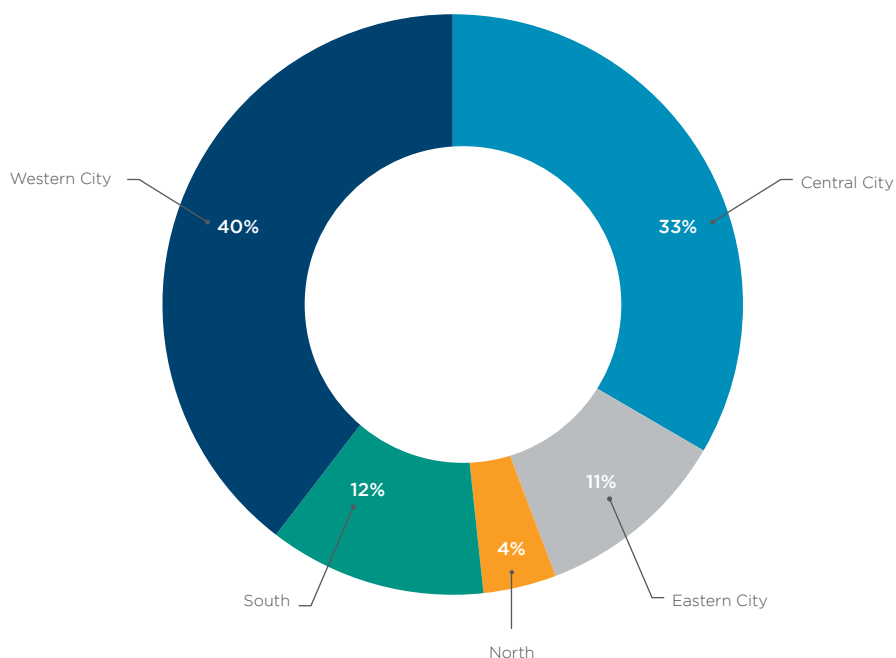
³¹ Industrial and urban services land is land identified in the NSW Department of Planning, Industry and Environment's Employment Lands Development Monitor. It includes industrial zoned land, as well as some business zoned land which permits a number of industrial uses.

TABLE 7.3: EMPLOYMENT USES ON INDUSTRIAL AND URBAN SERVICES LAND

EMPLOYMENT TYPE	ALLOCATION (PER CENT)
Heavy industry	40
A range of activities ranging from light industry, warehousing, and urban services to manufacturing and creative uses	33
Knowledge and professional services	17
Health and education	10

Source: Centre for International Economics (2018).

FIGURE 7.9: GEOGRAPHIC DISTRIBUTION OF INDUSTRIAL LAND IN GREATER SYDNEY



Source: NSW Department of Planning, Industry and Environment.

Over time, industrial land in high-value infill locations has been rezoned. This has been driven by several factors:

- The changing structure of the urban economy has reduced demand for industrial land, especially in central locations, opening opportunities for urban renewal. Examples include Green Square, Homebush Bay, and Pyrmont.
- Population growth has increased demand for housing with proximity to high-value employment opportunities in the Sydney CBD.

The need to deliver housing in the presence of community opposition from existing residents means it has typically been more feasible to develop formerly industrial areas as a ‘path of least resistance’.

The Greater Sydney Commission has identified a range of risks should industrial land continue to be rezoned. In particular, it has said that some businesses might not be able to remain in these locations if land values were to increase (Greater Sydney Commission, 2018b). Its solution is to divide industrial and urban services land into three categories. These are set out in the Greater Sydney Region Plan and mapped in Figure 7.10:³²

- Retain and manage: Protect all existing industrial and urban services land from competing pressures, especially residential and mixed-use zones. This principle applies in the Eastern City, North and South Districts, the North West Growth Area, and the established areas of the Western City.
- Review and manage: Review all industrial and urban services land to either confirm its retention or manage uses to allow sites to transition to higher-order employment activities (such as business parks). This principle is applied to industrial land in the established areas of Central City District, Hornsby, Liverpool, and Fairfield.

- Plan and manage: In land release areas, there is a need for additional industrial and urban services land to support projected population growth and economic development. This principle applies across the South West and Western Sydney Airport Growth Areas.

The retain-and-manage approach is effectively a moratorium on rezoning land to higher and better use within 26 of the 32 local government areas in Greater Sydney. Business and development industry stakeholders have criticised this approach as needlessly inflexible, and have supported a review. They highlighted the need for land use to adapt to Sydney’s changing economic and social needs. Development industry groups raised the potential for mixed residential and commercial uses, a mix that has been successfully achieved in other countries.

FIGURE 7.10: APPROACHES TO INDUSTRIAL AND URBAN SERVICES LAND ACROSS SYDNEY



Source: Greater Sydney Commission.

32 There is also a range of significant industrial land which are subject to specific State Environmental Planning Policies.

The protection of existing industrial land is vital to the ongoing growth of Sydney and in order to cater for forecast trade growth and the demands of consumers ...

NSW PORTS SUBMISSION

The intense pressures to zone [employment lands] for alternative (residential) land uses requires a strategic approach supported by a policy framework to equip consent authorities with the tools necessary to make informed decisions that will protect (where appropriate) and grow existing employment and urban services land.

LOCAL GOVERNMENT NSW SUBMISSION

There is evidence that a loss of dedicated industrial and urban services land does not necessarily translate into a loss of the functions that the Greater Sydney Commission wishes to retain. Most uses located in the inner suburban Alexandria and Artarmon industrial and urban services precincts, for example, can and already do operate in a wide range of business, residential and mixed uses. The same is true for non-industrial operations currently occupying industrial land, such as retail, health, and sport and recreational facilities (Centre for International Economics, 2018).

In other precincts, there are strong grounds for land to be retained against encroachment from competing and incompatible uses. The Sydney Airport and Port Botany facilities, for example, will serve the State's growing freight task, which is projected to increase from 443 Mt per year in 2018 to 569 Mt per year in 2038 (INSW SIS, 2018). Industrial lands in and around these logistical hubs:

- serve the supply chain for import/export activities
- provide contingency for potential future needs of the Port-Botany/Sydney Airport precinct
- act as a buffer against land uses likely to conflict with heavy industrial and waterfront activities, especially residential.

Moreover, smaller footprints of industrial land could be used more intensively where demand is sufficient. Multi-storey warehouses, for example, exist in other jurisdictions to meet the logistics needs of growing internet retailing while using less land (CBRE Research, 2016). Innovative building design can likewise reduce conflicts with neighbouring sites, meaning that uses are more compatible than they have been in the past.

While several stakeholders supported a review, some stakeholders were particularly opposed to a return to a site-by-site approach in rezoning industrial land. They argue that this approach has driven dwindling supply and pushed up the values of industrial land in the Eastern City District. Operating closer to residential areas or in denser areas also creates its own challenges, including congestion on road infrastructure and limitations on activities due to complaints about noise. While these may be mitigated through good planning to some extent, this is not always the case

Councils emphasised that any new policy for managing industrial land needs to be robust. Local Government NSW supported a strong policy framework to inform management of industrial land across Sydney (or the State). Waverley Council suggested that potential conversion of existing industrial and urban services land to higher-order uses should be considered based on cost-benefit analysis.

A REVIEW OF INDUSTRIAL AND URBAN SERVICES LANDS HAS BEGUN

The Greater Sydney Commission has begun a review of the retain-and-manage policy. The review should consider stakeholders' concerns as it:

- identifies the Commission's original objectives in imposing the retain-and-manage policy and establishes the need for policy action
- examines a range of policy approaches to achieving these objectives and compares them on their respective costs and benefits to society.

This review should inform the approach to the management of industrial and urban services land in the next refresh of *A Metropolis of Three Cities*, due in 2023.

RECOMMENDATION 7.5: OPTIMISE INDUSTRIAL LAND USE

Evaluate the retain-and-manage approach to managing industrial and urban services land in Greater Sydney against alternative approaches, to identify what would maximise net benefits to the State.

Adopt the approach that maximises the State's welfare in the next update to the Greater Sydney Region Plan.

7.6 Make the most of our open space and green infrastructure

Open spaces and other 'green infrastructure' help make our communities better places to live. Open spaces are a place for exercise, leisure, and community gathering. Green infrastructure can have further benefits, such as reducing urban temperatures and reducing stormwater runoff. As our population grows and backyards become smaller, these things will only become more important. The Australian Infrastructure Audit 2019 found Australians rate access to parks and open space more highly than telecommunications and public transport when choosing where to live (Infrastructure Australia, 2019).

The benefits of open and green space to communities are well established (McConnell & Walls, 2005; Morris, 2003). But open and green space also has direct links to productivity:

- People who are healthy in mind and body are more likely to participate and be more productive in the labour market.
- Green infrastructure cools our neighbourhoods naturally, notably through tree canopy cover, minimising energy and infrastructure costs in extreme heat.
- Green infrastructure can be a cost-effective means of managing stormwater and flood risk.

The Greater Sydney Region Plan, *A Metropolis of Three Cities*, identifies the need to expand the Greater Sydney Green Grid (Greater Sydney Commission, 2018a). It calls for a regional network of high-quality green spaces that support community access to open space and assist with the cooling of neighbourhoods. A range of initiatives is being implemented to increase the supply of high quality, publicly accessible green spaces within 10 minutes' walk of homes in urban areas across New South Wales:

- A draft 50-year vision for Sydney's open space is due to be completed this year.

- The Department of Planning, Industry and Environment is working with local councils to improve access to open space through the Metropolitan Greenspace Program and to implement the 'Sydney Green Grid', a network of linked open spaces.
- The Office of Sport is working with councils on partnerships to develop a sport and recreation participation strategy and a sport and recreation facility plan for each district.

Stakeholder submissions affirmed the increasing importance of open space and green infrastructure to the amenity and liveability of our spaces, as well as to the productivity of the economy. These spaces have played an especially important role during lockdowns, giving people a place to remain socially distanced while they exercise and relax. The pandemic has given us a unique opportunity to improve our understanding of what people value.

While there is clearly strong community support for open space, not all open space is likely to be equal, and there are many unanswered questions:

- How much open space is the right amount for an area?
- How do the benefits of different types of open space differ and how do they compare to the costs?

Answering these questions will ensure councils and businesses deliver the right amount and types of open and green space to meet growing population demands, especially in locations where space is in short supply.

Stakeholders supported a consistent approach to quantifying the benefits of different forms of open and green space, and using this to inform how we meet the needs of new and existing residents.



AN ECONOMIC EVALUATION FRAMEWORK TO GUIDE THE APPROPRIATE PROVISION OF OPEN SPACE AND GREEN INFRASTRUCTURE

An economic evaluation framework is needed to inform the appropriate provision of open and green space in land use planning and future investment in green and blue infrastructure projects. DPIE is currently investigating how to value green infrastructure and open space.

This work will complement other work underway to guide the design, planning, and delivery of green infrastructure and open space across New South Wales, including the *Greener Spaces Design Guide* (Government Architect NSW, 2020). The draft Guide promotes a shift from the 'spatial standard' (of 2.8 hectares per 1,000 people) to a performance-based approach, with a focus on quality rather than quantity.

RECOMMENDATION 7.6: MAKE THE MOST OF OUR OPEN AND GREEN SPACE

Progress development of:

- a consistent approach to measuring benefits to community welfare from the provision of open and green space
- evidence-based options for incorporating green infrastructure and open space in strategic land use planning.



7.7 | Implementing infrastructure contributions reform

Infrastructure contributions paid by developers to state and local governments are not applied on a consistent basis. Contributions are often unclear, which can adversely affect decisions by property owners and developers.

SOUTHERN SYDNEY REGIONAL ORGANISATION OF COUNCILS SUBMISSION

The infrastructure funding system is broken, it is inefficient, not transparent, lacks accountability, it is unpredictable, and inequitable. It is currently impossible to price in the cost of the infrastructure contributions, which means the industry cannot deliver development, particularly housing supply.

URBAN DEVELOPMENT INSTITUTE OF AUSTRALIA SUBMISSION

One of the biggest challenges facing New South Wales and its councils is to fund, deliver and maintain our infrastructure.

Asset recycling has previously provided a once-in-a-generation opportunity to lift our economy's productive capacity through infrastructure investment. But as those sales proceeds are spent, the State needs to find new ways to ensure that growth-enabling infrastructure is provided. And it must do so without imposing a tax burden that makes us uncompetitive.

Infrastructure contributions are an important way of helping to fund projects. These are levies paid by property developers to the State Government and councils as a condition of development approval (see Box 7.7).

This system, however, must be balanced against the need for an adequate housing supply to accommodate a growing population and improve living standards. This means local government contributions should be in line with the costs incurred as a result of a specific development (via infrastructure contributions), while general service costs should be met by ratepayers in the community.

THE EXISTING INFRASTRUCTURE CONTRIBUTIONS SYSTEM IS COMPLEX AND FRAGMENTED

Stakeholders have told us that the current infrastructure contributions system is uncertain, opaque, and unfair. There is consensus across different stakeholders—property developers, local government, social housing providers, planners, economists—that the infrastructure contributions system needs to be reformed.

The system is also inherently constrained, as infrastructure contributions are levied only on new development. The system is not intended to cover the cost of infrastructure needed as the population grows. The contributions system is also generally limited to covering some of

the capital cost of new infrastructure provision. It does not cover ongoing maintenance costs. As a result, state and local governments must find other funding sources to maintain growing infrastructure assets.

BOX 7.7: INFRASTRUCTURE CONTRIBUTIONS IN NEW SOUTH WALES

Councils levy contributions (popularly known as ‘section 7.11 contributions’) to fund additional services or amenities arising from a development. Two principles ensure that developers pay for the extra demand a development generates:

- ‘nexus’, a clear connection with the development
- ‘apportionment’, the principle that developers are responsible for the proportion of expenses they create.

Developers can meet their obligation either by monetary contributions, works-in-kind, by dedicating land free of cost, or by a combination of these.

Fixed development consent levies (or ‘section 7.12 contributions’) were introduced as an alternative to section 7.11 contributions. These levies were intended to apply where it could be difficult to establish a ‘nexus’ and ‘apportionment’ to the development. They were particularly intended for areas where development rates are difficult to predict. A maximum rate of 1 per cent applies to the estimated development cost, unless otherwise stated. This rate requires monetary payment.

Planning Agreements (or ‘voluntary planning agreements’—VPAs) are negotiated with developers at state or local government level. These are designed to deliver improvements such as transport infrastructure, affordable housing, and environmental and conservation initiatives. While the principles of ‘nexus’ and ‘apportionment’ are not fundamental to these agreements, contributions raised through VPAs should not be unrelated to the development.

Special infrastructure contributions (or ‘SICs’) are collected by the State Government. They fund key infrastructure—roads, public transport, education, emergency and health facilities, and biodiversity conservation—in the growing areas of Sydney and regional New South Wales.

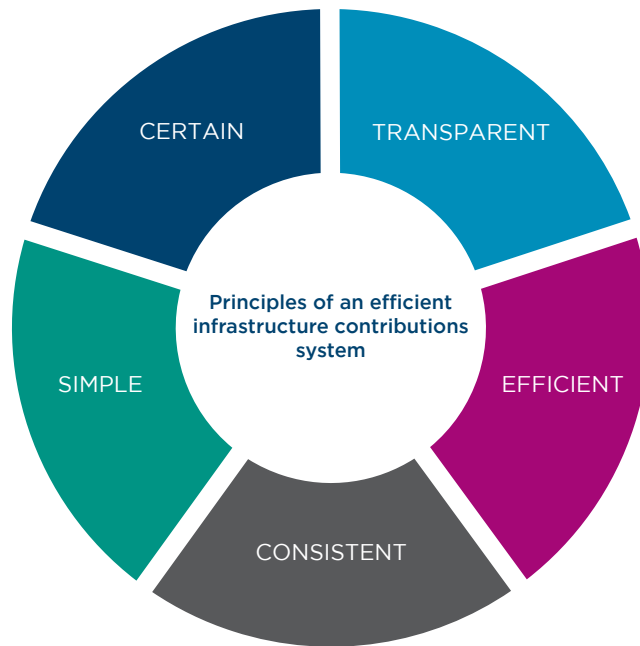
PROGRESS TOWARDS DELIVERING A COMPREHENSIVE REFORM PROGRAM

The NSW Productivity Commissioner’s recent *Review of Infrastructure Contributions* made 29 recommendations aimed at changing the way public facilities and services are funded through the planning system. The Commission estimated that these reforms would unlock up to \$12 billion in productivity benefits for the NSW economy.

The reforms have been designed as a package with individual recommendations interacting with and dependent upon each other. For example, the rate peg reform (Recommendation 3.1 of the *Review of Infrastructure Contributions*), which ties council rates to population growth, is critical; other changes depend on its successful implementation (see Section 6.5).

Figure 7.11 provides an overview of some of the priority reforms.

FIGURE 7.11: SUMMARY OF KEY RECOMMENDATIONS FROM THE REVIEW



CERTAIN

Certain and predictable application

- Develop contributions plans upfront as part of the zoning process (Rec 4.1)
- Introduce a direct land contribution (when rezoning land) for landowners to fund or provide land needed for public infrastructure (Rec 4.2)
- Enable landowners and developers to accurately estimate their contributions liability using a digital tool (Rec 6.1)

EFFICIENT

Creation of market signals to guide efficient development

- Reform the local government rate peg to account for population growth and ask IPART to review the essential works list to remove items that are not development-contingent (Recs 3.1 and 4.6)
- Cost reflective section 7.11 contributions based on efficient costs (Recs 4.6 and 4.7)
- Charge for new and upgraded water connections in Sydney Water and Hunter Water service areas (Rec 5.5)
- Adopt a biodiversity contributions plan with area-specific charges (Rec 5.4)

SIMPLE

Easy to understand with minimum administration costs

- Retain simplicity of section 7.12 contributions mechanism but with a higher maximum rate (Rec 4.11)
- Simplify contributions planning by:
 - adopting standard infrastructure costs and local contributions templates (Recs 4.5 and 4.8)
 - providing simple, clear and up-to-date guidance (Rec 6.3)
 - transitioning to digital tools (Rec 6.1)

TRANSPARENT

OpenNess and accountability for contributions collection and expenditure

- Require public reporting of all contributions collected and spent in the digital tool (Rec 6.1)
- Expenditure of State infrastructure contributions to be aligned with the budget process with priorities to be informed by the Department of Planning, Industry and Environment, and Infrastructure NSW (Rec 5.1)

CONSISTENT

Consistent and fair contributions, based on impactor pays and beneficiary pays principles

- Adopt consistent guidelines for exemptions and works-in-kind agreements (Recs 6.2 and 6.4)
- Restrict planning agreements to either out-of-sequence development or direct delivery of infrastructure (Recs 4.12, 4.13 and 5.2)
- Introduce low rate, broad based regional levies in Greater Sydney, Hunter, Central Coast, and Illawarra-Shoalhaven to fund growth infrastructure (Rec 4.2)

Source: NSW Productivity Commission.

The Government has accepted all 29 recommendations for reform of the NSW infrastructure contributions system. The Treasurer noted:

These important reforms will ensure communities across the State will have the services and facilities they need and is an example of the type of microeconomic reform that will boost productivity and make NSW an even more attractive place to live and invest.

Dominic Perrottet (NSW Government, 2021b).

There has been broad agreement among stakeholders that reform is overdue. Many called for prompt changes to be made to assist with the State's post-COVID-19 recovery.

These reforms, together with existing system improvements already underway, are designed to deliver on a key priority of the Government's 2019 planning reforms—fixing the uncertainty of infrastructure contributions.³³

Over the coming months, the Government will work through the Review's recommendations in line with

the implementation roadmap. The staggered implementation will allow the Government to realise some early benefits of reform while putting in place the foundations to support longer-term infrastructure investment.

It will take time to change legislation, develop and implement new policies, and improve existing systems. Several reforms can be implemented quickly, such as updating guidance on planning agreements. Others may require a more measured approach, such as the phasing-in of regional contributions and water connections. Gradual implementation will also give industry time to factor in material changes to development feasibility, and will allow infrastructure contributions to be factored into land values.

As part of implementation, there will need to be extensive stakeholder consultation to minimise any adverse short-term impacts on development. This is essential to maintaining stakeholder support for the reforms. That in turn, is critical to maximising the economic and fiscal payoffs of the package.

RECOMMENDATION 7.7: REFORM INFRASTRUCTURE CONTRIBUTIONS

Implement the 29 recommendations of the *Review of Infrastructure Contributions* to deliver a principles-based, transparent, and certain infrastructure contributions system.

³³ In 2020, DPIE exhibited a package of system improvements aimed at simplifying the planning system. Examples of reform include providing guidelines to improve the transparency of special infrastructure contributions (section 7.24) and negotiations for planning agreements (section 7.4).

08 | Smarter infrastructure will support jobs and communities



Recommendations

RECOMMENDATION 8.1: DELIVER HOUSING WHERE THERE IS TRANSPORT CAPACITY

Change planning controls to enable more housing and business activity within reasonable walking distance of transport hubs on underutilised corridors.

RECOMMENDATION 8.2: PUBLICLY JUSTIFY INFRASTRUCTURE SPENDING

Require Infrastructure NSW publish, within one week of agencies' announcement of Tier 1 and Tier 2 projects, Gate 0 Justification and Gate 1 Strategic reports (redacted only for information where it is in the public interest), including:

- strategic benefit cost ratios for all assessed options for meeting the identified service need
- clear justification in the event the option with the highest benefit cost ratio is not adopted as the preferred solution.

To further increase the transparency of spending priorities:

- Release Gate 2 Business Cases, redacted only for commercially sensitive information.
- Have Infrastructure NSW publish its five-yearly infrastructure plan, including a prioritised list of new and updated capital funding requests, at the time of the Budget.
- Justify in the Budget where investment decisions do not align with the Infrastructure NSW prioritised list.

RECOMMENDATION 8.3: MAKE EVALUATION A PRIORITY

Require business cases comply with the NSW Government Business Case Guidelines, including funding for post-implementation evaluation, when Cabinet makes its investment decision.

RECOMMENDATION 8.4: ADDRESS CONGESTION BY IMPROVING USE OF EXISTING INFRASTRUCTURE

As a first response, investigate a package of light-touch options to reduce congestion. This should include measures that promote good driving behavior, encourage off-peak travel and make targeted investments at specific congestion pinch points.

No later than three years following implementation comprehensively assess reductions in congestion and broader impacts on transport networks.

Contingent on evaluation of the package of light-touch interventions conduct a Gate 1 strategic assessment for cordon charging in the Sydney CBD and other congestion hotspots.

RECOMMENDATION 8.5: REVIEW OPAL FARES

Subject to IPART review, restructure Opal fares to reflect the cost of trips, including peak capacity and distance traveled. Simplify and re-target the concession system. Make fares more efficient and reflective of need:

- reduce the number of concession classes
- increase incentives for off-peak travel
- ensure that discounted fares target those who most need them.

8.1 Infrastructure underpins productive economies

Infrastructure enables economic activity. When governments choose to build and upgrade the right infrastructure, they can generate benefits that raise the productivity of the economy.

Productivity-enhancing infrastructure includes:

- **Roads, ports, and rail freight** services support the efficient movement of people and goods to markets, allowing firms to minimise transport costs.
- **Public transport** lets large numbers of people access high-productivity employment opportunities at activity centres.
- **Energy and water** are key inputs into almost all economic activity, and their efficient supply and delivery contains costs to business.
- A healthy and skilled workforce depends on social infrastructure, such as **schools, technical colleges, recreation facilities, and hospitals**.
- Well-located **housing** allows people to enjoy good lifestyles within a reasonable commute of their jobs.

Energy, water, human capital, and housing are discussed in other chapters of this White Paper. This chapter focuses on governance processes and transport infrastructure, which accounts for most of the Government's infrastructure program.

NEW SOUTH WALES IS INVESTING IN INFRASTRUCTURE TO MEET PROJECTED GROWTH

More than anything else, **population growth** drives the need for new infrastructure and the services it provides. Population projections before the COVID-19 pandemic suggested the NSW population could reach 10.6 million by 2041. Of those, 7.1 million would live in Greater Sydney (NSW Department of Planning Industry and Environment, 2019).

Impacts of COVID-19 immigration restrictions mean the State's population growth will ease over the next year or more. But later in the decade, population growth is expected to return to near previous levels. While this will ease the fiscal impact of ageing of the existing population, it will also add to service demand. It is essential that New South Wales continues to build and upgrade infrastructure for this larger and older population.¹

Leading sources of potential pressure include:

- **Rail** trips projected to double over the 20 years to 2038 (Infrastructure NSW, 2018).
- Strain on the **road** network will increase, with car trips forecast to rise by 30 per cent within the next 20 years (Infrastructure NSW, 2018).
- The school system will need 7,200 additional **classrooms** within the next 30 years (NSW Department of Education, 2017).

New South Wales has a significant infrastructure program, with around \$100 billion worth of projects in the pipeline.² Several major projects have been or are currently being delivered, including:

- Sydney Metro North West, City & Southwest, West, and Western Sydney Airport rail projects
- More Trains, More Services capacity enhancements to the Sydney Trains network
- light rail in Sydney, Newcastle, and Parramatta
- new and redeveloped hospitals at Northern Beaches, Rouse Hill, Ku-ring-Gai, Blacktown & Mount Druitt, Westmead, Campbelltown, Wagga Wagga, Dubbo, and Gosford
- the WestConnex and NorthConnex road projects.

¹ Even with expected levels of immigration, the State's age dependency ratio—the ratio of non-working-age people to working-age people—is now expected to be higher than was forecast in the 2016 NSW Intergenerational Report. This is due to falling fertility and rising life expectancy.

² This record investment has been enhanced by 'asset recycling'—the sale or lease of existing government assets to fund new infrastructure.

THE EXISTING STATE INFRASTRUCTURE STRATEGY PROVIDES A PATHWAY

The current 20-year State Infrastructure Strategy (SIS) identifies six goals for the whole-of government infrastructure program (Table 8.1)³

TABLE 8.1: GOALS OF THE STATE INFRASTRUCTURE STRATEGY	
SIS 2018-2038 STRATEGIC GOAL	CONNECTION TO PRODUCTIVITY GROWTH
Continuously improve the integration of land use and infrastructure planning.	Effectively linking land use and infrastructure planning brings workers closer to jobs and reduces the frictions associated with employment growth. Improved integration contributes to reduced costs through better coordination, staging, and sequencing.
Deliver infrastructure to maximise value for money.	Selecting the right projects and improving procurement maximises the overall benefits of public investment—including productivity, liveability, and sustainability.
Optimise the management, use, and performance of existing assets.	Building new assets to meet demand is not always feasible. New South Wales should make the most of existing assets to help alleviate infrastructure pressures.
Ensure existing and future infrastructure is resilient to natural hazards and human-related threats.	Natural disasters and other economic shocks can reduce services and production and increase costs to government of repairing and replacing assets.
Improve state-wide connectivity and realise the benefits of technology.	Digital connectivity and innovation can improve service quality and efficiency.
Provide high-quality consumer-centric services with innovative delivery models.	Effective regulation, a focus on customer needs, and consideration of the alternative ways of meeting these needs can drive competition, innovation, and productivity.

³ The current SIS was endorsed by the NSW Government in March 2018.

INFRASTRUCTURE POSES A BUDGETARY CHALLENGE

Several factors are pushing up the cost of providing infrastructure:

- Strong property price growth has **increased land acquisition costs**.
- Issues with the vocational education and training system have constrained the **supply of trades skills** for decades, pushing up labour costs (discussed in more detail in Chapter 3).
- **Limited numbers of contractors** able to compete for tenders.

While costs are rising, the Government's capacity for capital spending is falling. Measures needed to support the economy through the pandemic have pushed up government debt and raised interest costs. These additional outlays are widening the projected gap between medium term revenue and spending.⁴

To meet this challenge, the Government will need to plan and prioritise new projects as efficiently as possible and promote the best use of existing infrastructure.

POST-PANDEMIC INFRASTRUCTURE NEEDS MAY CHANGE THE PICTURE

COVID-19 will leave lasting marks on many aspects of NSW life. Past experience suggest fertility rates will drop, as periods of uncertainty tend to delay people's decisions to have children. Workers have worked remotely and some will continue to do so. The exact effects of the pandemic are uncertain, but this shock could have long-term implications for the State's infrastructure needs.

Working from home has been one of the most significant impacts of COVID-19. Spurring businesses to adopt more digital technology, the pandemic showed many workers they could forgo commuting and perform their duties at home. NSW Innovation and Productivity Council research highlights the extent of the shift towards remote working, its benefits, and the long-term effects on working life (see Box 8.1).

As restrictions are lifted, people are likely to incorporate some of these pandemic-era changes into their post-pandemic life. This presents the Government with new opportunities to use technology to deliver better community outcomes. For example:

- In the regions, distance often compromises service quality. COVID-19 has shown us that more government services can be provided at least partly online. Telehealth and online classrooms are notable examples.
- In cities, some change in public transport and road use patterns could prove permanent. This may lessen service demand and allow the Government to redirect funds to areas where they will deliver greater benefits. Alternatively, it could reduce pressure on the State's budget.
- The pandemic may spur increased acceptance of technology to improve the quality and efficiency of services, such as drivers license provision (see Box 8.2).

Despite the impact of COVID-19, and the growing role of technology, the need for new physical infrastructure will continue. The rest of this chapter explores how New South Wales can meet service demand and raise productivity in an increasingly uncertain demographic and economic environment.

⁴ The pre-COVID-19 potential for a gap between revenue and spending is set out in the NSW Intergenerational Report. (NSW Treasury, 2016)

⁵ The DDL is a multi-agency initiative, involving delivery teams from Service NSW, NSW Police, Roads and Maritime Services, and Liquor and Gaming NSW.

BOX 8.1: HOW COVID-19 HAS CHANGED THE WAY WE WORK

A survey of NSW remote workers conducted by the NSW Innovation and Productivity Council suggests the COVID-19 pandemic may have permanently changed the way we work.

The *NSW Remote Working Insights* report estimated that at the peak of the 2020 pandemic, 43 per cent of all work in New South Wales was performed remotely. After the pandemic, if workers continued to work in line with their stated preference, 30 per cent of all work in New South Wales could be performed remotely—a 67 per cent jump from pre-pandemic levels. NSW workers report benefits from remote working, including saving an average of one hour, 17 minutes of commuting time per day. On average, a 13 per cent improvement in productivity was reported.

Remote working has its challenges for many people, too. Respondents reported difficulty in collaborating and feelings of isolation. Moreover, 56 per cent of work in the NSW economy cannot be performed remotely.

As the impact of the pandemic eases, the most popular option among NSW workers is to work remotely for two or three days a week. That suggests a hybrid model could become more common. Hybrid remote working has the potential to combine the best of remote and on-site work.

Source: NSW Innovation and Productivity Council (2020).

BOX 8.2: DIGITAL DRIVERS LICENSES

The Digital Drivers License (DDL) is a NSW Government initiative to make life easier for NSW drivers and those they deal with. The Government aims to conduct at least 70 per cent of driver's license transactions digitally.

The DDL provides proof of authority and identity through the Service NSW mobile application. More than six million NSW citizens are potential DDL 'holders'. 'Checkers' include NSW Police, government agencies, licensed venues, Australia Post, and banks.

The Government developed a 'beta' product and ran a pilot in the Dubbo region with 1,400 participants.⁵ Police, pubs, and liquor stores accepted the digital license from the start. Registered clubs, Service NSW service centres, and car rental companies in the Dubbo region then joined the pilot.

DDL rolled out across the State in October 2019. Some 1.3 million users adopted it in the first three months.

8.2 Better integrating land use and infrastructure

The Greater Sydney Region Plan, *A Metropolis of Three Cities*, adopts a polycentric 'Three Cities' vision for most growth to be accommodated in Western Sydney and with residents living within 30 minutes of jobs (Greater Sydney Commission, 2018). Making this a reality will require substantial public investment, particularly in and around Parramatta and Western Sydney Airport.

The three centres would be:

1. the 'Eastern Harbour City', centred on the Sydney CBD
2. the 'Central River City', with Parramatta as its focus
3. the planned Western Sydney Aerotropolis.

Where rapid growth is anticipated, public infrastructure must strike a tricky balance. Projects are built based on projections about future demand, yet delivery is often commenced before that demand appears. The wrong judgments can either waste public funds on unused capacity or leave productive areas without the facilities they need.

Infrastructure proposals should also be assessed on their contribution to non-market outcomes, such as impacts on the natural and built environment. Open spaces, sporting facilities, cultural institutions and entertainment precincts can improve quality of life and, therefore, workplace productivity. Similarly, environmental outcomes are maximised when projects preserve biodiversity, minimise pollution and greenhouse gas emissions, and use natural resources sustainably.

Since governments have limited funds to spend, projects must be strategically prioritised and selected according to key principles, such as:

- increasing housing within reasonable commuting distance of the Global Economic Corridor and other highly productive centres of economic activity⁶
- maximising the use of existing infrastructure before embarking on new projects.

TIMELY AND COORDINATED INFRASTRUCTURE DELIVERY CAN REDUCE RESISTANCE TO GROWTH

Existing communities may resist accommodating growth, for reasons discussed in Chapter 7. Some worry about losing environmental amenity from denser urban environments. Others are influenced by the natural human psychological resistance to change.

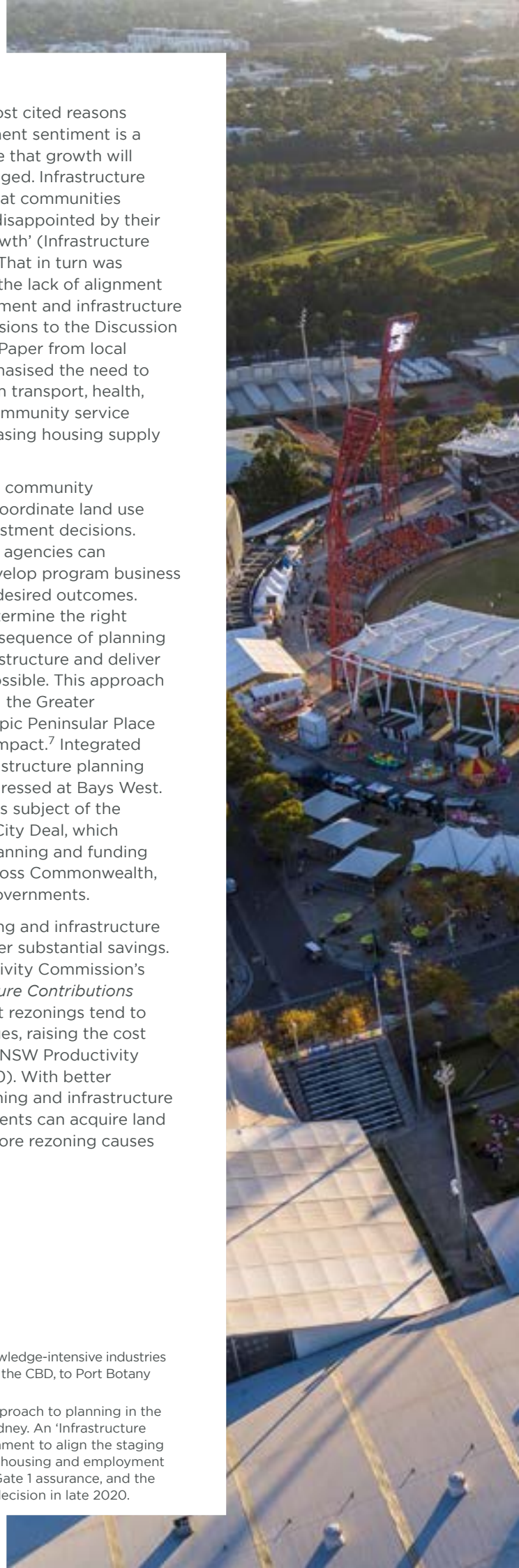
But one of the most cited reasons for anti-development sentiment is a lack of confidence that growth will be properly managed. Infrastructure Australia found that communities are ‘increasingly disappointed by their experience of growth’ (Infrastructure Australia, 2018c). That in turn was largely driven by the lack of alignment between development and infrastructure provision. Submissions to the Discussion Paper and Green Paper from local government emphasised the need to maintain minimum transport, health, education, and community service levels when increasing housing supply and density.

One way to boost community confidence is to coordinate land use planning and investment decisions. For a given place, agencies can collaborate to develop program business cases to achieve desired outcomes. They can then determine the right combination and sequence of planning controls and infrastructure and deliver it as quickly as possible. This approach is being piloted in the Greater Parramatta–Olympic Peninsular Place Infrastructure Compact.⁷ Integrated land use and infrastructure planning is also being progressed at Bays West. The Aerotropolis is subject of the Western Sydney City Deal, which will coordinate planning and funding arrangements across Commonwealth, state, and local governments.

Integrated planning and infrastructure delivery can deliver substantial savings. The NSW Productivity Commission’s recent *Infrastructure Contributions Review* found that rezonings tend to increase land values, raising the cost of infrastructure (NSW Productivity Commission, 2020). With better coordinated planning and infrastructure delivery, governments can acquire land more cheaply before rezoning causes prices to rise.

⁶ The Global Economic Corridor is a concentration of high productivity, knowledge-intensive industries running in an arc from Macquarie Park through Chatswood, North Sydney, the CBD, to Port Botany and Sydney Airport.

⁷ The Government has piloted a ‘Place-based Infrastructure Compact’ approach to planning in the GOPP – an area encompassing 26 precincts in the centre of Greater Sydney. An ‘Infrastructure Compact’ brings together service delivery agencies from across government to align the staging and sequencing of infrastructure and other service delivery with future housing and employment growth. The GOPP Strategic Business Case is currently going through Gate 1 assurance, and the project is expected to be presented to Government for an investment decision in late 2020.



USING EXISTING AND PLANNED INFRASTRUCTURE TO BRING HOMES CLOSER TO JOBS

Chapter 7 outlined the downturn in housing approvals, commencements, and completions since the brief boom 2017-19 and the risk this presents to economy-wide productivity. The Government should draw on learnings from the GPOP Infrastructure Compact pilot and other integrated planning initiatives. It should identify new areas where growth and investment are most likely to lift the productivity of the city.

The existing transport network holds opportunities to foster growth near the Global Economic Corridor. The T4 Eastern Suburbs Line, opened in 1979, is unique to the Sydney Trains network, running at substantial spare capacity in the morning peak. This area has high development potential given its proximity to jobs, social networks, and the environmental amenity of Sydney Harbour and the eastern beaches.

Sydney Metro will provide further opportunities for growth once the City & Southwest section is complete in 2024. The Bankstown to Sydenham corridor is already the subject of an urban renewal strategy. Commencement of services will also induce significant switching from Sydney Trains, particularly at Chatswood and North Sydney. This will provide substantial capacity relief to the existing T1 North Shore Line, opening urban renewal opportunity as far north as Hornsby. Growth in housing along the Metro Northwest line has fallen short of expectations. Developers have attributed this lack of activity to restrictions on housing density, reducing the development potential of many sites (Razaghi, 2019).

Greater development along existing transport corridors would bring substantial benefits. Building more housing close to high-productivity jobs would increase the labour supply for businesses. Households would gain shorter and less crowded commutes, both on roads and in the public transport system. This would make the city a better and less costly place to live. At the same time, the taxpayer would save by delaying or avoiding the substantial cost of building new transport infrastructure. It would also take pressure off the Government's fiscal position.

To realise these benefits, the NSW Government should:

- Identify spare capacity along existing and planned corridors and ensure that land use planning reflects this capacity⁸
- Review Local Strategic Planning Statements to ensure they:
 - are in line with current housing targets
 - make the greatest possible use of existing infrastructure capacity.
- For rail corridors such as the Eastern Suburbs Line, focus on allowing growth within 'reasonable walking distance' of stations (widely accepted as around 800 metres) and along cyclist routes.

Increased development will inevitably face some opposition. But well-planned growth can maximise the benefits to the NSW community while retaining the confidence of existing residents.

RECOMMENDATION 8.1: DELIVER MORE HOUSING WHERE THERE IS TRANSPORT CAPACITY

Change planning controls to enable more housing and business activity within reasonable walking distance of transport hubs on underutilised corridors.

8 This distance is cited in existing Transport for NSW literature (Transport for NSW, 2013a).

8.3 | Delivering infrastructure to maximise value for money

RIGOROUS AND TRANSPARENT DECISION-MAKING YIELDS BETTER VALUE FOR THE COMMUNITY

Infrastructure investment decisions are among the most expensive decisions governments make. Yet this area has significant scope for improvement.

- The Commonwealth Productivity Commission's 2014 Public Infrastructure Inquiry found that governments are 'sometimes weak at determining what, where and when infrastructure projects should be scoped and constructed'. It cited poor processes for both assessing and developing infrastructure (Commonwealth Productivity Commission, 2014). Moreover, it identified improving infrastructure decision-making as a priority in its five-year productivity review, *Shifting the Dial* (Commonwealth Productivity Commission, 2017).
- Infrastructure Australia found that 'improvements in long-term planning, project appraisal and project selection are necessary if Australians' infrastructure expectations are to be realised' (Infrastructure Australia, 2016).
- It also continues to motivate a program of work at the Grattan Institute.

Selecting the right projects is fundamental to getting the most out of infrastructure investment. But instances of weak governance and poor project selection still occur (Infrastructure Australia, 2016). Policymakers use an economic framework called cost benefit analysis (CBA) to quantify, as accurately as they can, the market, social, and environmental impacts of a project.¹⁰

Net benefit, as estimated through CBA, does not perfectly align to productivity as measured by National Accounts data. Benefits of conservation, for example, could be estimated either through state preference surveys or revealed preference analysis. For economic infrastructure, however, net benefit and productivity improvement largely align. Benefits of a freight transport improvements, for example, are dominated by travel time savings for businesses. This translates into cost savings for a given level of output.

But like any analytical tool, CBA can be misused. The Commonwealth Productivity Commission highlights three common challenges:

- countering **optimism bias**—where benefits tend to be overestimated and costs underestimated
- treatment of **risk and uncertainty**
- use of **'wider economic benefits'** that are conceptually dubious.

When these challenges are managed carefully, CBA provides a rigorous estimate of the value proposition of a project. Consistently applied, CBA also provides a means of comparing and prioritising projects within a limited capital budget. There may be other reasons for choosing projects (for example, equity), but robust CBA should be the starting point.

Institutional and governance arrangements for the provision of much of Australia's public infrastructure are deficient and are a major contributor to unsatisfactory outcomes.

COMMONWEALTH
PRODUCTIVITY
COMMISSION⁹

There is no substitute for rigorous and transparent cost benefit analysis.

PHILIP LOWE,
GOVERNOR, RESERVE
BANK OF AUSTRALIA
(LOWE, 2013)

⁹ See Finding 7.1 in the Commonwealth Productivity Commission's final report.

¹⁰ Cost benefit produces an estimate of a project's net economic benefit, called 'net present value' (NPV), calculated as the present value of benefits less the present value of costs. Alternatively the benefit cost ratio (BCR) is the ratio of the present value of benefits to the present value of costs.

A focus on non-financial metrics puts emphasis on practical changes which can improve the user experience. Indeed, some of the most practical improvements do not necessarily come with significant costs. For example, changes in road rules (such as lane filtering) can support greater flow of traffic.

BUSINESS NSW SUBMISSION

Stakeholders have consistently expressed concern about infrastructure prioritisation. They perceive bias towards pursuing large, high-risk new projects over more cost-effective solutions and smaller projects with higher benefit cost ratios and less risk.¹¹ Small investments tend to offer higher estimates of net benefits for a number of reasons:

- they are less capital intensive and can be delivered in less time
- by concentrating works in confined spaces, they have lower risk profiles
- they tend to address specific areas of stress, helping a larger existing system work better.

Some illustrative examples include:

- Upgrading ‘pinch points’ to ease congestion in the road network, rather than building new roads.
- Improving signaling and adding services to ease crowding of the rail network, rather than building new train lines.
- Promoting preventative care to combat chronic disease, rather than building new hospitals.

The bias toward large projects has been attributed to a desire to capture the imagination and attention of the public (the ‘ribbon cutting’ appeal), and a systematic bias in Commonwealth Government funding (Bowditch, 2016).

In submissions, some stakeholders welcomed the NSW Government’s move to ‘outcome budgeting’ as a way of shifting the focus towards maximising community benefit.¹²

RESISTING PREMATURE ANNOUNCEMENTS

Another common criticism of government decision-making is that projects are often announced before adequate planning or consideration of lower cost options.

Governments in Australia and overseas have generally shifted over time towards more rigorous governance processes. These processes involve:

- substantiating a **service need**
- identifying the **most valuable option**
- ensuring that project **costs are proportionate** to project benefits
- managing the **risks**.

In New South Wales, projects are subject to the Infrastructure Investor Assurance Framework, managed by Infrastructure NSW. Proposals are categorised into one of four ‘Tiers’ and pass through a series of ‘Gates’, depending on their size and risk profile, involving independent assurance reviews (see Table 8.2). But assurance does not constrain investment decisions or announcements.¹³

Assurance is designed to improve the quality of proposals and serves as an input into Government investment decisions. Project badged ‘Tier 1-High Profile, High Risk’ are required to pass through all seven Gates. Depending on risk factors, project may also be subject to ‘Health Checks’ to assure government issues that arise between Gates are being effectively managed.

¹¹ A number of submissions to the Commonwealth Productivity Commission’s 2014 Public Infrastructure Review raised this point: the Bus Industry Confederation (Bus Industry Confederation, 2013), Henry Ergas (Ergas, 2014), Association of Superannuation Funds of Australia (Association of Superannuation Funds of Australia, 2014).

¹² Outcome budgeting recognises that the allocation of public resources should be based on the outcome achieved for people, not the amount spent or the volume of services delivered, and budget decisions should be made on that basis. (NSW Treasury, 2018b).

¹³ The Infrastructure Investor Assurance Framework is the means by which the NSW Government’s Gateway Policy is applied to infrastructure. The Framework aims to provide Government, as the investor, with confidence that the State’s infrastructure program is being effectively developed, monitored, and delivered.

To counteract this risk, the Government should require that Gate 0 Justification and Gate 1 Strategic reviews are completed before projects are announced. Greater scrutiny of the rationale for projects and selection of alternate options also needs to be enforced.

Despite improved planning processes, governments continue to announce projects before planning and prioritisation. This may damage the public interest because it risks committing governments to lower-value or higher-risk projects. In a study of cost overruns in transport projects, the Grattan Institute found that of the projects surveyed, a third had been announced before a budget commitment. Most problems are caused by a relatively small number of projects. Grattan found that 90 per cent of Australia's cost overrun problem is explained by 17 per cent of projects that exceed their promised cost by more than half (Terrill, 2016).

STRONGER PROCESSES FOR INFRASTRUCTURE INVESTMENT WILL BUILD COMMUNITY CONFIDENCE

The NSW Government has made significant improvements to its infrastructure governance processes in recent years. Examples include:

- The Infrastructure Investor Assurance Framework.
- The Department of Customer Service administers an ICT Investor Assurance Framework.
- A new asset management policy helps agencies to realise value from their existing and planned assets.
- Infrastructure NSW publishes business case summaries for large projects.
- Governance arrangements have been imposed for projects funded through Restart NSW (see Box 8.3).

The commitment to outcome budgeting represents a major step forward in reassuring the community of the Government's commitment to sound resource allocation. This is even more important now that New South Wales is in a more constrained post-pandemic fiscal position. Another significant step is the creation of an Evidence Bank to assist in the evaluation of past infrastructure spending and assessment of new projects.

BOX 8.3: RESTART NSW

Restart NSW was established pursuant to the *Restart NSW Fund Act 2011* for the purpose of promoting economic growth and productivity.

One innovative aspect of Restart NSW is its governance arrangements. Funds are held in a special deposit account within Crown Finance Entity. The Act requires a formal recommendation to fund a project from Infrastructure NSW to the Minister responsible for the fund. The Treasurer has been designated the responsible minister and authorises payments subject to agreed milestones.

Infrastructure NSW has adopted three criteria for making a recommendation:

- **strategic fit** with Restart NSW objectives and NSW Government policy
- **completed investor assurance** processes including, for projects of sufficient size, Gate 2 Business Case Review
- **economic merit** demonstrated by a benefit cost ratio greater than one ($BCR \geq 1.0$).

There are opportunities to improve project planning and capital prioritisation further, including for Restart NSW.



A related problem is that premature announcements create a powerful incentive to ensure that business cases completed after the announcement provide support for the announced project. Desirably, there would be more independent analysis to carefully scrutinise projected costs and benefits. In our experience, reports commissioned by government have a strong tendency to support these prior announcements.

APPLIED ECONOMICS SUBMISSION

TABLE 8.2: SUBJECTING INFRASTRUCTURE PROPOSALS TO SCRUTINY

GATE	GATEWAY REVIEW	KEY QUESTION
0	Go / no go (Justification)	Has the project demonstrated a clear service need?
1	Strategic options	How well has the project analysed a range of options to meet the service need and maximise benefits at optimal cost?
2	Business case	How well has the project proven that the preferred option best meets the service need and maximises benefits at optimal cost?
3	Readiness for market	How well has the project developed a procurement and delivery approach to realise the benefits outlined in the final business case?
4	Tender evaluation	Is a scope being procured that will deliver the benefits outlined in the final business case and is the project ready to proceed to delivery?
5	Readiness for service	How well has the project delivery team and asset owner and/or operator planned a handover that will ensure the benefits outlined in the final business case are achieved?
6	Benefits realisation	How well have the benefits outlined in the final business case been realised and what lessons can be learnt from this?

Source: Infrastructure NSW.

Transparency can improve decision-making

There are further steps that could be taken to improve governance and processes surrounding infrastructure decision-making and delivery. Several submissions highlighted the need for greater transparency:

Infrastructure Australia and the Commonwealth Productivity Commission have argued for a more transparent approach to decision-making (Infrastructure Australia, 2018b; Commonwealth Productivity Commission, 2014). They recommend:

- public release of the analysis supporting infrastructure decisions
- processes to ensure all available options—including better use of current infrastructure—are considered before decisions are taken.

Increased transparency can address some of the common weaknesses with infrastructure decision-making. It strengthens the incentive for governments to choose projects that are expected to realise higher benefits for the community. It also creates the incentive to go through the proper planning processes, including identifying alternative solutions, and to prepare strong business cases before committing to undertaking projects. Opening the analysis up to public scrutiny can also bring the taxpayers in on the decision-making process.

The NSW Government has improved the transparency of investment decisions for large projects in recent years. For projects over \$100 million, Infrastructure NSW releases business case summaries within 120 days of final investment decisions that provide:

- high-level information on the range of options considered in making an investment decision
- the types of benefits and costs considered in the cost benefit analysis for the selected option
- an assessment by Infrastructure NSW.

The Government can further improve the investment process. The high-level information in the Infrastructure NSW business case summaries is very useful for communication purposes. But it does not provide sufficient information for a third party to assess the quality of the analysis or the merits of the project.

Benefits of public infrastructure projects are generally broader and harder to quantify than costs. Currently, business case summaries list the high-level benefits and the estimated total value of those benefits to society, but do not detail the assumptions underlying those estimates. The likelihood of the purported benefits being realised is therefore difficult to assess.

Further, the delay of releasing the business case summary up to 120 days after an investment decision does not allow for public contribution to a debate over solutions to problems.

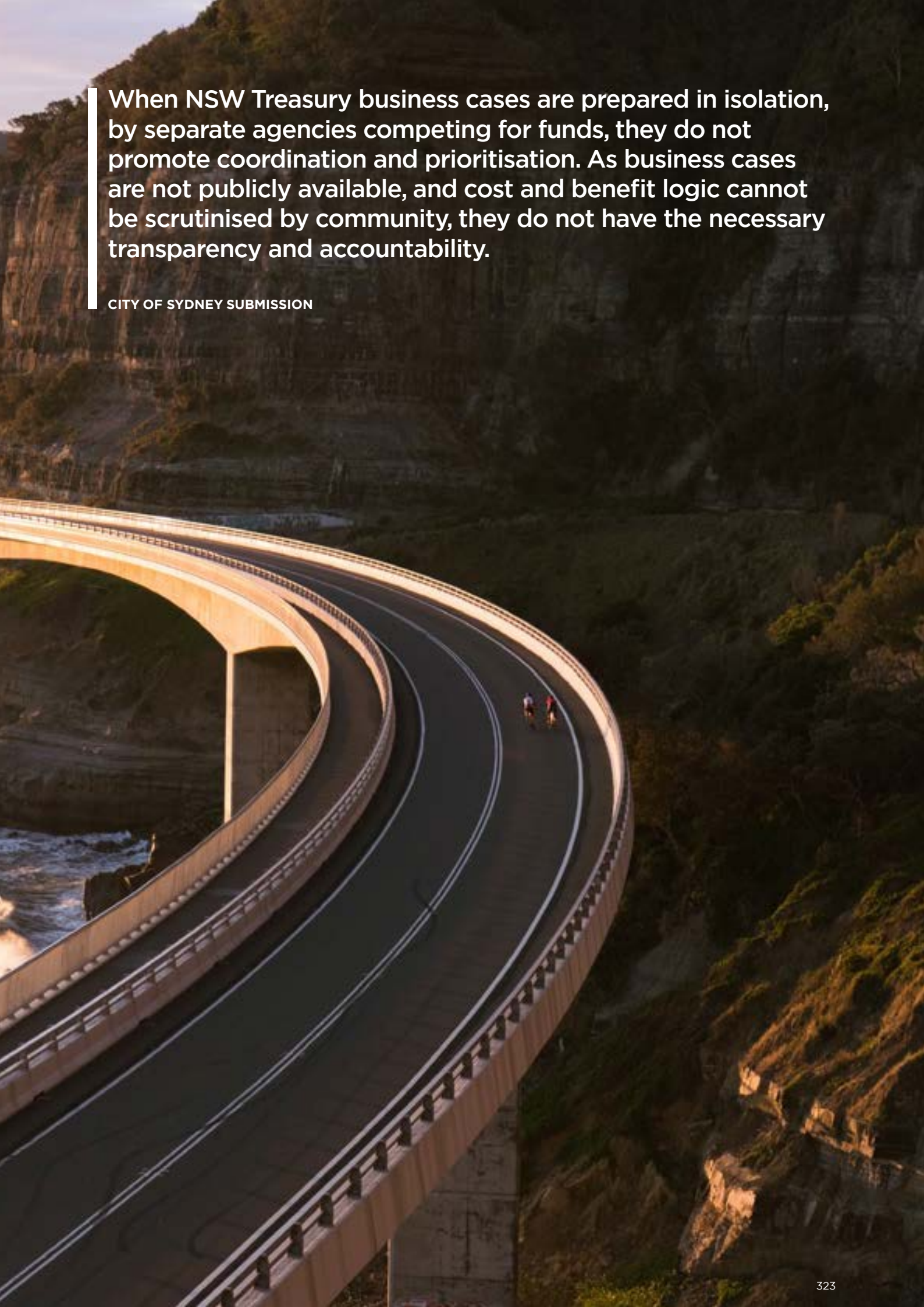
A common reason given for not releasing business cases in full is that publishing cost estimates might 'set a floor' when negotiating construction costs with contractors. The Commonwealth Productivity Commission found that this concern was unlikely to affect contractor bids if the process was sufficiently competitive. It also found that any risk of reduced bargaining power was likely outweighed by the benefits (Commonwealth Productivity Commission, 2014). Further, it found greater disclosure might be beneficial to the tendering process, since

- disclosure would reduce bidding costs, which would lower barriers to entry
- increased accuracy of bids would make it easier to select the best proponent.



When NSW Treasury business cases are prepared in isolation, by separate agencies competing for funds, they do not promote coordination and prioritisation. As business cases are not publicly available, and cost and benefit logic cannot be scrutinised by community, they do not have the necessary transparency and accountability.

CITY OF SYDNEY SUBMISSION



Other jurisdictions have successfully transitioned to more transparent decision-making. The New Zealand Government, for example, routinely publishes project business cases, along with other Cabinet documents, redacting sensitive information where this is in the public interest.

Infrastructure NSW is the agency best positioned to manage transparent release of information on capital projects given its responsibility for assurance. It should be required to publish Gate 0 Justification and Gate 1 Strategic reports and assurance reviews for large projects ('Tier 1 High-Profile High-Risk' and 'Tier 2'),¹⁴ redacting sensitive information as required. These documents should be made public within one week of a project's announcement and before final investment decisions are made.

At minimum, published documents should include cost benefit analysis results for assessed options. Benefit cost ratios could be rated in a way similar to the value for money rating used for transport projects in the United Kingdom, detailed in Table 8.3.

Another complementary step would be to improve transparency in coordinating project prioritisation across the Government. In preparation for the 2018-19 Budget, the Government conducted a new prioritisation process to assess and rank all projects costing more than \$10 million that are likely to be considered in the next ten years. Infrastructure NSW is also required by law to advise the Government each year on the specific major infrastructure projects to be undertaken as a priority in the next five years.

Greater transparency would substantially improve the value of the prioritisation process. Infrastructure NSW's priority assessments are currently only produced for internal use in building the Budget. Publicly releasing these priorities would further strengthen the incentive to make evidence-based investment decisions.

TABLE 8.3: TRANSLATING BENEFIT COST RATIOS INTO RATINGS

0-1.0	Poor. The benefits of this project are not expected to outweigh the costs.
1-1.5	Low. The benefits of this project are estimated to be marginally higher than the costs, especially once the excess burden of raising the taxes is accounted for. Higher-value alternatives should be considered where possible.
1.5-2.0	Moderate
2.0-4.0	High
>4.0	Very high

Source: NSW Treasury, UK Government (UK Department for Transport, 2013).

¹⁴ Tiers are Infrastructure NSW ratings based on risk profile and project size. Tier 1 captures the largest and highest risk projects. Tier 2 includes lower-risk projects over \$1 billion, but also higher-risk projects as small as \$10 million. Gate 1 and 2 reviews are not required for projects below Tier 2. See Infrastructure NSW (2016).

Business NSW would also like to see post-implementation evaluations published routinely, and not only for the highest cost projects. Understanding the efficiency of delivery and the realised benefits of smaller scale projects — such as those funded by Restart NSW — would be useful to better meet the needs of regional and rural NSW.

BUSINESS NSW

Finding value in evaluation

Good infrastructure investment does not finish with the delivery of a project. Projects need to be evaluated with the benefit of hindsight—known as post-implementation review—to:

- assess whether the anticipated benefits were realised
- identify lessons to be learnt from the project, both positive and negative.

More systematic evaluation would create ongoing improvement in infrastructure planning and delivery. Costs and benefits associated with projects always have some risk and uncertainty at the outset. Monitoring and reporting against promised outcomes can be used to identify systematic errors and improve forecasts of costs and benefits in future projects.

The Government has put performance monitoring at the centre of its move to outcome budgeting (NSW Treasury, 2018a). The Government should similarly strengthen its focus on the cost-effectiveness of its programs and projects. Evaluating completed infrastructure projects would help achieve this aim.

The Government has recently taken steps to ensure that monitoring and evaluation are considered in the planning of new projects. Specifically, Treasury guidelines require that business cases for capital projects and recurrent programs include a benefits realisation plan and post-implementation review (NSW Treasury, 2018a).

Evaluation is still maturing and needs to be more widely embedded in the project planning and delivery process. There is some evidence that monitoring is insufficient even for Tier 1 High-Profile High-Risk projects. For example, the Audit Office of New South Wales' performance audit of Sydney Light Rail found Transport for NSW had not consistently and accurately updated delivery costs (Audit Office of New South Wales, 2020).

If post-implementation review is not planned or budgeted for, it probably will not be considered a priority. So is important that planning for evaluation starts at the business case stage, and that funding be explicitly included in the budget.

RECOMMENDATION 8.2: PUBLICLY JUSTIFY INFRASTRUCTURE SPENDING

Require Infrastructure NSW publish, within one week of agencies' announcement of Tier 1 and Tier 2 projects, Gate 0 Justification and Gate 1 Strategic reports (redacted only for information where it is in the public interest), including:

- strategic benefit cost ratios for all assessed options for meeting the identified service need
- clear justification in the event the option with the highest benefit cost ratio is not adopted as the preferred solution.

To further increase the transparency of spending priorities:

- Release Gate 2 Business Cases, redacted only for commercially sensitive information.
- Have Infrastructure NSW publish its five-yearly infrastructure plan, including a prioritised list of new and updated capital funding requests, at the time of the Budget.
- Justify in the Budget where investment decisions do not align with the Infrastructure NSW prioritised list.

RECOMMENDATION 8.3: MAKE EVALUATION A PRIORITY

Require business cases comply with the NSW Government Business Case Guidelines, including funding for post-implementation review, when Cabinet makes its investment decision.

8.4 Smarter use of existing infrastructure can ease congestion on roads and crowding on public transport

Congestion on roads and crowding on public transport is an increasing problem in Sydney. It causes stress, lost time, and other adverse impacts, cutting our productivity and lowering our quality of life.

Building large-scale infrastructure such as new train lines and roads is not always the best way to address the issue. Smaller projects, such as incremental upgrades and better demand management, can provide substantial relief while being more cost-effective.

With the major disruptions to routines caused by COVID-19 (as well as a tighter fiscal position), it is timely for government to consider new strategies to improve the capacity and efficiency of the transport system. Changes left by the pandemic (such as the flexibility to work remotely) means that we do not have to return to the crippling levels of congestion that Sydney has experienced over the past decade.

In approaching transport reform, the Government should take a 'whole-of-network' approach, which collectively considers the use of the roads and public transport networks. One network should not function at the expense of the other. Optimal use of all transport assets will best contribute to liveability and productivity of the State.

WE CANNOT BUILD OUR WAY OUT OF ROAD CONGESTION

Road congestion drags down productivity and hurts the economy. Infrastructure Australia estimates that the annualised cost of congestion in Sydney will rise from \$6.6 billion in 2016 to \$13.1 billion in 2031 (Infrastructure Australia, 2019). Most of this is the cost of time that motorists lose in traffic delays. Other costs of congestion include the increasing travel time uncertainty and higher fuel consumption (BITRE, 2015). Air and noise pollution and carbon dioxide emissions also impose environmental costs. Worsening congestion will compromise Sydney's liveability and reduce incentives for businesses and households to locate there.

A number of major road projects have recently been delivered or are currently underway. These projects support growth of the city and the associated freight and commuting task. They will also provide congestion relief at major bottlenecks. Examples include WestConnex Stages 1, 2 and 3 and NorthConnex.

New roads can generate substantial benefits but also have downsides: they cost a lot and disrupt communities while being built. Physical constraints and increasing land values limit the extent Sydney's road network can be expanded and upgraded.

For these reasons, recent major road projects in Sydney have involved substantial and expensive tunneling.

While building new roads can increase capacity, it frequently does not lead to sustained congestion alleviation. The additional capacity provided by a new road makes it a more attractive option, drawing commuters from other routes, other times of the day and alternative modes of travel (known as ‘triple convergence’). The induced demand increases traffic volumes until the new road becomes congested at a higher traffic volume. Significant construction costs also draw focus and funding away from other solutions (like active transport investments) that deliver more cost effective and sustained congestion relief.

Looking beyond new road projects

In coming years the Government will need to look beyond new road projects to address congestion. Section 8.2 above outlines how better coordination of land use planning and infrastructure delivery allows people to live closer to their jobs and public transport.

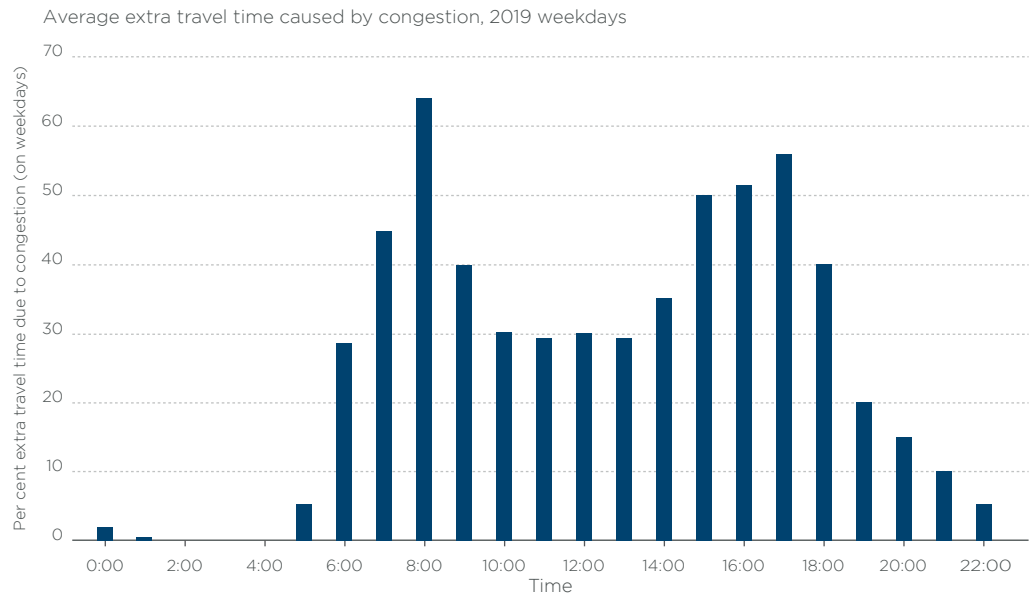
Improved planning can be combined with other cost effective measures to improve use of existing infrastructure and reduce the need for new roads. This can be achieved by policies that better manage demand for roads and stave off excessive pressure at peak times.

A substantial amount of congestion arises in two peak periods in typical weekday traffic:

- the **morning peak** between 6am and 9:30am
- the **afternoon peak** between 3pm and 7pm.

Traffic generally flows more freely between peaks, although some bottlenecks arise where, for example, there is insufficient road capacity or ongoing construction work. Figure 8.1 shows Sydney’s average 2019 weekday level of congestion (TomTom International, 2020). Mild congestion also tends to occur on Saturdays, as many people run errands or take part in leisure activities.

FIGURE 8.1: WEEKDAY DEMAND FOR ROADS SHOW TWO CLEAR PEAKS



Source: TomTom Sydney Traffic Index (2020).

Congestion is also highly location-specific. Some roads are never congested. Others are regularly at or above capacity during peak periods.

Examples include:

- in and around **employment precincts**, which attract high commuter volumes owing to the concentration of jobs (e.g. Sydney CBD)
- in and around **freight precincts** (such as Sydney Airport and Port Botany), which attract large commercial vehicles
- where **natural barriers** limit capacity (for instance, at The Spit Bridge, Gladesville Bridge, and the Georges River crossings).

These contributing factors collide in the Global Economic Corridor, with particular impacts for the CBD. Infrastructure Australia analysis shows that roads in and around the Sydney CBD rank among the most congested roads nationwide (Infrastructure Australia, 2019). Around 8,000 drivers per square kilometre converge on the CBD every day, compared with fewer than 3,000 for precincts such as Macquarie Park and Parramatta (Terrill, 2019b). The 2019 TomTom Traffic Index for Sydney reported that for every 30 minutes on the road, motorists lost 19 minutes in the morning rush hour period, and 17 minutes in the evening (TomTom International, 2020).

Motorists' habits affect the traffic flow

Individual motorists influence the road network far more significantly in peak hours. When car volumes are high, even minor disruptions to traffic flow can trigger delays across the entire length of the road. A single driver braking, slowing down at merge points, or distracted by children or mobile phones can slow traffic for surprising distances.

Changing motorists' behaviour can therefore improve traffic speed at much lower cost than new infrastructure. Enforcing road rules (such as those restricting mobile phone use) has a high payoff. In other jurisdictions, public awareness campaigns have been aimed at improving drivers' habits, particularly during peak times. Such campaigns have shown they can improve traffic speeds without any infrastructure spending at all.

For instance, the US State of Minnesota took action after seeing road congestion as drivers hesitated around merging points. The Minnesota Department of Transportation was the first US state to publicly promote the 'zipper merge', a merging technique that reduced traffic slowdowns.¹⁵ This has seen reductions in the length of traffic backup estimated at up to 40 per cent.

Other good driving habits that are less thoroughly explored but have the potential to promote better traffic flow include:

- keeping left unless overtaking
- avoiding unnecessary lane changes
- maintaining an appropriate distance with the car in-front (that is, not tail-gating)
- not queuing across intersections.

Many of these good driving habits are reflected in the NSW road rules. Yet they appear neither widely adhered to nor strictly enforced (though enforcement in congested traffic is difficult). A government-backed campaign or educational program promoting these behaviours could significantly improve traffic flow without capital expenditure. These behaviours also improve the safety of our roads, decreasing the likelihood of accidents and other incidents that slow down traffic flow. Motorists are more likely to adopt these habits if their benefits are both articulated and endorsed by government.

¹⁵ Promotional material channelled through the mass media showed that merging at the last possible moment (known as the 'zipper merge') was the best way to approach a merge point in heavy traffic. This is counter to the conventional wisdom of merging in free-flowing conditions, where merging as early as possible is the norm (Minnesota Department of Transportation, 2020).

Influencing travel behaviour and choices can reduce peak volumes

People do not demand use of the roads for the sake of it. Rather, people drive because they need to travel to work, school and other places, usually at a specific time.

Congestion occurs because too many people use the roads at the same time. It is no coincidence that peak congestion times reflect standard business and school hours. At these times, roads are dominated by commuters going to and from work, and by parents doing the school run. Ultimately, however, the costs of congestion are borne by the entire community.

Authorities can reduce congestion by targeting the demand for road use 'at source'—that is, altering people's need to travel at a particular time. Since the outbreak of COVID-19, workers and students have demonstrated increased flexibility in their travel behaviour. Many have even re-assessed the need to use the roads at all—most obviously, by working at home.

Case studies show how government can work with employers to shift the times at which workers need to travel as described in Box 8.4.

This strategy demonstrates that non-invasive interventions can change travel behaviour and deliver substantial congestion relief, without spending on large infrastructure projects. With increased appetite for flexibility and change, government should explore greater collaboration with schools, businesses, and other organisations to shift expectations around travel behaviour and promote road use that avoids congestion.

BOX 8.4: CREATING MORE TRAVEL CHOICES BY WORKING WITH EMPLOYERS

Promoting flexible travel arrangements can reduce road congestion. This was demonstrated in 2018 during the partial and temporary closure of the North Shore Line to allow construction of Sydney Metro Northwest. Stations between Chatswood and Epping closed, disrupting travel routines for thousands of workers at Macquarie Park. A major aim (and outcome) of the program was to stave off excessive congestion caused by rail replacement buses during peak hour.

Under the Travel Choices program, Transport for NSW was able to work alongside major employers to develop travel action plans based on the 4R principles—'remote, reduce, re-time, and reroute'. They then used a media campaign to promote initiatives including:

- flexible working policies (for instance, to encourage remote working)
- staggered commuting times, with meetings arranged outside peak periods
- enabling remote working infrastructure
- installation of bike racks to promote alternative transport modes
- reviews of car parking policies.

An evaluation of the program found that although car use in the precinct had marginally increased (by 3 per cent), drivers re-timed their travel to avoid morning and afternoon peaks. In addition, a 6 per cent decrease in average weekly visitations to the precinct during the closure period suggested people had taken up remote working. The program also helped organisations prepare for the rapid transition to remote working during the COVID-19 pandemic.

Source: Transport for NSW.

Targeted upgrades at problem locations have substantial payoffs

Public investment need not be on the scale of a new road. Solutions that target specific areas of congestion offer high overall economic benefits compared to new projects. By directly addressing problematic sites, targeted solutions can significantly relieve congestion at low cost. For example, Victoria's implementation of ramp metering—restricting the flow of cars merging onto a highway—raised traffic capacity by 23 per cent on the Monash Freeway. When combined with variable speed limits, this has substantially improved traffic flow.

Examples of cost effective approaches are being rolled out under the 'Easing Sydney's Congestion' program by Transport for NSW (Box 8.5).

'Active transport' infrastructure has benefits beyond reducing congestion

Cars and public transport are not the only way to get to work, especially for those living closer to the workplace. Because it takes up little space, non-motorised or 'active' transport—walking and cycling—effectively creates space on roads and reduces the load on public transport. On Census day in 2016, 5 per cent of NSW workers cycled or walked the whole way to their workplaces. And since the beginning of the pandemic, City of Sydney reports bicycle ridership has increased by more than 50 per cent in some areas.

Active transport modes have other benefits too:

- Cycling can take less time than driving or catching public transport (Transport for NSW, 2013b).
- Exercise promotes health and overall well-being, taking pressure of the health system.
- Cycling and walking from place to place are considered by many to be more enjoyable than other forms of commuting (Assessment and Appraisal, 2010).

BOX 8.5: EASING SYDNEY'S CONGESTION

The Easing Sydney's Congestion program run by Transport for NSW uses a range of congestion solutions:

- **Smart motorways** deploy active traffic management techniques during busy periods. These include:
 - variable speed limits
 - deployment of hard shoulder lanes, which can accommodate a stopped car without blocking traffic
 - ramp metering, which regulates traffic flow onto freeways.

Many of these initiatives have been applied on the M4 Motorway, along with additional lanes and widening ramps.

- **Pinch point** projects address particular sections of road that are prone to congestion. Initiatives include road widenings, lengthening turn bays, or installing traffic lights at busy roundabouts. Closed-circuit television cameras and electronic message signs are used to help manage traffic and provide real-time information to improve motorists' travel decisions. In 2019, Transport for NSW measured benefits of \$1.37 billion from \$579 million spent on the 217 pinch point projects completed since 2012 (Transport for NSW, 2020).
- **Clearways** reduce congestion by making use of all available lanes. These roads prohibit stopping or parking during busy periods. Roadsides free of parked vehicles also promote safety. Since the 2013 launch of the Clearways Strategy, more than 700 kilometres of clearways have been installed across Sydney's busiest corridors.
- **Bus priority infrastructure** makes bus services faster and more reliable. Examples include dedicated bus lanes, bus priority at intersections, and more strategic bus stop placement.

Planning needs to include short cuts for cyclists to make trips by bike a fast and safe option. By deliberately creating pathways through central Sydney that makes the trip fastest by bike, this will make cycling more attractive and support a mode shift away from driving.

AMY GILLET FOUNDATION

By encouraging more people to cycle and walk, investment in cycling and pedestrian infrastructure may bring substantial payoffs. A proposed project to complete the bike network in inner Sydney, for example, has a benefit cost ratio of 2.65. Infrastructure Australia has listed the Inner Sydney Regional Bike Network on the National Infrastructure Priority List. (City of Sydney, 2018). Stakeholders agreed on the need for increased incentives for active transport, to encourage greater take-up.

New technologies such as electric scooters have become far more popular and may make some of these benefits more widely accessible. Currently, however, outdated regulation and a lack of appropriate infrastructure are a barrier to the use of these ‘personal mobility devices’ (see Chapter 4).

Active transport has taken a higher profile in recent NSW Government strategic planning. The *Future Transport 2056* plan, for example, recognised the benefits of active transport. It highlighted the need to provide safe, well connected infrastructure to increase the number of people taking advantage of its benefits. It is important that future infrastructure business cases consider options including active transport to tackle congestion.

Pricing based on the true costs of congestion will improve road use

The NSW Government should explore how to meet existing road demand. But it is also important to pursue solutions that change that demand for roads in acceptable ways.

Motorists incur many costs of car use, including petrol, tolls, vehicle wear and tear, and their own time. But when motorists drive on congested roads, we also impose direct costs on other motorists and indirect costs on broader society. These include:

- time delays to other motorists
- vehicles’ impacts on the natural environment, such as air and water pollution.

Our roads are congested in part because we do not price road use appropriately. Both the NSW and Commonwealth Government levy various fees and charges for road use. These include fuel excise, stamp duty, and license and vehicle registration fees. Sydney also has a substantial network of privately-owned tolled roads. These arrangements contribute to poor travel choices and congestion because they are:

- **Unclear:** The system of charges is complex, with many pieces administered by different Commonwealth and NSW Government agencies. Motorists have little visibility over—and hence poor understanding of—the costs incurred in road use.
- **Unfair:** There is no consistent link between what people pay and how they use the network. Fuel excise approximates a user charge, but disadvantages those who cannot afford fuel-efficient or electric vehicles. Fixed charges such as license fees have greater impact on those who use the network less.
- **Inefficient:** Current pricing does not fully reflect costs, and does not encourage efficient use of the network. Critically, fees and charges do not reflect exactly when and where congestion arises.
- **Unsustainable:** Fuel excise receipts are declining, largely because new cars’ fuel efficiency is rising and because people are buying more electric and hybrid models. Chapter 6 discusses the benefits of moving towards a distance-based charge for electric vehicles, representing a more sustainable and efficient source of revenue.

Economists and policy experts have long recommended Australian governments consider introducing congestion charging. This would better manage road demand by making motorists pay the true social costs of their travel. Areas with limited capacity at certain times—such as CBDs during peak hour—stand to benefit most. Calls for such an approach have been made in publications including:

- *Australia's Future Tax System* (Henry et al., 2010)
- *Competition Policy Review* (Harper et al., 2015)
- *Shifting the Dial: 5 year productivity review* (Commonwealth Productivity Commission, 2017)
- *Future Cities: Planning for our Growing Population* (Infrastructure Australia, 2018a)
- *State Infrastructure Strategy 2018* (Infrastructure NSW, 2018)
- *Right time, right place, right price: a practical plan for congestion charging in Sydney and Melbourne* (Terrill, 2019a)
- *NSW Review of Federal Financial Relations Final Report* (NSW Treasury, 2020).

Congestion charging would provide a price signal so motorists weigh up the cost of taking a trip against the benefits. Charging for road use at certain locations during peak hours similarly encourages motorists with flexibility to choose other options: travel off-peak, use public transport or active transport, or reconsider the need to travel at all. This ultimately benefits those who most need to drive in these congested areas during peak times.

Many cities around the world have successfully eased congestion by introducing cordon charging, similar to congestion charging. Their experiences provide useful lessons for New South Wales in assessing the benefits of congestion pricing and designing a scheme. Box 8.6 outlines some examples and their features.

Understandably, congestion charging may be met with public resistance. They require people to pay for something that was previously free at the point of use. Yet the experience worldwide is that once congestion charging shows it improves traffic flow, it gains public support. Stockholm, for instance, implemented its congestion

BOX 8.6: SYDNEY CAN LEARN FROM SUCCESSFUL CONGESTION CHARGING SCHEMES

In **Singapore**, road pricing schemes have been in place since 1975. The current scheme, Electronic Road Pricing uses more than 90 gantries, mostly in a cordon around the city centre. Staff monitor traffic conditions in real time and rates are regularly adjusted to optimise traffic flow. Charges vary by route, time of day, direction, and vehicle type. The system operates from 7am to 8pm from Monday to Saturday, charging up to \$56 pre-COVID (around \$A5.80) for every gantry crossing (OneMotoring, 2021). The initial introduction of congestion charging in 1975 saw a 44 per cent decrease in traffic volume (Chin, 2009).

London's Congestion Charging Zone is a congestion charging scheme introduced in 2003, covering 22 square kilometres in central London. Private vehicles are charged a daily flat rate of £11.50 (around \$22 AUD) to drive within the CCZ between 7:00am to 6:30pm on weekdays (Transport for London, 2019). As of 2018, car traffic in Greater London was 14.8 percent lower than in 2000.

Stockholm has operated a cordon scheme around its city centre since 2007. The scheme takes advantage of the bridges motorists must cross to access the city centre. The charge varies during the day to account for fluctuating levels of congestion. For instance, the morning peak uses five time periods with different charges, the highest applying from 7:30am to 8:29am. Traffic volume in 2010 was 19 per cent lower than in 2005 (Börjesson et al., 2012).

Milan instated a cordon charging scheme in 2007, which was initially intended to reduce pollution (Prud'homme and Bocarejo 2005). This was reworked into 'Area C' in 2012 with a goal to reduce traffic volume. It consists of 43 toll gates around the city centre with a flat daily charge for entering the zone of up to €5 (\$7.75 AUD). Residents and environmentally friendly vehicles are given concessions. The scheme was found to reduce vehicle entries into the area by 14.5 per cent (Gibson and Carnovale, 2017).

Our work also shows that network wide change to the pricing of roads, public transport and parking is required to motivate the community to change their behaviour to get the most out of our current transport system, as well as investment in new infrastructure projects.

INFRASTRUCTURE VICTORIA
GOOD MOVE: FIXING TRANSPORT CONGESTION

charging scheme despite initial public opposition. It then gained majority support during a seven-month trial, by showing it effectively reduced congestion. A referendum on the scheme after the trial period resulted in permanent implementation (Eliasson and Royal, 2014).

Another concern relates to collection of personal data. The Grattan Institute notes several important steps governments should take to protect citizen privacy. These include storing data in decentralised systems, and strictly controlling the length of time for which personal data can be kept (Terrill, Moran, and Ha, 2019).

Congestion charging could take different forms:

- **cordon** charging, where users pay when they pass a boundary line around a city centre or designated zone
- **corridor** charging, where drivers pay to drive on a particular road (like a toll-road)
- **distance-based** charging, where drivers pay per kilometre to drive within a designated road network or area.

The Grattan Institute has outlined a three-phase implementation approach. It starts with cordon charging, then progresses to corridor charging, and eventually network-wide distance-based pricing.

The first step towards more efficient use of NSW roads would be to analyse options for revenue-neutral cordon charging in NSW congestion hotspots, such as the Sydney CBD. This analysis should consider a range of complementary and alternative measures for resolving congestion in these areas. It should also consider the interdependencies with other modes, impacts on road use, and parking.

There is also concern surrounding the fairness of such a scheme and the burden on those from disadvantaged background or who may have limited travel alternatives. Analysis by the Grattan Institute suggests that these concerns may be smaller than critics allege. Analysis on congestion charging in the Sydney CBD shows that the scheme would largely affect higher-income drivers, and that CBD workers are generally well-served by public transport.

In summary the specific design of a congestion scheme in Sydney should consider:

- implementation costs
- the degree of road congestion (which would inform the charge amount, and the hours during which charges are liable)
- impacts on demand for alternative modes (public and active transport modes and parking)
- distributional impacts.

Many economists and policymakers recognise the need for more comprehensive transport pricing as a response to changing transport behaviour, advances in vehicle technology, and limits on road capacity. The disruptions to routines and the heightened appetite for flexibility since the outbreak of COVID-19 suggests now is the right time to reshape travel behaviour to achieve more efficient use of the roads.

Most recently, the *NSW Review of Federal Financial Relations* recommended moving towards more cost-reflective road pricing (NSW Treasury, 2020). A recent report by Infrastructure Victoria similarly highlights the importance of network-wide changes in the pricing of public transport, road usage, and parking (Infrastructure Victoria, 2020).

Congestion relief should remain a key consideration in any reforms to transport taxes and charges. The Federal Financial Relations Review recommended a pilot of a cordon charge around the Sydney CBD. This would provide useful data insights on how motorists respond to time-based price signals. In the long term, the Government should also take advantage of advances in geospatial technology to more precisely capture the costs of congestion, better manage the flow of traffic, and make evidence-based infrastructure investment.

In designing a congestion charging scheme, government should ensure coordination with future and existing motor vehicle fees and charges, including privately operated toll roads. Chapter 6 discusses the benefits of moving away from inefficient motor vehicle taxes (such as transfer duty) and adopting a more efficient means of charging (namely, a distance-based charge starting with electric vehicles). Any redesign of motor vehicle fees and charges should simultaneously aim to reduce congestion and to improve the efficiency of revenue collection. For instance, a distance-based road user charge could be set in relation to time and location and be integrated with any congestion charging scheme.

BETTER USE OF THE PUBLIC TRANSPORT NETWORK

A well-functioning public transport system allows high volumes of people to efficiently move around our cities. It supports productivity by helping people get to work, place of study, or elsewhere. Public transport can move passengers with far greater efficiency than private motor vehicles, particularly during peak hour when fully utilised. The average car typically carries fewer than two passengers but occupies nine square metres of road space. By contrast:

- A typical city bus can carry up to 80 passengers.
- Light rail vehicles can carry up to 450 people.
- An eight-carriage Waratah train can carry up to 1,200 passengers.¹⁶

In recent years, the public transport network has come under pressure from strong demand growth, driving increasing peak-hour overcrowding. Between 2014-15 and 2018-19, total patronage on the Sydney network (excluding the Sydney Metro) increased by an annual average of 7 per cent. The network now provides around 700 million trips each year (Transport for NSW, 2020).

RECOMMENDATION 8.4: ADDRESS CONGESTION BY IMPROVING USE OF EXISTING INFRASTRUCTURE

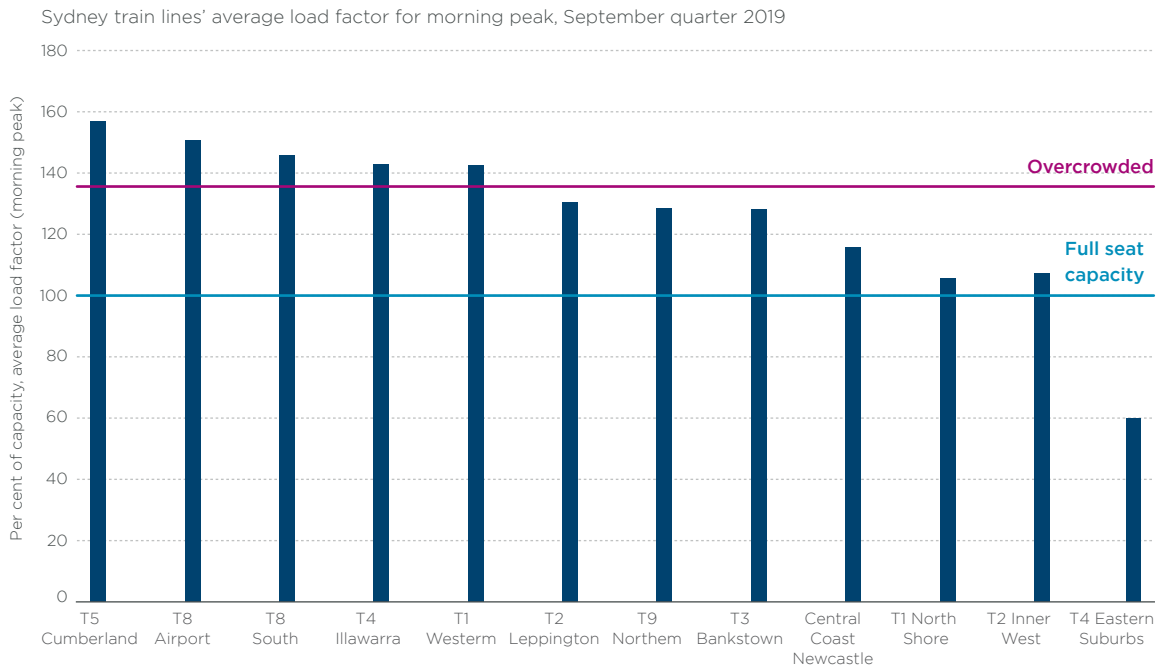
As a first response, investigate a package of light-touch options to reduce congestion. This should include measures that promote good driving behavior, encourage off-pick travel and make targeted investments at specific congestion pinch points.

No later than three years following implementation comprehensively assess reductions in congestion and broader impacts on transport networks.

Contingent on evaluation of the package of light-touch interventions conduct a Gate 1 strategic assessment for cordon charging in the Sydney CBD and other congestion hotspots.

¹⁶ Public transport capacity has been temporarily reduced by social distancing requirements.

FIGURE 8.2: A SYSTEM AT CAPACITY



^a Load factor compares the number of passengers to the number of seats. A load factor of 100 per cent therefore means that there should be enough seats for all passengers. Transport for NSW considers 135 per cent to be the threshold at which passengers start to experience crowding and where dwell times can impact on-time running.

Source: Transport for NSW.

Some parts of the network already operate well above their intended capacity; see Figure 8.2 for Sydney rail lines' loads and capacities.

Persistent crowding makes public transport a less attractive option compared with driving. For instance, passengers must often stand for long periods of time with very limited personal space. Service crowding is therefore not only a safety hazard, but a major cause of discomfort for passengers (particularly during warm weather) and of airborne disease transmission.

Network performance and efficiency are also compromised when services are overcrowded. For instance, trains and buses take more time at stops or stations to allow passengers to board and alight. This increases travel times and causes services to run behind schedule.

As highlighted in Section 8.1 above, social restrictions imposed due to the pandemic have changed the way people work. Many people are choosing to work from home rather than commuting to the workplace, at least for part of the week—and some prefer it. Although long-term changes in work patterns are uncertain, any reductions in peak time commuter volumes will deliver crowding relief on public transport.

Incremental network improvements effectively reduce crowding

Ongoing projects like Sydney Metro and More Trains, More Services will further increase system capacity and provide crowding relief. But these projects are costly and take many years to complete. Sometimes incremental investments can be more cost effective than major projects.

These options could reduce or defer the need for major capital expenditure. Increasing the rigour and transparency of infrastructure decision-making processes goes some way to ensuring that these high-value investments are prioritised (see Section 8.3 above).

The NSW Government is already investing in several incremental upgrades to improve rail network performance through More Trains, More Services program (Transport for NSW, 2019). These include digitised signaling, power supply upgrades, new trains, track, and upgraded stations. This will allow the network to run more trains, more frequently and reliably, with better connections to other services, alleviating crowding and improving convenience.

Public transport crowding is time and location-specific

As with road use, public transport crowding varies significantly throughout the day and between routes or lines. Services tend to be at or above capacity during morning and afternoon peak periods, but well below capacity at other times.

Spare capacity during off-peak periods presents an opportunity to reduce crowding during peak hour, by spreading demand more evenly throughout the day.

Well-designed price structures would improve network efficiency

One reason many people use public transport at the same time is because fares do not reflect the full cost of their decision to travel at those times. Passengers traveling in peak hours impose additional costs on society, which exceed the fare paid. These costs largely relate to the need to maintain a larger network in the present to maintain capacity (with more trains and buses), and the need to undertake network expansions or upgrades to continue to meet peak demand into the future. The NSW Government is responsible for setting Opal fares. But it cannot exceed maximums periodically determined by the Independent Pricing and Regulatory Tribunal (IPART).

The current Opal fare structure partially accounts for the different costs of traveling in peak and off-peak periods. The Sydney rail network has for some time offered a 30 per cent discount for travel outside peak times.¹⁷ This relatively small financial incentive may have encouraged some to travel during off-peak. The persistence of overcrowding, however, reflects that it has been insufficient to change the behaviour of most.

From July 2020, bus and light rail travel has also attracted off-peak discounts. For an initial three months, the off-peak discount will be lifted to 50 per cent for all transport modes to more strongly encourage off-peak travel while COVID-19 related social distancing measures are in place (Transport for NSW, 2020). Discounts will then return to 30 per cent. While these changes reduce the cost of off-peak travel, discounts are somewhat offset by the widening of the morning peak period, a change that was not considered in IPART's latest fare review (Independent Pricing and Regulatory Tribunal, 2020).¹⁸

IPART's 2016 fare review included estimates of 'socially optimal fares', which aimed to capture the true costs (and benefits) to society of using public transport.¹⁹ This analysis demonstrated that actual fares generally fall well below cost and do not adequately encourage travel at times when the cost is lower. For example, the cost of transporting an additional train passenger outside peak times is very small, so a 15 to 25 kilometre off-peak train trip would ideally be priced at \$1.71, rather than \$3.40 currently.²⁰ Conversely, the train passenger only pays \$4.80 during peak times, accounting for only half the estimated cost (see Table 8.4). In effect, off-peak train travelers in this example pay a large tax as part of their fare while other travelers receive large subsidies.

¹⁷ Until recently, these peak times have been weekday mornings from 7am to 9am on metropolitan routes, 6am to 8am on intercity routes, and 4pm to 6:30pm in the afternoons.

¹⁸ The morning peak now runs from 6:30am to 10am (metropolitan) and 6 pm to 10 am (intercity).

¹⁹ IPART describes socially optimal fares as the fares that encourage people to use the Opal system in the way that leads to the highest net benefit to society. See also IPART's 2016 Information Papers (Independent Pricing and Regulatory Tribunal, 2016).

²⁰ The current fares are calculated as the average of the 10–20km and 20–35km adult fares to align with the fare structure in the 2016 IPART report.



One challenge in reconfiguring fares is that there is relatively little evidence about the induced change in travel behaviour. We do not know whether, for instance, large increases in peak fares will encourage many commuters to drive, rather than moving their public transport travel to off-peak times.

COVID-19 presents an opportunity to innovate with price signals

During the pandemic, social distancing restrictions have significantly reduced the capacity of all public transport services. This means that the volume of commuters usually concentrated at peak times needs to be dispersed more evenly throughout the day. This has prompted the increased discount for off-peak travel.

TABLE 8.4: ILLUSTRATIVE TRAIN FARE SUBSIDIES BY TIME OF TRAVEL

	CURRENT PRICE	ESTIMATED SOCIALLY OPTIMAL PRICE	SUBSIDY ^a (PER CENT)
PEAK	\$4.82	\$8.37–\$14.37	42 to 77
OFF-PEAK	\$3.37	\$1.71	-97

^aSubsidy on the socially optimal price, not the marginal financial cost of travel.

Source: (Independent Pricing and Regulatory tribunal, 2016); NSW Treasury; Transport for NSW.



As we emerge from the pandemic and social distancing restrictions ease, behavioural changes and the rise of flexible working present an opportunity to further encourage off-peak travel. As Box 8.1 details, the shift to remote work could have lasting effects. As workplaces implement hybrid working models and workers adjust to new norms, methods to encourage flexible travel behaviours may work better.

Data gained from the enhanced discounts present an opportunity to understand how people are responding to a greater price differential. We need to take into consideration the offsetting effect of widening the morning peak period and the impact of the pandemic on overall demand for public transport.

Based on this experience, the Government should consider permanently incorporating higher discounts into the fare structure for off-peak travel on transport modes, as recommended by IPART (2016). Consistent with this, peak fares across all modes should be increased so that they better reflect the higher costs of traveling during these times.

The incentive from off-peak discounts is greatest for those that can slightly change their routine to benefit from the lower fare—those who would otherwise travel at the start or end of the peak period (that is, just after 6:30am or before 10am, from 6 July 2020). This risks leaving an even more pronounced peak for travelers around the middle of the peak period.²¹ A third, ‘shoulder’ pricing tier could be used to encourage passengers to spread their travel more evenly (Smith, 2009).

IPART is able to undertake analysis on the best approach to spreading demand, which could also involve other solutions such as an unlimited ‘off-peak’ monthly travel package proposed by IPART (Independent Pricing and Regulatory Tribunal, 2020).

Making concessions work for the network and those most in need

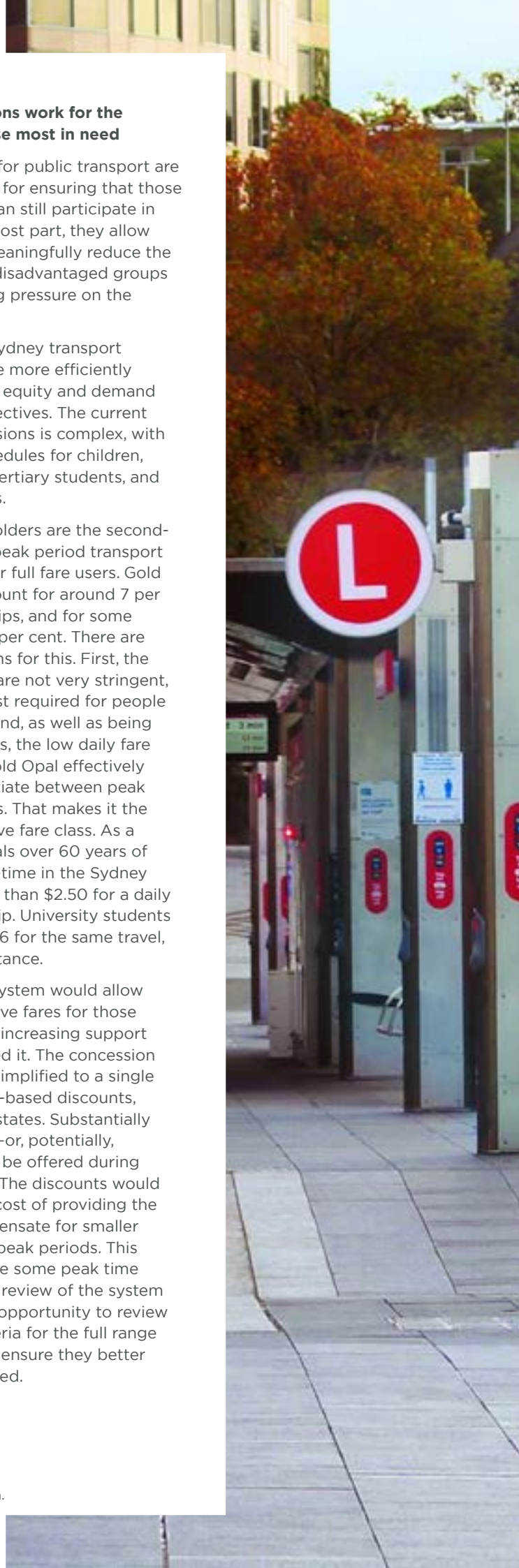
Concession fares for public transport are an important tool for ensuring that those less able to pay can still participate in society. For the most part, they allow government to meaningfully reduce the cost of living for disadvantaged groups without increasing pressure on the network.

Concessions on Sydney transport could, however, be more efficiently designed to meet equity and demand management objectives. The current system of concessions is complex, with separate fare schedules for children, school students, tertiary students, and Gold Opal holders.

Gold Opal card holders are the second-largest group of peak period transport service users, after full fare users. Gold Opal holders account for around 7 per cent of all peak trips, and for some modes almost 10 per cent. There are a few likely reasons for this. First, the eligibility criteria are not very stringent, with no means test required for people 60 and over. Second, as well as being the most generous, the low daily fare cap means the Gold Opal effectively does not differentiate between peak and off-peak fares. That makes it the least cost-reflective fare class. As a result, professionals over 60 years of age working part-time in the Sydney CBD pay no more than \$2.50 for a daily peak hour train trip. University students pay \$3.60 to \$8.86 for the same travel, depending on distance.

A more efficient system would allow more cost-reflective fares for those able to pay, while increasing support for those that need it. The concession system could be simplified to a single set of percentage-based discounts, as in some other states. Substantially higher discounts—or, potentially, free travel—could be offered during off-peak periods. The discounts would reflect the lower cost of providing the service and compensate for smaller discounts during peak periods. This would also provide some peak time crowding relief. A review of the system would also be an opportunity to review the eligibility criteria for the full range of concessions to ensure they better target those in need.

21 In the morning, for instance, the middle of the peak occurs at around 8am.



RECOMMENDATION 8.5: REVIEW OPAL FARES

Subject to IPART review, restructure Opal fares to reflect the cost of trips, including peak capacity and distance traveled. Simplify and re-target the concession system. Make fares more efficient and reflective of need:

- reduce the number of concession classes
- increase incentives for off-peak travel
- ensure that discounted fares target those who most need them.



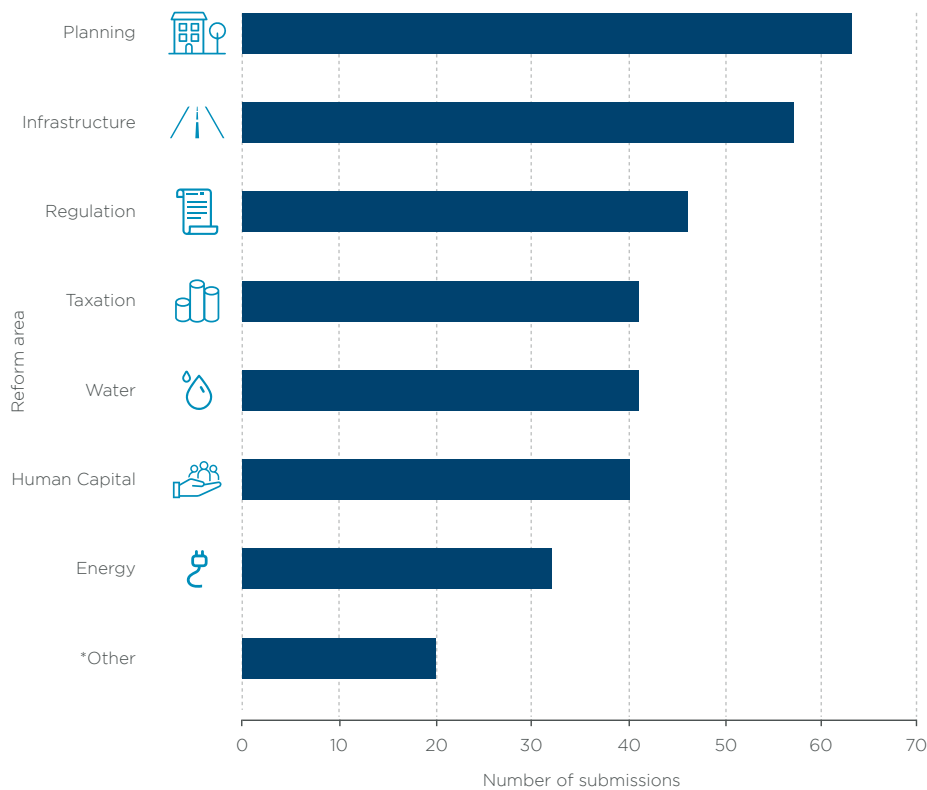
Appendix 1: Submissions to the Discussion Paper

The Kickstarting the Productivity Conversation Discussion Paper received 110 submissions, 95 of which were published on the NSW Productivity Commission website:

Applied Economics Pty Ltd	Contract Governance International Group 2
Australasian College of Dermatologists	Department of Communities and Justice
Australian Academy of Technology and Engineering	Department of Education
Australian Alliance for Energy Productivity	Energy Inspection Pty Ltd
Australian Energy Council	Federation of Hunting Clubs
Australian Industry Group	Financial Services Council
Australian Institute of Architects	Grattan Institute
Australian Passive House Association	Green Building Council of Australia
Better Planning Network	Housing Industry Association
Bridge Housing	Independent Pricing and Regulatory Tribunal
Building Designers Association of Australia	Individual 1
Carers NSW	Individual 2
Central NSW Joint Organisation	Individual 5
Centre for Independent Studies	Individual 6
Centre for International Economics	Individual 9
Centre for Universal Design Australia	Infrastructure Partnerships Australia
Chesterfield Projects	Insurance Australia Group
City Futures Research Centre, University of New South Wales	Insurance Council of Australia
City of Newcastle	John Freebairn, University of Melbourne
City of Sydney	KPMG
City West Housing Pty Ltd	Laing O'Rourke
Combined Development Group Pty Ltd	Lake Macquarie City
Commercial and Economic Planning Association	Large Format Retailers Association 1
Community Housing Industry Association	Large Format Retailers Association 2
Contract Governance International Group 1	Local Government NSW
	Medtronic Australasia
	New South Wales Firearm Dealers Association

Northern Sydney Regional Organisation of Councils
 Sydney Airport
 Sydney Water
 NSW Aboriginal Land Council
 TAFE Community Alliance
 NSW Business Chamber
 Tenants Union of NSW
 NSW Council of Social Service
 Tom Tsihilis
 NSW Irrigators' Council
 TCorp 1
 NSW Land Registry Services
 TCorp 2
 NSW Minerals Council
 The Hills Shire Council
 OneWater Advocates
 Transport and Logistics Centre 1
 Pharmacy Guild of Australia NSW Branch
 Transport and Logistics Centre 2
 Planning Institute Australia
 University of New South Wales
 Principal Advice
 Urban Development Institute of Australia
 Prof Hans Coster, University of Sydney
 Urban Taskforce
 Prof Rico Merkert, University of Sydney
 Urbanised Pty Ltd
 Property Council of Australia
 Urbis
 Prosper Australia
 Water Services Association of Australia
 Public Interest Advocacy Centre
 Waverley Council
 Public Service Commission
 Western Sydney Leadership Dialogue
 Rojz Boutique
 Western Sydney Regional Organisation of Councils 1
 Rolfe Constructions
 Western Sydney Regional Organisation of Councils 2
 School Efficiency Metrics Australasia
 Shelter NSW
 Southern Sydney Regional Organisation of Councils
 Willoughby City Council

BREAKDOWN OF SUBMISSIONS BY THEME



*Other includes: health, universal design, the circular economy, firearms, the policy making process, Aboriginal issues.

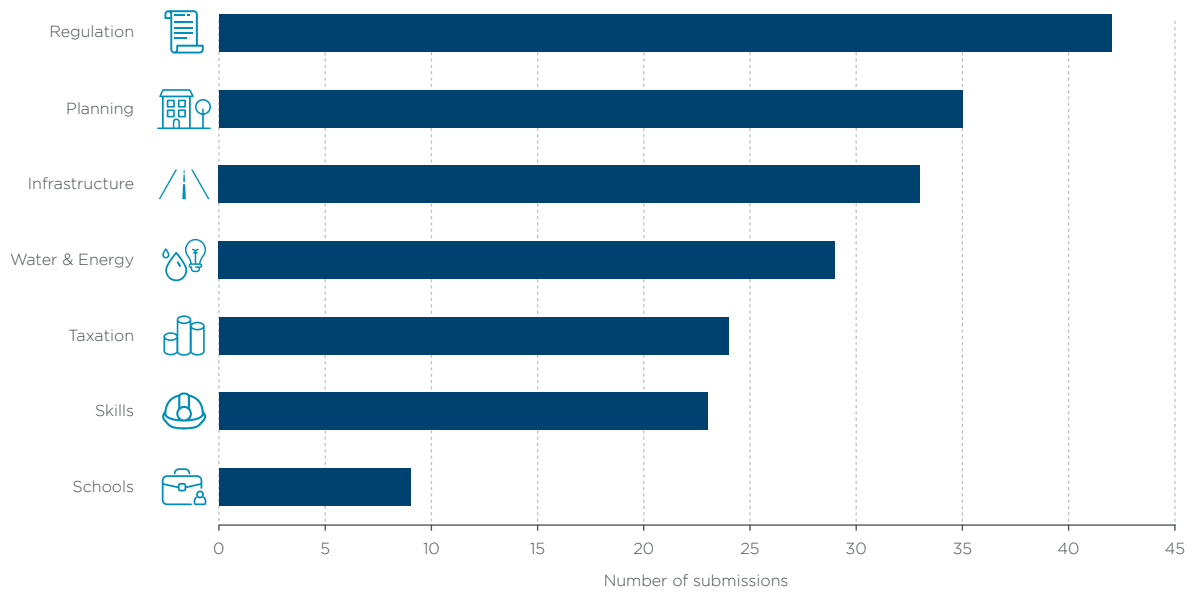
Appendix 2: Submissions to the Green Paper

The Productivity Green Paper received 84 formal submissions and 20 webform submissions, 68 of which were published on the NSW Productivity Commission website:

AiGroup (NSW)	Financial Services Council
Amy Gillett Foundation	Foundation for Alcohol Research and Education
Apprentice Employment Network NSW & ACT	Housing Industry Association
Asia Pacific Micromobility Alliance	Independent Pricing and Regulatory Tribunal
Australian Energy Council	Individual 1
Australian Institute of Conveyancers (NSW Division)	Individual 2
Blacktown City Council	Individual 3
Business Council of Co-operatives and Mutuals	Individual 5
Business NSW	Individual 6
Cancer Council NSW	Individual 7
Canterbury Bankstown Council	Individual 8
Central NSW Joint Organisation (CNSWJO)	Individual 9
Chartered Accountants Australia and New Zealand	Individual 10
City Futures Research Centre	Individual 11
City of Newcastle	Individual 12
Community Housing Industry Association NSW (CHIA NSW)	Individual 13
NSW Department of Communities and Justice	Insurance Council of Australia
Department of Industry, Science, Energy and Resources (AusIndustry Office)	Intellihub
Federation of Hunting Clubs Inc.	Kingspan Water & Energy Pty Limited
	Lake Macquarie City Council
	Large Format Retail Association
	Liverpool City Council
	Local Government NSW (LGNSW)

- Mid Coast Council
- National Fire Industry Association
- Neuron Mobility
- New South Wales Teachers Federation
- NSW Aboriginal Land Council
- NSW Plumbing Trades Employee's Union
- NSW Ports
- Open Cities Alliance
- Planning Institute of Australia
- Property Council of Australia
- Property Exchange Australia
- Public Interest Advocacy Centre
- Refrigeration and Air Conditioning Contractors Association
- Serco Australia
- SGS Economics & Planning
- Southern Sydney Regional Organisation of Councils (SSROC)
- Sydney Airport
- Sydney Desalination Plant
- Sydney Water
- The Hills Shire Council
- The Law Society of New South Wales
- Urban Development Institute of Australia (NSW)
- Urban Perspectives
- Urban Taskforce
- Waverley Council
- Western Sydney Health Alliance

BREAKDOWN OF SUBMISSIONS BY THEME



Appendix 3: Roundtable participants

The following is a list of organisations that participated in roundtable discussions for the Productivity Discussion Paper, organised by roundtable theme.

HUMAN CAPITAL

AiGroup (NSW)
Association of Independent Schools
Australian Academy of Technology & Engineering (ATSE)
Centre for Independent Studies
Centre for Workforce Futures, Macquarie University
Council of Small Business Organisations Australia (COSBOA)
NSW Business Chamber
NSW Council of Social Service (NCOSS)
Sydney Catholic Schools
NSW Department of Education

WESTERN SYDNEY

AiGroup (NSW)
Blacktown City Council
Canterberry-Bankstown Business Chamber
Department of Industry, Innovation and Science (AusIndustry Office)
Industry Capability Network (NSW) Ltd.
NSW Aboriginal Land Council - Yarpa Indigenous Business & Employment Hub
RDA Sydney
Settlement Services International
University of Wollongong
Western Sydney Business Connection
Western Sydney University
Western Sydney Regional Organisation of Councils

ENERGY

Australian Energy Council
Energy Networks Australia
Green Building Council of Australia
Institute for Sustainable Futures
Institution of Chemical Engineers
NSW Business Chamber
NSW Council of Social Service (NCOSS)
Public Interest Advocacy Centre (PIAC)
University of Sydney
University of Wollongong

PLANNING

AiGroup (NSW)
Australian Chamber of Commerce and Industry
Better Planning Network
Committee for Sydney
Community Housing Industry Association
iAccelerate
Landcom
Local Government NSW
Multiplex
NSW Business Chamber
NSW Council of Social Service (NCOSS)
NSW Minerals Council
Planning Institute of Australia
Property Council of Australia (NSW)
Stockland
University of New South Wales – City Future Research Centre

TRANSPORT

Committee for Sydney
Industry Capability Network NSW
NSW Business Chamber
PSG Holdings
Road Freight NSW
Transport and Logistics Centre
Tourism & Transport Forum Australia
University of Sydney Business School

REGULATION

NSW Business Chamber
PwC

SOCIAL

Better Planning Network
Community Housing Industry Association (CHIA) NSW
Homelessness NSW
Local Government NSW
NSW Council of Social Service (NCOSS)
Property Council of Australia (NSW)
Realise Business
Shelter NSW

WATER

Australian Academy of Technology & Engineering (ATSE)
CSIRO
Local Government NSW
NSW Council of Social Service (NCOSS)
NSW Irrigators' Council
NSW Water Directorate
Office of the Chief Scientist & Engineer (OCSE)
Sydney Water
University of New South Wales
Water Services Association of Australia
Water NSW

INDIVIDUAL

Business Council of Australia
Regional Australia Institute

Appendix 4: NSW initiatives to streamline approval assessment times

The NSW Productivity Commission has identified additional initiatives that could cut red tape and shorten approval times.

INITIATIVE	ISSUES RAISED BY STAKEHOLDERS	ACTION
ESTABLISH A NEW CLASS OF APPEALS FOR PLANNING PROPOSALS	Assessments of rezonings block up the planning system.	<p>Currently, councils have no obligation to progress a planning proposal once it is started, and the Department of Planning, Industry and Environment has limited power or resources to 'call in' development applications.</p> <p>Establishing a new class of appeals in the Land and Environment Court would let the Court step in and order arbitration to assess and progress planning proposals. Increased review opportunities for the assessment of planning proposals will incentivise councils to better manage rezonings to avoid losing control over the process.</p> <p>To remove current obstacles in the planning assessment process, develop a new class of appeals in the Land and Environment Court for planning proposals.</p>
RATIONALISE STATUTORY TIMES	<p>Stop-the-clock provisions and ongoing requests for increased information are a source of significant assessment delays and confusion.</p> <p>They are considered to be an unnecessary layer of complexity.</p>	<p>Timeframes for development application assessment are contained within deemed refusal provisions in clause 113 of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation). A development application is taken to be refused if a consent authority has not determined the application within the specified period.</p> <p>These timeframes are complemented by non-statutory timeframes set out in the <i>Development Assessment Best Practice Guide</i> (2017) that produce significantly faster results.</p> <p>To improve statutory timelines for approving development applications, the EP&A Regulation should be increased in scope and incorporate shorter procedural timeframes that align with those prescribed by the Development Assessment Best Practice Process Map.</p>

INITIATIVE	ISSUES RAISED BY STAKEHOLDERS	ACTION
<p>INTRODUCE DEEMED APPROVAL PROVISIONS</p>	<p>Improve assessment timeframes using deemed approval provisions, comparable to those currently used in other jurisdictions such as Queensland. Such a mechanism provides an incentive for the consent authority to make a decision, rather than sit on an application. This would provide certainty in the assessment period.</p>	<p>In Queensland, deemed approval provisions are provided for under clause 64 of the <i>Planning Act 2016</i> for certain code-assessable applications. Clause 64 prescribes that if the consent authority does not determine the application within the decision-making period, an applicant may submit a deemed approval notice to the authority that the application should be deemed to have been approved.</p>
		<p>To improve certainty of the assessment period for certain development types, a deemed approval provision comparable to clause 64 of the <i>Queensland Planning Act 2016</i> should be introduced to the EP&A Regulation.</p>
<p>MINIMISE RELIANCE ON 'STOP-THE-CLOCK' PROVISIONS</p>	<p>Requests for further information under the EP&A Regulation can trigger the stop-the-clock provisions, resulting in an assessment period significantly longer than the timeframes set out in the EP&A Regulation.</p>	<p>The stop-the-clock provisions are provided for under clause 110 of the EP&A Regulation. Under this clause, a concurrence authority may request additional information within 25 days from the date on which a development application is received. Clause 110(20) says that time taken to address the request for additional information is not included in the calculation of the days taken to determine a development application.</p>
		<p>To minimise reliance on stop-the-clock provisions, develop procedures to ensure appropriate information is provided prior to lodgement of an application. This would assist with addressing inconsistencies in the existing processes by which councils receive development applications and determine the necessary lodgement requirements.</p>

INITIATIVE	ISSUES RAISED BY STAKEHOLDERS	ACTION
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IMPROVING THE CONCURRENCE AND REFERRAL PROCESS

Waiting for approvals from various state government agencies add considerable time to a development application assessment timeframe.

An estimated 15 per cent of development applications need to be referred to various state agencies for concurrence, often adding significantly to the amount of time taken to process an application.

Recent amendments to the EP&A Regulation provide new measures aimed at minimising delays to the concurrence and referral process. Specifically, clause 106 of the EP&A Regulation nominates assessment times for development applications requiring concurrence.

Under clause 70AA to 70AC of the EP&A Regulation, the Secretary of the Department of Planning, Industry and Environment has the power to act in place of an approval body to provide the terms of approval to the relevant consent authority for the purpose of preventing delays to the assessment of a development application. Use of this power is an option but an option likely to be used only occasionally. Despite these improvements, there are no deemed approval mechanisms in place to provide agencies with the incentive to complete their assessment of a development application within a specified time.

The recently announced Planning Delivery Unit will assist with improving the concurrence and referral process by identifying any systemic blockages and processing issues.

Once issues are addressed, Government should consider introducing target times for concurrences and referrals. Consistent with the approach in Queensland, a deemed approval could be issued when a referral authority fails to respond within 28 days. This would provide agencies with incentives to review proposals quickly. These requirements could be integrated into the EP&A Regulation alongside the assessment times set out in clause 106.

INITIATIVE	ISSUES RAISED BY STAKEHOLDERS	ACTION
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STREAMLINE APPROVAL PROCESSES FOR CERTAIN DEVELOPMENT TYPES

Stakeholders noted the shorter time for approving complying development.

Stakeholders also expressed frustration with deferral of the Low-Rise Medium Density Code for Sydney councils (which has been rolled out to all councils from 1 July 2020).

In 1988 the NSW Government introduced complying development, a simpler and faster development approval pathway. The Discussion Paper noted that for low-density residential development, approval is typically twice as fast for those that qualify for complying development.

Despite this progress, there are opportunities to increase complying development approval pathways:

- Expand scope of complying development approval pathways within broader business and industrial zones.
- Explore other possible additional residential development types that may be appropriate to expand complying development approval pathways.
- Review the list of State and Regionally Significant Development to be assessed and determined by the Department of Planning, Industry and Environment or the Independent Planning Commission.

Explore opportunities to expand complying development approval pathways, commencing within new and broader business and industrial zones.

EVALUATE THE IMPACTS OF LOCAL PLANNING AND REGIONAL PLANNING PANELS

Local Planning Panels (LPPs) have delayed development assessments.

Regional Planning Panels (RPPs) have not reduced assessment times. The dollar threshold for RPP consideration in Sydney is too low.

Stakeholders claim that the introduction of these panels has eroded council's ability to promote good development outcomes.

LPPs were introduced in 2018. Their purpose was to strengthen decision-making on significant development applications and certain planning matters. Before this, Sydney and Regional Planning Panels were introduced in 2009 to strengthen decision-making on Regionally Significant Development.

Given LPPs are relatively new, the Commission expects any delays are due to their infancy. A review should be undertaken to evaluate the effectiveness of LPPs in the assessment process. The review should also take the opportunity to reduce their workload (e.g. not require LPPs to consider modifications).

An evaluation of LPPs would provide the opportunity to identify issues needing to be addressed to improve the effectiveness of LPPs and reduce time taken to consider development applications.

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