

## SUBMISSION

Submission

to: the Senate Economics References Committee

on: **the matter of the Australian manufacturing industry**

There are many matters to be addressed if Australia and its Manufacturing Industries are to capture and deliver on opportunities at hand.

I welcome this opportunity to present a Submission on important matters, and am willing to discuss, expand on or otherwise engage on issues and problems identified.

My goal is to sketch a full formulation. I trust that lines of development and policy synthesis become evident as the Submission unfolds. I would also like to apologise for length, oversimplifications, remaining errors and the like.

Thank you for considering this Submission and I look forward to working with you as you may wish.

Dr Mark McGovern

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## A. ADDRESSING THE TERMS OF REFERENCE

## A. ADDRESSING THE TERMS OF REFERENCE

### 1. *Canvassing the terms of Reference.*

Given the diversity of Australian manufacturing enterprises and of the chains they engage, the extensive use of the singular is surprising. There is neither one solution, nor one policy shoe to fit all.

In these dying days of the 46<sup>th</sup> Parliament with little time and perhaps a final Reference, you may understandably think “*Frankly... I don’t give a damn*”, echoing Rhett responding to Scarlett’s “*Where shall I go? What should I do?*” – key questions for the 47<sup>th</sup> Parliament.

“The [Civil War](#) sweeps away the lifestyle in which Scarlett was raised, and Southern society falls into ruin... [Scarlett’s] character begins to harden as her relatives, the family slaves and the Wilkes family look to her for protection from homelessness and starvation. Scarlett becomes money-conscious and more materialistic in her motivation to ensure her family survives and Tara stays in her possession, while other Georgian farmers lose their homes.” (Wikipedia)

Scarlett then and manufacturing today share similar times. Today Credit and Covid are *most* pressing Civil concerns, threatening lifestyles and lives. This Inquiry with its sweeping Terms is timely, important and challenging. The opportunity to evaluate and rebase policies should be taken.

**Terms of Reference:** The Australian **manufacturing industry**, with specific regard to:

- a. what manufacturing **capacities Australia requires** for economic growth, national resilience, rising living standards for all Australians and security in our region;
- b. the **roles** that the Australian manufacturing industry has played, is playing and will play in the future;
- c. the **drivers of growth** in manufacturing in Australia and around the world;
- d. the **strengths** of Australia’s existing manufacturing industry and **opportunities** for its development and expansion; (*Industry SWOT, less WT why?*)
- e. the sectors in which Australian manufacturers enjoy a **natural and national advantages** in energy, access to primary resources and skilled workers over international competitors, and how to capitalise on those advantages; (*concepts, strategies and practices of “advantage”*)
- f. identifying **new areas** in which the Australian manufacturing industry can establish itself as a **global leader**; (*innovation*)
- g. the **roles that government can play in assisting** our domestic manufacturing industry, with specific regard to:
  - i. research and development;
  - ii. attracting investment;
  - iii. supply chain support;
  - iv. government procurement;
  - v. trade policy;
  - vi. skills and training; and
- h.
  - i. the **opportunity** for reliable, cheap, renewable energy to **keep** Australia’s manufactured **exports competitive** in a carbon-constrained global economy and
  - ii. the role that our manufacturing industry [**AMI**] can play in delivering the reliable, cheap, renewable energy that is needed

Committee terms of reference with added **highlights** and *additions*.

Scarlett’s “**where?**” underpins References a, f and h<sup>i</sup>; “**what?**” b, c and g; “**how?**” d, e and h<sup>ii</sup>; with the “**who?**” given and the “**why?**” implicit beyond a. Interlinkages matter in analysis and Reporting.

A. ADDRESSING THE TERMS OF REFERENCE

2. Credit and Covid in these Uncivil times

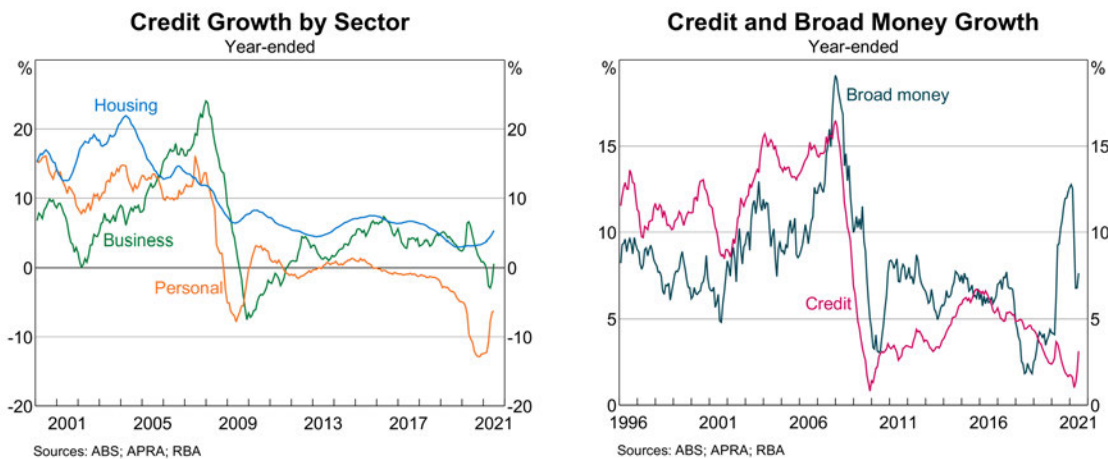
“... more must be done to ensure financial literacy is improved amongst all members of the community .... lack of literacy also increases the risk of people being taken advantage of by unscrupulous operators.” (Chisholm 2016)

“Unscrupulous operators” abound, as Hayne demonstrated.

However, “members of the community” include many nations, corporations and communities. It is not just households that face fraud, innocent or otherwise.

Understandably, however, Haynes missed important systemic aspects that have made improper and unsustainable credit arrangements not only endemic but also foundational to the greatest credit bubbles in recorded history.

Australia has the unfortunate distinction of having squandered its previously relatively healthy position. In the last decade we talked of “low inflation”. Despite reduced Credit growth (Figures below: [RBA Chartpack](#)), Debt/Asset Price bubbles grew essentially unchecked. The recent decoupling and spike in Broad Money (at right) is an alarm signal. In later part, this reflects COVID liquidity seeking by large corporations but its genesis is earlier. Risks have been compounded.



Manufacturing faces tightness in non-housing credit markets and ‘irregular’ liquidity preferences. Patient finance for long term investment appears markedly more difficult than usual. Commitment risks are heightened by likely direct and indirect effects of interest rate rises on heavily exposed counter-parties, liquidity squeezes and foreseeable panic.

Demand and supply conditions are unusually uncertain for both economic and financial products with abrupt availability and liquidly changes possible and indeed likely.

While many will “keep on dancing until the music stops”, the cautious prefer to sit on the sidelines. Transitions underway in the International Monetary System and Trade exacerbate investment risks as do ongoing community, enterprise and civil dislocations.

**The message:** Don’t expect manufacturing investment to materialise without major changes in conditions, including those attending government policies and practices.

## A. ADDRESSING THE TERMS OF REFERENCE

### 3. *Transition economies*

*“In the late 1970s we began to see problems in our National Accounts. This became a priority research area, but by the early 1980s we established that the problems were in the economy, not the accounts. Told that this was not good for our careers, we did other work while the economy deteriorated....”* Summary of a 1992 conference discussion, and months later the State *“collapsed as was expected”*.

That conference was most stimulating, and confronting. There, and elsewhere, tensions were evident as attendees passionately but still professionally argued the future of their country. Political and constitutional crises followed, as they must when solvable problems are left until they become unsolvable.

Australia is facing its own transitions. Environmental “crises” and how to “best” transit are on some lips, but financial crises and challenged trade, investment, regulatory and monetary Systems are rarely mentioned let alone discussed.

Such “Systems” articulate complex local, regional, state and worldwide flows in all manner of areas between all manner of parties – until they don’t. Latent risks “suddenly materialise”, destroying productive activity, investment returns, health, livelihoods and other important dependencies.

Ongoing “collective unintelligence” may delay effective responses. Well-established mindsets, practices and conventional wisdoms (Galbraith) are then particularly dangerous.

“We should just wait” is the *effective* belief and spell cast by economics when ‘the market’ (or some other non-ephemeral deity, such as contract law, rational choice or expectations) is expected to guide adjustment.

The “*long run* is a misleading guide to current affairs. *In the long run*, we are all dead. Economists set themselves too easy, too useless a task if, in tempestuous seasons, they can only tell us that when the storm is long past, the ocean is flat again.” [[A Tract on Monetary Reform](#), Ch. 3, p. 80] conveniently quoted in [Quddus \(2020\)](#) who writes re Covid:

“Keynes had reached a conclusion, diametrically opposite to those of the followers of the influential classical school of economics” which is the effective basis of Australia’s long-in-the-tooth public policies.

Keynes “argued in favor of a policy with a laser-like focus on the ‘short run’ ... when the suffering of the common citizen is most acute. Perhaps over the long run, things will return to normal, but how long should we wait? How is inaction helpful if ... [needlessly few] survive the crisis to enjoy the calm seas after the storm?”

**A broad message.** Social cohesion and mutual regard provide key infrastructures that can mitigate crises, enable effective transitions and minimise needless losses of key capacities, wealth and health.

**Our message?** Australians will have to make their own minds up, make changes and be prepared to do the work of transitioning as best we can. Neglected areas of Economics offer helpful insights.

**An immediate message:** Manufacturing investment will occur when both feasible pathways and apt risk-return trade-offs are sufficiently apparent to those who would commit their resources.

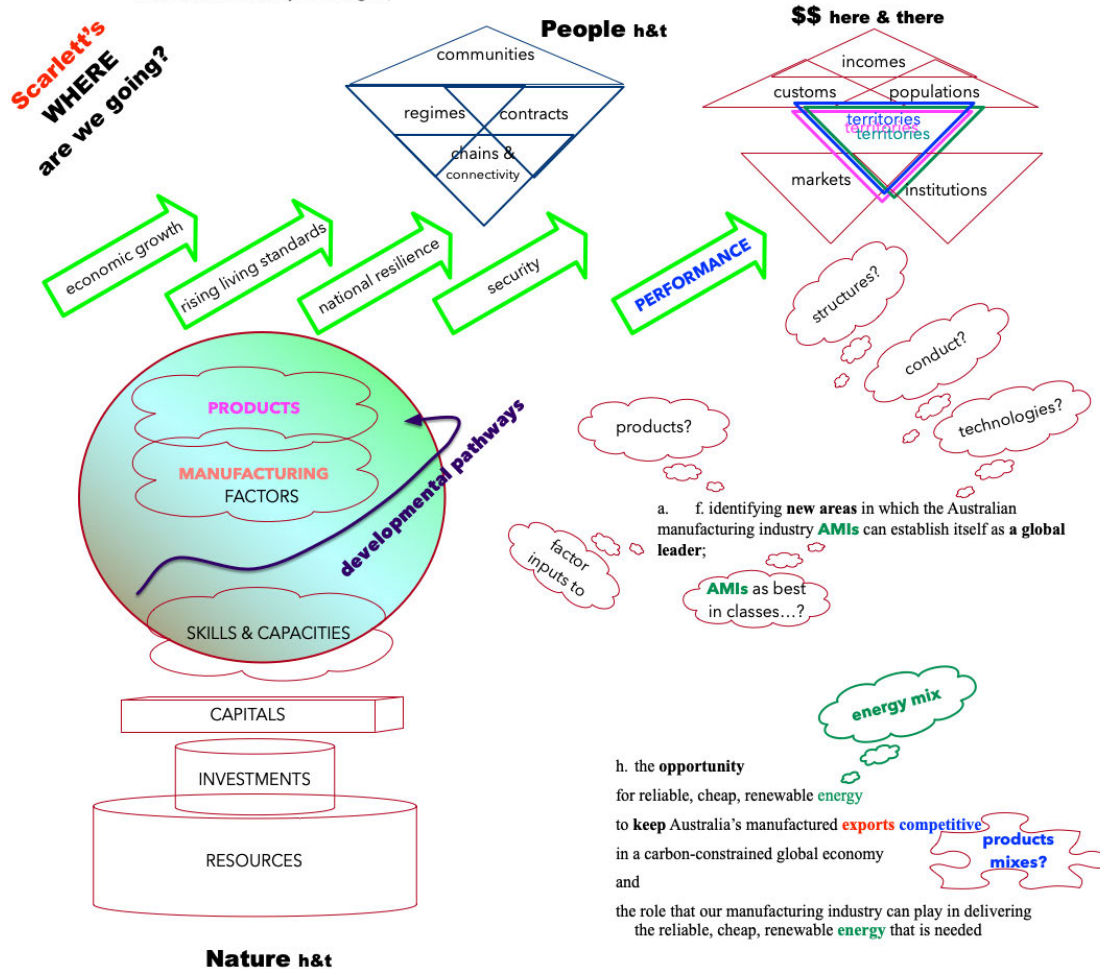
A. ADDRESSING THE TERMS OF REFERENCE

4. *Scarlett's Where? a, f and h<sup>i</sup> challenges*

The Figure illustrates some of the items and issues relevant to terms of reference a, f and h<sup>i</sup>.

Several framings of Committee aspirations present alternative key concepts drawing loosely from production theory (SW corner), industrial economics (mid E) and international business (top diamonds) with a developmental pathway to be somehow fashioned.

a. what manufacturing capacities Australia requires for economic growth, national resilience, rising living standards for all Australians and security in our region;



“Frankly, you may not give a damn” about such abstractions preferring, like many ‘top-liners’ today, to grow “People”, Products and “\$\$” guided by markets and pliant institutions preoccupied with formal contract enforcements. So, AMI enterprises should just ‘get fit’, produce and compete!

*One of the most fateful errors of our age is the belief that 'the problem of production' has been solved. Not only is this belief firmly held by people remote from production and therefore professionally unacquainted with the facts - it is held by virtually all the experts, the captains of industry, the economic managers in the governments of the world ... Schumacher (1973), quoted in McGovern (2020) wherein “Pervasive economic distress and capital rundown is succinctly discussed with elements identified for effective turn around. Principles, stances and agenda issues are listed before a brief concluding consideration of economic renewal and capital rebuilding.”<sup>1</sup> This, I contend, is the scoping needed to meet the challenges central to this Inquiry.*

<sup>1</sup> McGovern, Mark. 2020. “Addressing Comprehensive Capital Rundown.” *Proceedings of the Royal Society of Queensland* 127.  
Schumacher, E F. 1973. *Small Is Beautiful: Economics as If People Mattered*. London: Blond & Briggs.

## A. ADDRESSING THE TERMS OF REFERENCE

### 5. *What to do? References b, c and g*

References b, c and g reflect Scarlett / **AMI** vowing to ensure the survival of herself and her family.

Concerns are with **AMI** roles, drivers of growth and how government is here “to assist” as implicitly “we” seek apt returns while ameliorating risks as be we can.

*Conceptually:* What Conduct is equitably effective in meeting “our vows” while (re-)investing and so changing Structures given new and emerging Technologies?

This conceptual casting is in terms of the SCP&T model from Industrial Economics (Figure “mid E” above). This incorporates a Very Long Run (VLR) perspective wherein both new / innovative investments and changed technological possibilities can be accommodated.<sup>2</sup>

What **roles** can **b. AMI** and **g: Governments** identify and undertake in a VLR sense given **c. drivers of growth and j. likely feasible development pathways**. Guidance for government “assistance” to AMI is in six nominated areas, thus making serious presuppositions

### 6. *How do we do “it”, each and all? References d, e and h<sup>ii</sup>*

Successfully managing the current transition is complex and challenging with many roles to be effected well. We each and all variously fashion interlinking actions with impacts distributed to form both ‘an accommodative collective future’ and various lines of investment, application and success’.

Society works as its myriad members find ways to better engage to “promote the prosperity and well-being of the Australian people”<sup>3</sup>

Reference

**d** specifies a part SWOT analysis, a common initial but limited business strategy tool.

**e** seeks “natural advantage”, a fascinating choice, one to me uncertainly defined.<sup>4</sup>

**h<sup>ii</sup>** centres on improving deliverables for AMI using “reliable, cheap, renewable energy”.

Limitations and wooliness while understandable need to be addressed.

To help build focus, we next consider potential AMI and Government roles in improving our transport systems through manufacturing and energy usage developments.

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<sup>2</sup> Run is essentially to do not with time but rather with production possibilities as used (Sales), current production capabilities (Short), Long (new investments replenish or grow existing capacities) and Very Long (when novel capacities arise due to advances in technologies, organisation and the like). Current policies are predominately Sales Run and Short Run grounded.

<sup>3</sup> borrowing from the third Charter goal of the Reserve Bank of Australia.

<sup>4</sup> Top Google search returns variously include: Our *Natural Advantage* is an advertising and public information campaign to increase public awareness and support for natural gas in Australia; *Natural Advantage* is a leading global manufacturer of natural and kosher flavor ingredients for the food, beverage, and flavor industries; Natural advantage: a blueprint for a sustainable Australia, a 2000 RAI Report ; a Change Area for the Rapid Transition Alliance; The ability for an economic actor to produce a good or service because the resources to do so are physically available. For example, the economy of Nebraska...;



## A. ADDRESSING THE TERMS OF REFERENCE

### **7. Next Gen Transport: Hy+ Trans Potentials, Pathways and Impediments**

Transport involves ways of moving loads from place to place. Ways generally well employed variously distribute all manner of loads for varying distances within and beyond the continent of Australia.

Better technologies now offer new possibilities, and opportunities. Challenges exist, as always, but the pace of change is now breath-making. Next-Generation transport promises much, but it up to us to deliver.

How to transition from old to better new Ways is a central question for this Inquiry, and beyond. Fortunately, significant transitions have already begun – including in Australia! Indeed the range of activities and investments already in play across the nation is impressive.

**Hy+ Trans** is a term used to capture interplays associated with current and emerging energy, materials and information technologies. These three technologies together already offer serious complementary gains in eco -nomic and -logical areas, so enhancing all manner of activities, communities and societies.

The next Section written and distributed earlier this year scopes the area. A Southern South East Queensland focus helps ground the discussions.

It is **important** to note that Governments and their Departments in Queensland and elsewhere will, like any large organisations, act in a variety of ways as they seek to meet their “mandate” and immediate project objectives. Clear successes and mistakes can be expected. Knowing this, it is doubly important to allow for timely review when problems are identified.

Messages are wider as outlined in the Section C where tensions over transport infrastructure investments (specifically extension to the Gold Coast Light Rail, GCLR3a now 3 and 4) reflect major shortcomings in investment evaluations. However, funding support is at hand despite demonstrated very poor project Value for Money?

Finally, then, a number of Initiatives relative to the Current Terms of Reference are briefly suggested in Section D.

## B. AFFORDABLY ADDRESSING PUBLIC TRANSPORT NEEDS across SOUTHERN SOUTH EAST QUEENSLAND

Please note that the bulk of the text in this Section was written as a Discussion Draft in March 2021 and is presented here as then written and circulated to a number of Federal and State Ministers and their Departments. Some were interested but the effective response has been limited.

In planning for the future some potential lines of transition need to be sketched if we are to avoid endless circling and growing frustration. Drafts such as this are meant to be changed and developed as thinking matures due to freshly discovered information and constructive dialogues between involved parties.

Identified investment and development issues arising involve impacts on Manufacturing, as well as Finance, Regional Development and others. Yet, too often the focus is abstracted and confined to one aspect - as my research and that of supervised doctoral students and colleague has demonstrated. As a result, failures due to unappreciated linkages or conditions are far too common.

Manufacturing exists in several important contexts. Australia's Manufacturing involves a range of technologies, demand patterns, supply lines and skills sets but abstracted "markets" have irresponsibly been allowed to dominate public discourse.

The proposal to extend the Gold Coast Light Rail here provides a practical focus, one mirrored on the Sunshine Coast. Research has revealed a number of important problems with the current proposal, and little work for AMI.

Alternatives that engage AMI and new technologies would drive a "reliable, cheap, renewable energy" rollout in a few years for markedly less cost and better service delivery than the preferred but expensive and now obsolete option. Further, with Stanford reporting successful pre-commercial electrolysis of seawater we could be pushing the frontier while making better use of the established Tugun desalination plant.

While key principals and prudent procedures matter, so does Context. Lessons for the Inland Rail and 2032 Olympics build amongst others follow. These range across the spectrum from analytic misspecifications in costing usage and business case evaluation fuelling financial bloat to predispositions to transport system underperformance, ineffective overly expensive public programs and inhibited regional development.

New technologies offer opportunities needing sensible evaluation for **AMI** to advance.

## B. AFFORDABLY ADDRESSING SSEQ PUBLIC TRANSPORT NEEDS

### 1. Purpose

The advent of new technologies is now transforming transport globally in ways unexpected just a few years ago. Hybrid and battery powered vehicles have provided a step but hydrogen, materials and information (Hy+) technologies are now driving major transitions.

Sensibly the Queensland government has begun to recognise this with initial trialling of hydrogen fuel cell buses to begin in Brisbane in coming weeks. Fuller discussion and more informed analyses will support prudent investments that improve transport and access.

This Discussion Draft seeks to stimulate constructive dialogues. It is clearly limited, in part because of limited available information.

Opportunity knocks, with major beneficial impacts on offer. The focus is economic (with quality of life and employment enhancing impacts) and financial (apt investment impacts) as broadly cast. Applications are across transport, and from planning *via* investment to use.

The proposed Gold Coast Light Rail extension 3A provides a Case Example. Stages 1 and 2 always had good prospects due to favourable geography, urban settlement and end anchors. This mode can be further developed where such favourable conditions exist.

Such is not the case as we look further South. Anticipated high 3A and B costs reflect this. Likely fare income is minor. Adverse Impacts from lock in and development distortions are serious, for decades. *GCLR extension may be justifiable but we need exactly that, justification not assertion.*

Hydrogen brings competition, a whole new opportunity with major cost, amenity and usage advantages. It deletes inground rails, overhead wires and exclusive corridor imperatives, slashing construction and ongoing costs. Vehicles become comfortable, non-polluting, scaleable and despatchable across routes that can match existing, seasonal and emerging demand using public roads with likely minor modification and select smart Hy Way lanes.

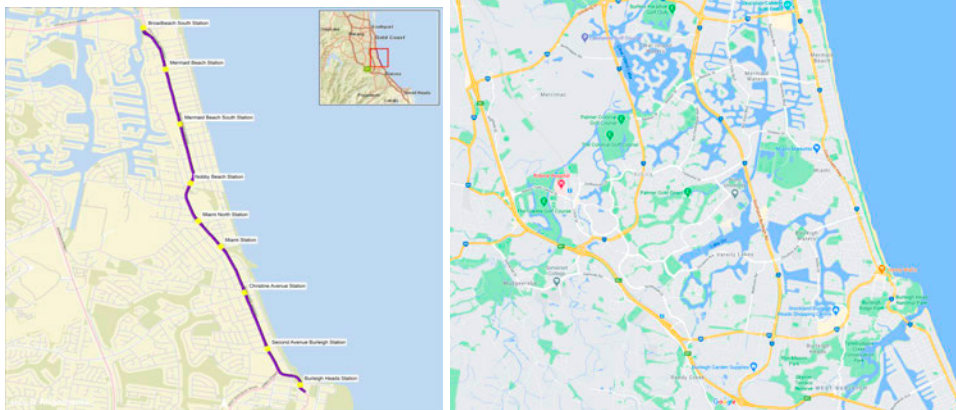
Hydrogen can make community aspirations viable in new ways. History has given us GCLR 1 and 2 and the various impacts, more positive than negative. Technology now offers Queenslanders better, interfaceable options that can deliver with major cost savings and enhanced reach. We would be foolish to not seriously consider today's better options, now.

## B. AFFORDABLY ADDRESSING SSEQ PUBLIC TRANSPORT NEEDS

### 2. A Central Question

Are the State and its residents receiving value for money from current high levels of transport infrastructure investment in South East Queensland?

Specific example: Gold Coast Light Rail 3A & B *Route envisaged, geography and networks ignored*



3A: L: Building Queensland report p 7 R: Google revealing omitted significant details with major impacts

*GCLR 3A Proponent presentation is limited, impositional and naïve. Planning appears almost context free, and highly insensitive to geographic realities, existing networks and tramway externalities.*

*Spending over \$700m up front - with a similar amount for operational and maintenance costs over 30 years and uncertain contractual obligations - while cannibalising an existing busy corridor on the Eastern edge of a city appears very poor value for money and heedlessly limiting of urban quality.*

***This is triply so when we realise that new technologies allow better outcomes for around 30% of proponent suggested cost, or less.***

***Hydrogen fuel cells and smart technologies now allow wire-free trackless transport vehicles of all sizes that are despatchable to meet both routine and special needs in a timely, quick manner.***

***Hy+ developments are many. Some examples include***

- [Meet Sora: A hydrogen-fuel bus at 2020 Olympics that will shuttle visitors between venues](#)
- [World's first fleet of double decker hydrogen buses has launched into service in Aberdeen.](#)
- [France rolls out world's first fleet of hydrogen transit buses in 2019](#)
- [China produces first hydrogen fuel cell tram, with Ballard unit – in 2015!](#)
- [Germany in 2022 takes delivery of 14 Hy+ trains from Alstom](#) (who acquired Bombardier)
- [“Shell Says Hydrogen Is Heavy Transport’s Future”](#)
- [Volvo is teaming with Daimler on Hy+ to offer “customers an attractive alternative to diesel”](#)
- [H2OzBus Project sees the light in Australia to bring 100 hydrogen buses on the road](#)
- *Brisbane begins Hy+ bus trial – next month, and*
- *Ammonia may fuel safe non-polluting aviation using CSIRO Queensland research?*

News

South Korea: KRRI to Deploy Hydrogen Fuel Cell Train, Powered by Horizon Fuel Cell Systems

No Comments

By FuelCellSystems | January 24, 2022 | 2 min read (202 words)



Horizon Fuel Cell

KRRI will unveil their next generation hydrogen-powered electric trains using the latest Horizon PEM Fuel Cell systems.



## B. AFFORDABLY ADDRESSING SSEQ PUBLIC TRANSPORT NEEDS

### 3. Transporting Queenslanders: challenges and opportunities



#### Challenge

How might new technologies be harnessed to achieve superior transport and investment results by now preferencing 'Hy+ Trans' modes (Hydrogen Transport arrangements) across SEQ?

Most Queenslanders (prefer to) self-transport with the State supporting responses to needs arising, by employing 'enhanced' common routes, public modes and trip subsidies. SEQ transport receives significant subsidies. It faces large physical capital development costs. Public transport is necessarily an important **complement** while private means continue to bear the bulk of both load and costs.

#### Perspective

Effective, affordable transport underpins prospering communities by supporting all manner of timely interactions. Apt access enables opportunities to be realised to good effect.

Queensland's transport arrangements need to evolve to deliver on opportunities offered by:

- changed societal **circumstances** (eg Covid reset, debt pollution, rising hubris/alienation)
- new **technologies** (eg energy, communication, organisational) provide fresh options
- **eco** situations (-nomic and -logical), and stressors (eg run downs, absent care, free rider)
- changing community and personal **realities** (eg work life, safety, inequality impacts)

Rebalancing variously involves **adjustment, adaptation, evolution and adoption**. Four horizons are then the world or situation as:

1. 'we know' and use it,
2. incrementally attainable,
3. developing from what is,
4. attainable, now and soon, with what might be

Different **investment modes** attend each:

1. maintenance
2. extension
3. enhancement
4. innovation

Oversimplifying. 'bureaucratic Quality Assurance' dynamics: do 1., plan 2., argue 3. as met, and resist 4. as part of "more of the same" practices embedded in "steady as she goes" positioning.

Such regular reliable **routine** is wonderful in the right circumstances, but inadequate today in situations where **strategic review and innovative investments** are needed.

#### Agenda

The current government has recognised the need for innovative investment in areas such as **its Hydrogen Initiatives**. Absent so far is effective strategic review leading to apt policy resets, sectoral coherence, innovative practices and prudent strategic investments. Good things are happening, but they are not being drawn together in ways that yield quality improvements from prudent investments. Hy+ enhancements and investments can better balance access, costs and usage.

## B. AFFORDABLY ADDRESSING SSEQ PUBLIC TRANSPORT NEEDS

### 4. Argument Outline: Our World has changed, with new and better options

#### Fuel innovation

- Hyundai Hydrogen buses arriving within weeks will be initially running the QUT loop using facilities developed over years of research and development.
- Yet the Sunshine Coast regional transport study makes no mention of any Hydrogen option.

#### Communication and tasking innovations

- smart vehicle capabilities enhance safe common corridor tasking and network sharing options.
- bookable 'semi-public' transport roll-out options were on display at the recent Central Gold Coast Chamber of Commerce lunch

#### Module options

- Car, bus, truck, tram and train are seen as distinct rather than alternative interfaceable moving platforms for persons and products
- Brisbane bus combinations can vary capacity as apt, yet QR use a 6 car standard
- Toyota's Olympic Sora include "a system that shares information on the distance between the vehicles, to prevent buses in a convoy from being separated, leading to overall improvements in transportation capacity, speed, and punctuality of the buses."

#### Interface options

- Physically, buses could run on sections of the existing Gold Coast light rail corridor.
- A third rail would allow NSW standard gauge trains to terminate at Varsity.
- Hydrogen powered trains could run on existing heavy rail lines, and new extensions.

#### Construction impacts

- Corridor construction needs reflect the module used, with high vehicle capabilities reducing corridor dependencies on built infrastructures.
- Electric rail routes are expensive, inflexible and little shared while public roads are relatively cheap, flexible and freely shared.
- Load may justify exclusive corridor rail, particularly for heavy freight between major nodes but such nodes typically involve expensive interfaces if further distribution.
- In design, economies of scale vie with those of scope and node capacity costs.

#### Access configurations and options

- nodes concentrate while corridors link with trade-offs between local and inter-nodal movements.
- modes matter
  - car drivers perceive immediate local access in time and place with active contingent travel to next node(s)
  - rail users note time taken and mode to a central place, transfers and passive regular transit and trip attributes moving from final node to destination, and later *vice versa*
  - bus and like users sit somewhere between depending on trip intent and timing.
- choice made reflects overall benefits perceived given costs in time, amenity and money across a journey and its parts.

Transport provides access, something that often goes unappreciated. Utility is complex behaviourally yet often unanalysed in planning. "Access that enhances utility and life more generally" for a sufficient group of people underpins prudent investment in transport. Trying to force patronage and urban consolidation by transport mode imposition is needlessly expensive, ineffective and highly disruptive of balanced development and community regard for policy makers.

B. AFFORDABLY ADDRESSING SSEQ PUBLIC TRANSPORT NEEDS

5. Approach: Enhancing ongoing “endogenous” urban development.

Geography provides the surface across which people move to satisfy needs and wants. Clusters of amenity (providers of jobs, products, space and shelter) form central places (of varying complexity) and network nodes (transit targets) that are complementary yet competitive. *Interdependencies matter. They motivate ‘everyday’ travel and trade.*

Gold Coast everyday urban geography, demography, amenity: where, who & why, when?

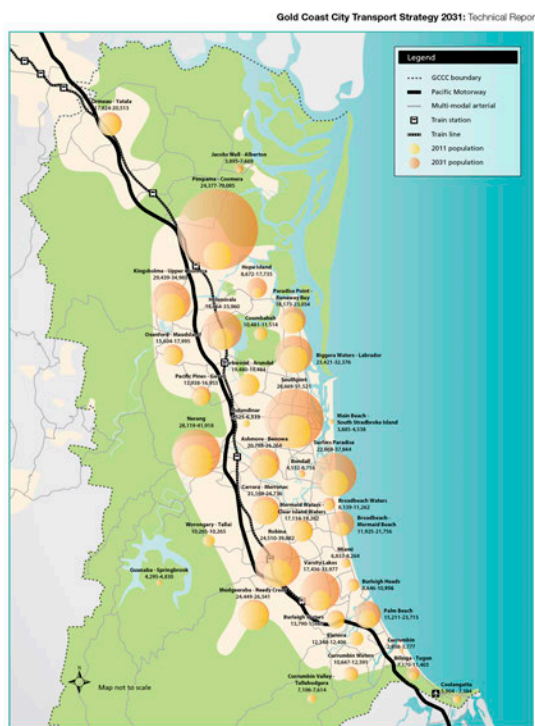


Figure 14 Population growth areas

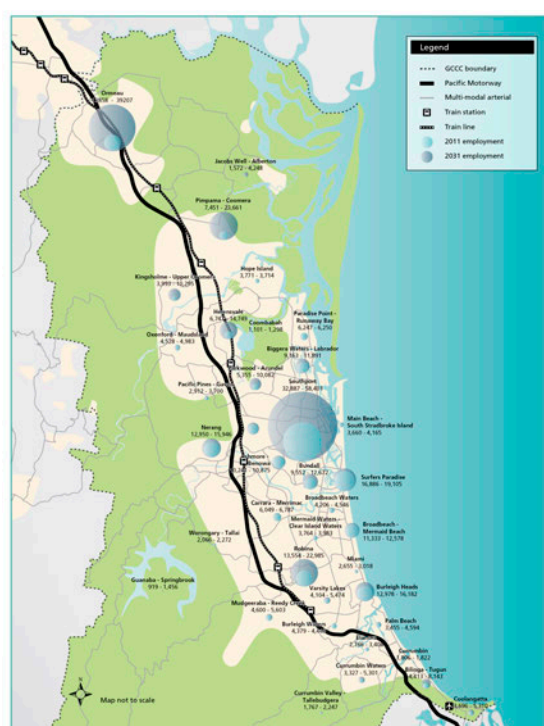
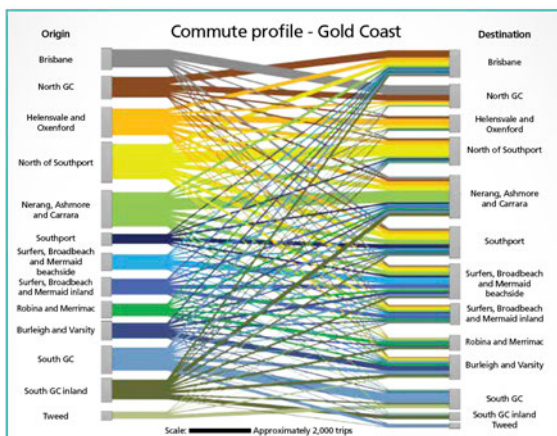


Figure 15 Employment growth areas



Population (Left above) and jobs (Right) are both growing most in North and West GC areas. Relatively little change anticipated South of Miami, especially for jobs.

Commute profiles show predominantly local and adjacent movements with no strong centring to more distant nodes.

Observationally, there appears to be considerable traffic associated with commercial cross haulage.

“Given the size of costs relative to the benefits, the creation of light-rail transit systems or the expansion of existing systems in American cities may be difficult to justify.” [Federal Reserve of St Louis](#)

Additionally, maps of such things as network congestion are needed. Existing maps indicate adverse 3A extension and urban development effects in already congested areas as well as likely lost amenity. Finally. “there is little benefit in duplicating major public transport infrastructure in parallel corridors, such as extending both regional rail and light rail south to Coolangatta” (p19 Tech Report)

## B. AFFORDABLY ADDRESSING SSEQ PUBLIC TRANSPORT NEEDS

### 6. Sustainably Building Missing links: Some Brief thoughts.

**Should the existing light rail be extended, or hubbed and jointly used?** ‘More of the same’ extensions are now needlessly expensive and limiting with significant negative external and community effects. My consistent position has been that while GCLR can work well in the Northern areas there are very serious impediments in Southern areas, including a lack of likely demand (even with posited urban intensification and coercive traffic management tactics).

**Residents going to the beach, bush and other ‘distant’ active recreation.** Why are there no effective public initiatives to support beach and like access on weekends, especially for inter-city travellers? Usage of provided public transport capacity by day trippers could be promoted at minimal cost (using existing spare capacity), helping to decongest both beach front areas and M1.

#### **Bermuda Corridor, Reedy South and M1 developments.**

- Burleigh -Southport Road (‘Bermuda Corridor’) is an obvious transport spine & express link
  - HyTrans allows greater flexibility and newly available traffic management options
  - express HyLane potential: S (Nerang Road to Reedy South) & N (of GCLR/Nerang St)
- Reedy South (quarry, dump etc area) new sub-regional centre/transit and employment hub
- OOL express via M1 and new Southern entry to Airport (shortest travel time B’beach- OOL)
- HyTrans links to heavy rail and other ‘capture’ car parks (eg Reedy South, OOL South)
- Hy Trans vehicle travel speed would match private cars (and be a multiple of 27km/hr trams)

**East West links** can be used by Hy+Trans vehicles in lanes as assigned or common according to general or particular traffic demand pattern. Weekday and weekend usage patterns are different and ‘smart roads’ systems can recognise and accommodate this. Worker parking on week days can become beach goer and recreational parking on weekends and holidays, destressing roads where currently there are no sensible, accessible alternatives to ‘driving there’.

**Better Airport Access.** With 6.4m passenger movements in 2018-19 (~1500 a day with marked peaks,. Coolangatta (OOL) is a busy but still easily accessible airport with extensive car parking. Airport bus stop usage is only 1 to 2 percent of passenger movements. As the 3A extension is not expected to increase passenger numbers significantly, we should also expect 3B, at ~27 km/hr over twice the distance, to be a larger loss leader seriously jeopardising overall Glink viability.

A heavy rail link would improve OOL airport access not only for Western Gold Coast areas but also across the Southern Brisbane region. In terms of travel time and fares, competitiveness with BNE is enhanced, allowing a likely significant step-up in OOL usage and area development attractiveness.

Recent Ministerial comments appear to sensibly highlight heavy rail extension to OOL. Rail earth works would be markedly cheaper and less disruptive if done at the same time as M1 works. NSW linkage opportunities suggest provision for dual gauge allowing standard gauge NSW train (and Hy+ tram) access OOL to Varsity while leaving open QR narrow gauge trains Southward to NSW options.

**Sport stadia and other major event centres.** Southport aquatic, Pizzey /Bond pools and ovals, Robina stadium and Parkwood area ovals roughly demarcate major facilities with Carrara stadium in the middle. All need apt transport support. Glink corridor segment sharing and hub development allows higher yield from established investments. Extensions are needed but mode needs careful analysis. Any extension of tram or heavy rail using overhead electric cabling is notionally three times more expensive per km than Hy+ Trans alternatives. Investment plans need serious review.



## B. AFFORDABLY ADDRESSING SSEQ PUBLIC TRANSPORT NEEDS

**Financing Transport Infrastructure.** Funding long-lived fixed assets are a peculiar problem in today's world of short-term financing *via* tradeable bonds and other means requiring renewal or rollover. Expensive infrastructure presents particular problems and risks. Limited reporting, use of PPPs and various 'stratagems' on and off-balance sheet obscure cost and risk exposures. Staged infrastructure allows opportunistic commercial exploitation, particularly with extensions as PWC (2019) discussed.

GCLR proposals appear so exposed with seriously incomplete information available. For instance, the IA Report notes that the \$0.716b costing for 3A operation and maintenance over 30 years exceeds construction costs. Is a major unflagged PPP contract extension from 2028 to around 2053 present? Repayment of Queensland and especially Gold Coast City costs appear to assume gains from extensive privatisation of existing public lands. If so, each would be a most serious yet hidden issue.

**Equity.** Compounding is the issue that public transport often is most needed by those with little income while those with greater incomes have wider options and flexibility. Expensive transport systems are harder to access, typically by those most in need of access. Reducing build and operating costs can support apt cross-subsidisation and direct opportunity enhancement

### 7. Recommendations

**Hy+ Trans** offers the **opportunity** to actually do more with the same or less funding, not just in terms of service volume but also distribution and scheduling. Ride sharing and bookable seating are now realistic everyday options, and tailoring capacity to meet the transport load as arising can improve both the business model and consumer experience in mutually-reinforcing ways. Concepts of forcing mode adoption, as explicit in the 3A extension Case, have a long history of failure.

In the light of materials present as well as other research, I recommend that consideration be given to these *lines of actions*: that Hy+ trans options

1. be included and investigated in the Sunshine Coast regional transport study.
2. be progressed as a priority in the Brisbane transport network.
3. be actively investigated and incorporated as parts of Coomera corridor, heavy rail extension to Airport and further South, stadia connectivity, East West linkage and like developments
4. be the basis of any further GCLR investments, with Hy+ trams an active option
5. be incorporated into transport planning across Queensland
6. be made a priority element in transport PPP arrangements, such as Glink and Next Gen train
7. be made a priority in Olympic transport planning
8. be a goal for Queensland Rail across its network
9. be fueled by Queensland made Hydrogen
10. be supported by local service and manufacturing capabilities
11. be the goal of heavy transport
12. be supported in public tenders where appropriate
13. be a basis in urban planning
14. be a key contributor in prudently resolving societal and environmental challenges.

Ambitious? Not really. Just look around...

**In all.** Ideally, sensible and affordable transport arrangements complement and facilitate high quality urban development with apt access, somehow, for all residents with their various needs.

At the end of the day the message is simple: transport is complex and real time. Problems typically arise when simple 'solutions' and naïve analysis command excessive attention. Problems deepen when important additional information, new technologies and the like are not just ignored but denied. It is Hy time to move past obsolete fixations with roots from [a quarter of a century ago](#).

## B. AFFORDABLY ADDRESSING SSEQ PUBLIC TRANSPORT NEEDS

### 8. Meeting Challenges, or Deepening Expensive Problems?

Hy+ Trans is not perfect, indeed is still maturing. There are cost and technology challenges but prospects are being increasingly realized.

Current alternatives, notably those reliant on stored electricity via batteries, should be seen as important also. Change “Hy+” to “Bob” for “Batteries on board” and, with a few tweaks, the Recommendations above stand. Both involve untethered electric vehicles.

GCLR trams (at up to 70 km/hr maximum, but averaging under 28 km/hr) are

- tethered, below by track and above by electricity supply, at great expense. The bulk of investment and operational costs and risks are from tethering
- granted exclusive access over scarce corridor space, with major negative externalities
- supplied by a franchisee effectively unexposed to usage risk or performance problems
- asymmetrically funded through a Public Private Partnership about which little is known. For example, GCLR Stage 1 costed at [\\$949m](#) is assigned in Plenary public documents a value of both [\\$1.2b](#) and \$1b, with an extension of term also apparent in Stage 2.

Both Hy+ and Bob Trans (as in Brisbane Metro’s Bob vehicles, running at 90 km/hr busway limit)

- are untethered, other than at refuelling/recharging,
- can share corridor spaces, with relatively few externalities or congestion effects
- do not need extensive contractual protections, or private investors
- require much less investment for better outcomes

Either mode could be installed on the Gold Coast, avoiding years of GCLR digging and disruption, needles serious long-term liabilities, distorted urban development and public exposures. Bob and Hy+ Trans both offer prudent advantageous solutions to community needs.

Better economic, environmental and financial outcomes are on offer, now and into the future. Also, complementary heavy rail investment to the border offers markedly better investment, regional access, employment and development options than does GCLR, without cannibalisation and congestion of existing transport corridors.

Discussions of GCLR Extension 3A have demonstrated serious problem. Extension 3B/4 is markedly more expensive and remote from feasible catchments. Why should urban transit passengers, communities and operators put up with route inflexibilities, lengthy construction disruption losses, latent costs and expensive material purchases?

In all, why is some such comparison of alternatives not already at hand? Several reasons exist but for now consider *the [sunk cost fallacy](#)* which individuals and organisations act out

*“when they continue a behaviour or endeavour as a result of previously invested resources (time, money or effort) (Arkes & Blumer, 1985). This fallacy, which is related to [loss aversion](#) and [status quo bias](#), can also be viewed as bias resulting from an ongoing [commitment](#). ... Research suggests that rats, mice and humans are all sensitive to sunk costs after they have made the decision to pursue a reward (Sweis et al., 2018).”*

GCLR proponents show strong bias towards ‘more rewarding *trammings*’, not now prudent transport actions. Compounding is a fixation with ever greater public transport spending as a measure of success, despite increased reliance upon debt, on balance sheet and off. New costs, not sunk, matter - as do realisable revenues and contractual risk allocations.

I trust these comments help advance needed deliberations, informed evaluations, prudent actions and improved results. Mark McGovern, 12<sup>th</sup> April 2021

## C. PROBLEMS, AND LACK OF RECTIFICATION: ANALYTICAL MATERIALS

Problems are apparent in the proposed Gold Coast Light Rail Extension to Burleigh Heads (project GCLR 3A) which is not yet started.

Briefly, five areas of concern are:

1. the very poor quality of the 2019 business case which returned a benefit cost ratio BCR of 1.1 on dubious grounds
2. the 40%+ escalation in costs since, yielding a current highly unsatisfactory BCR of only 0.7 along with significant negative externalities
3. the recent Commonwealth funding advance despite such evident and serious project problems
4. project and works development issues including:
  - the existence of major likely latent costs;
  - opportunistic commercial concerns;
  - the existence of ongoing commitments totaling over \$700m;
  - increased revenue shortfall exposures borne by the State;
  - exploitable project rollout plans;
  - unidentified PPP equity and other considerations, to name a few
5. failure to examine better alternatives which promise superior outcomes for over 70% less expense

Underlying is failure to institute ongoing review processes that automatically trigger when adverse project details arise.

Compounding are the use of lifestyle aspirations as enumerable “benefits”, associated displacement of well-founded estimates of economic impacts and reliance to a surprising level on unfounded assertions.

## C. PROBLEMS, AND LACK OF RECTIFICATION: ANALYTICAL MATERIALS

### 1. *Proposed Gold Coast Light Rail extensions are wasteful. Better alternatives exist.*

#### **Cost blowouts.**

Stage 3 (previously 3A) of the Gold Coast Light Rail (GCLR3) expected costs now exceed \$1billion.

Despite easier terrain, current estimates of Stage 3 capital costs per built kilometre are:

- 2.4 times those of Stage 1
- 2.8 times Stage 2 per km costs and
- 1.6 times the \$709m proposed in the 2019 business case, and .

Also, \$716m in additional operating and maintenance costs over 30 years are proposed without a justification presented.

#### **What is going on?**

The numbers have been readily available for some time, so why has there been stunning silence from Federal, Queensland and Gold Coast political representatives and bureaucrats?

Despite community requests,

- no review of project financial feasibility has been undertaken,
- nor have alternative transport options been canvassed,
- nor have falsities in “urban consolidation” arguments been recognised,
- nor is there a coherent plan for SEQ transport development and Olympic servicing.

Instead the push is on to waste much more public money by forcing Stage 4 where poor revenue potential imprudently raises risks, rates and debt servicing needs while needlessly despoiling nature and tourism prospects.

#### **Beyond Commitment to Failure**

“Commitment to failure” problems typically arise from lack of due diligence along with undue political and commercial considerations leading to lock-in.

In the tradition of Margaret Thatcher<sup>5</sup>, ‘There Is **No Alternative**’ claims surround the GCLR, despite being manifestly untrue.

**TINA** claims allow problems to worsen unchecked while precluding better alternatives.

Relevant warnings like “*lack of flexibility can leave government vulnerable to private sector profiteering on the commercial terms of significant extensions*”<sup>6</sup> need to be heeded.

It is not airheads but the inflexibly unthinkingly committed who stand irresponsible, channelling the Animal Farm chant of “*Four legs [Stages] good, two legs baa-d*” to drown out dissenting opinion.

#### **Next steps**

GCLR Stages 1 and 2 actually make some sense and have further promise (as might Carrara-Nerang). Stages 3 and 4 don’t and won’t stack up, no hard some might pretend. It’s time to accept this, and to work together on real community transport solutions that do not squander billions needlessly.

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<sup>5</sup> <https://www.investopedia.com/terms/t/tina-there-no-alternative.asp> Usually such narrowing reflects perceptual failures. Typically when TINA is dogmatically claimed, There Are Many Better Options (TAMBO).

<sup>6</sup> Price Waterhouse Coopers Australia (2017) “[Obtaining value for money on rail extensions](#)”

## C. PROBLEMS, AND LACK OF RECTIFICATION: ANALYTICAL MATERIALS

### 2. *Apparent misuse of taxpayer funds?*

Recently released Gold Coast Light Rail passenger data confirms Stage 1 and 2 financial performance is poor. Tram revenues are failing to cover even interest payments due on government debts according to initial estimates (attached).

Such information should be publicly available through public accounts and the Budget process. The fact that Sunshine Coast Mass Transit Action Group Inc had to use Right to Information processes to obtain basic passenger information is of concern.

Gold Coast Light Rail patronage averages 30% of total capacity. Bus and Tram annual average revenue is estimated to be up around \$22m.

To achieve this, \$1,300m has been directly invested in GCLR Stages 1 and 2 by tax and rate payers. Apparently at least another \$600m has been invested by private parties as part of a Public Private Partnership agreement. Servicing arrangements details are not evident.

Investing \$1,900m to earn \$22m extra annual transport income to service over \$100m in interest, operation, maintenance and other costs looks decidedly diabolical.

Based on these figures, Queensland is providing a subsidy of over \$13 for every \$3.37 fare paid by a passenger, with no provision to service public borrowings or PPP private party dues.

Government subsidy of public transport is not unusual but a subsidy of 80% coupled with no capital servicing component is extraordinary. Needless insistence on a very capital-intensive transport mode without a sufficient supporting population is a central problem.

Clearly, a proper performance review is needed before any extension of the Light Rail. GCLR public construction costs were \$64m per km for Stage 1 and \$57m per km for Stage 2.

The State 3 extension to Burleigh costing \$157m per km would double down on the loss position. Infrastructure Australia reported in 2019 that no new passengers were expected (switch from bus). A new unexplained 30-year payment stream of \$24m each year arises also.

No more passengers carried from an investment of \$1,100m of public money now and over \$700m more in payments by 2055 is more a debt trap than anything else.

Going to the Airport appears even more financially horrendous. Current Stage 4 capital construction estimates are \$179m per km, and likely much more given terrain and the Stage 3 blowout on initial of 80%.

Price Waterhouse Coopers (PWC) sensibly warned in 2017 that *“lack of flexibility can leave government vulnerable to private sector profiteering on the commercial terms of significant extensions”*. Inflexibility is set to cost Queenslanders dearly if Stage 3 were to proceed.

Imprudent investments impoverish all. Proper disclosure and accountability are needed. Responsible Parliamentarians should now act, with Budget Estimates providing an immediate opportunity. Alert Federal and State Auditors General would, we hope, already be investigating.

C. PROBLEMS, AND LACK OF RECTIFICATION: ANALYTICAL MATERIALS

3. Analytic Estimates and Identified Problem Areas

GCLR FINANCIAL ISSUES						
	STAGE	1	2	3 (2019)	3	4 "OOL"
		Operational	Operational	Business Case	Current	Initial Estimate
Reported Capital costs	Stage	900	400	709	1100	2500
	\$ m Cumulative	900	1300		2400	4900
Built km	Stage	14	7	7	7	14
(approx)	Cumulative	14	21		28	42
Capital cost per built km	Stage	64	57	101	157	179
(\$m / km)	Cumulative	64	62		86	117
<b>Q1</b>	Why are stages 3 and 4 Capital Costs roughly three times greater per built km than for Stages 1 and 2? especially given largely flat no-bridges route for Stage 3					
<b>Q2</b>	What values are Private Party contributions?	Actual		Envisaged		
<b>Q3</b>	What Rate of Return on Investment does the government achieve/expect on its Light Rail investment					
<b>Q4</b>	What annual total tram trip numbers does the Government expect at each stage?	million trips pa		7.5	9.6	
<b>Q5</b>	Why have Stage 3 Costs increased from the 2008 Preliminary Business case \$650m quote?					
<b>Q6</b>	Benefit Cost ratio is now below 0.7. Costs easily exceed (inflated) "Benefits", so why continue with this Stage?					
<b>Q7</b>	What alternative extensions have been considered, and do these offer likely better Value for Money?					
GCLR COST INFLATION across STAGES						
	STAGE	1	2	3 (2019)	3	4 "OOL"
		Operational	Operational	Business Case	Current	Initial Estimate
Reported Capital costs	Stage	900	400	709	1100	2500
<b>Capital cost per built km</b>	Stage	64	57	101	157	179
<b>INDEX Capital Cost/km "Inflation" rel Stage 1</b>		100	89	158	244	278
<b>Stage Cost Adjustments - Illustrative only</b>	Reference	Example Differences:				
Construction Cost Inflation	(generous)	0	10	15	20	25
Costs of Built Environment		0	-30	0	0	-10
Costs of Natural Features		0	0	-15	-15	40
Immediate Project Finance		0	10	10	10	10
Other (eg new trams, power supply)					10	
Adjustment			-10	10	25	65
<b>INDEX Adjusted</b>		100	99	148	219	213
<b>Unexplained Index Increase</b>	rel to Stage 1		-1	48	119	113
<b>Unrecognised Capital Cost Obligations (UCCO)</b>	\$m Each Stage		-7	300	753	1421
<i>Potentially may reflect Funds Shifting, Bloat, Opportunism. Collusion, Respecifications &amp; Like Poor Conduct</i>						
<i>Unexplained extra Maintenance &amp; Operations costs UMOC</i>				716		
<b>Unresolved Cost Obligations (UCO)</b>		<b>TOTAL</b>	<b>CCO + UMOC &gt;&gt;&gt;</b>	<b>UCO \$m</b>	<b>2883</b>	
<b>Superior alternatives now exist for a fraction of both the Capital Cost per km and Ongoing Operational Cost</b>						

C. PROBLEMS, AND LACK OF RECTIFICATION: ANALYTICAL MATERIALS

<b>Wider Considerations</b>
Stage 1 may have been sold as a loss leader, to establish a private investment presence (~\$600m), to secure the job and/or in anticipation of later greater returns. .
PWC (2017) warned of major expectable problems with Public Private Partnerships (PPP), specifically for light rail extensions
GCLR3 involves "a PPP contract and they take time to come to fruition ..."
Queensland Treasury has a problematic stated predisposition towards PPP arrangements as part of its Value for Money (VFM) framework.
GCLR at \$4.9b across all stages qualifies as a mega-project.
Gratten (2020) has identified major "cost over run" problems in Queensland megaproject infrastructure developments.
Using the Business Case, Stage 3 Benefit Cost ratios were estimated at 1.1 by Infrastructure Australia in 2019 (IA 2019).
Using the current higher Capital Cost, Benefits are less than Costs with a ratio of only 0.7
Correcting for exaggeration of several Business case "Benefits", sees the ratio fall markedly further towards zero.
Recent requests for reviews to Infrastructure Australia have gone unanswered.
GHD Meyrick (2011:44) highlighted "a need for governments to apply even greater scrutiny to infrastructure projects [with] ...application of higher standards of project evaluation to ensure that the planned infrastructure projects genuinely deliver value for money. The point is that governments cannot afford to spend scarce capital on ever more expensive projects."
A decade later, this and like warnings have not been heeded resulting in significant ongoing financial obligations
Proposed GCLR extensions clearly represent very poor Value for Money. Indeed they would be highly imprudent investments.
More broadly, problems identified mandate serious independent review and procurement reforms prior to Olympic investment bidding.
Part of the answer?
<i>rail in George Street in Sydney is another, so the industry is now pricing in risk in a totally different way. Firstly, we started in 2018 on this journey and since then we have had a couple of major deviations on light rail which means that John Holland and other people are pricing this sort of work in a very different way. ..."</i> TMR Director General Neil Scales to Estimates 10 August 2021 (p 15) on "the PPP business hand dealt"
<i>Every gambler knows</i>
<i>That the secret to survivin'</i>
<i>Is knowin' what to throw away</i>
<b>So why persist, especially when there are now much better current and emerging transport alternatives?</b>
<i>Know when to fold 'em</i>
<i>Know <b>now</b> to walk away... apologies to Kenny Rogers</i>

C. PROBLEMS, AND LACK OF RECTIFICATION: ANALYTICAL MATERIALS

4. Yesterday's Headlines

The image shows a snippet of the Gold Coast Bulletin newspaper. The masthead features the 'Gold Coast' logo in a blue box and the word 'Bulletin' in large, bold, black letters. Below the masthead, the date 'THURSDAY, SEPTEMBER 9, 2021' and the website 'GOLDCOASTBULLETIN.COM.AU' are visible. A slogan 'We're for you' is written in a script font. The main headline reads 'Councillors warn light rail won't make airport by 2032 Games' with a sub-headline 'TRAM SPEED BUMP'. A small photo shows a tram. A sidebar on the left says 'WIN INSIDE' and 'TODAY'S CODE P4' with a photo of a van. A byline 'PAUL WESTON' and a short article snippet are also present.

GOLDCOASTBULLETIN.COM.AU • THURSDAY SEPTEMBER 9 2021 • SUBSCRIPTIONS 1300 726 161

NEWS 05

# 'Sort rail contracts now'

PAUL WESTON

GOLD Coast City councillors are urging the state government to fast-track light rail to the airport and organise for construction to start immediately after the Broadbeach to Burleigh stage is complete.

They fear negotiations about what the three forms of government will have to pay on Stage 4 could mean it is not finished in time for the 2032 Brisbane Olympics.

Council planning chair Cameron Caldwell led a chorus of councillors strongly support-

ing the push for continual work on the southern Coast route on the Gold Coast Highway after they learned at a transport committee meeting on Tuesday about a four-year gap between stages two and three.

Councillors were told major works on the Broadbeach to Burleigh line would only start later this year and finish in early 2024.

"The message needs to be sent really clearly that this needs to be a continual program of construction, where we roll from one stage to the next," Cr Caldwell said. "We

need to be able to walk and chew gum at the same time. "So that we are planning whilst we are doing construction. Otherwise this is going to take two or three times as long to deliver in a reasonable network as what it should."

Cr Caldwell was supported by Deputy Mayor Donna Gates, William Owen-Jones, Gayle O'Neill and transport committee chair Pauline Young.

Cr Caldwell estimated the four-year wait after Stage 2, from Gold Coast University to Helensvale, led to two stages of

construction being lost. He suggested it was critical for Palm Beach residents to not drag out the project.

"The reason that they're so apprehensive about it is because there's this great unknown thing sitting there waiting and it is going to be a decade or more from when it got to Broadbeach that it gets to Palm Beach," he said.

"No wonder they get upset about it. They don't know when it's coming, they then don't get experience, it's the whole unknown. We have to give these people the real meaningful op-

portunity to use the investment. We're all paying for it.

"We are all paying for the light rail and it's not going far enough quick enough."

Mayor Tom Tate remains a strong advocate for continual construction of the tram tracks.

"My position remains the same - this should be a continuous rolling contract with Stage 4 ready for construction as Stage 3 ends," he said.

"I encourage the state and federal governments to issue a separate contract - during Stage 3 for the major bridge and wildlife corridor works as-

sociated with Stage 4. It makes economic sense to have those works out for tender in mid-2022.

"Building something tomorrow is always more expensive than today. As Mayor, I would willingly take to council a report outlining our funding commitments for these works - wildlife corridor and additional bridges. I'm confident full council would approve our commitment given it is the best use of ratepayer funds to build these major linkages today, rather than going to tender in four years."

Yet GCLR 3 and 4 do not service any Olympic venues?

... at heart of new Olympics funding fight [\(ABC\)](#)

... both sides are manoeuvring about what transport projects will be included. Mr O'Brien said the funding model for the 2032 Games was different to the one used for Sydney in 2000, and whereas the New South Wales government picked up the majority of costs back then, *the Brisbane Olympics was a partnership in both funding and planning.*

In the 2000-01 financial year, the Commonwealth contributed \$72 million for the Olympics, while the NSW government spent \$382 million. The state bore an even larger share of costs leading in, including \$1.6 billion for venues.

*Costs of transport infrastructure spent in Brisbane over the next decade will dwarf these numbers, making decisions taken now vital for state and federal budgeting in coming years.*

Why are transport infrastructure cost increases so great? How much is AMI in the Olympic build?



## C. PROBLEMS, AND LACK OF RECTIFICATION: ANALYTICAL MATERIALS

### Ministerial Perspectives

As two relevant Ministers in an August 2021 Media Statement put it:

*“Hydrogen presents an incredible opportunity to create jobs and decarbonise our economy”*

*“Renewable hydrogen can be stored and used over time, and, as a future fuel source, is one of the most promising solutions for reducing global emissions, particularly in the transport and heavy industry sectors.”*

Yes, Ministers. I and others could not agree more with your comments. So how to advance?

Hydrogen now offers a new technological *means*. We need to more fully articulate associated impacts, strategies and prudent pathways to achieve our various desired *ends*.

Industry, network and regional development opportunities exist that could improve the prosperity and well-being of Queenslanders, and others. However, limited recognition of transformative possibilities is evident in current policy dialogues.

- *“Creativity involves breaking out of established patterns in order to look at things in a different way.”* de Bono noted flawed perceptual or first stage thinking was at the root of many major problems in business and government organisations.
- *“Civil servants [amongst others] have an extraordinary genius for wrapping up a simple idea to make it sound extremely complicated.”* As harried Minister Hatcher discovered, details and established systems are their forte - and weakness.
- Communities are many and varied, and articulating roles and how to together meet various needs well is the common challenge.

Harnessing Hydrogen well requires informed insights into how investment impacts can accrue to benefit communities across Queensland. Apt inclusive efforts are needed.

An Application.

- **Problem.** Globally, most public transport infrastructure investment “falls short”.
- **GCLR 3 & 4.** Serious problems in current Gold Coast Light Rail Extension proposals – and public infrastructure procurement more generally - are now well documented.
- **Hy+Trans.** How might Hydrogen and other innovative technologies (Hy+) better improve Gold Coast public transport investment outcomes? Initial investigations raised promising lines of development.
- **Proposition.** Hy+ Trans could offer a better outcome for a billion dollars less than GCLR3, and GCLR might be better linking and interfacing West to Nerang.
- **Articulating Next Steps.** Scoping possibilities, evaluating impacts and revamping system policies and priorities

**Transformative opportunities** now at hand are historically very rare. Ministers and communities rarely face such possibilities, and responsibilities. We would be foolish if we did not work together to take full advantage of good options at hand, and as emerging.

**...And further materials can be provided as need be**

## D. INITIATIVE COMPONENTS

These suggestions are offered for consideration by the Inquiry members. Clearly there is much more that could be said, and I look forward to discussing relevant matters as members may request.

This is an initial unpolished list which hopefully will add something to stimulate further inquiry and discussion. Disagreements may be expected of course, but together something better can be generated, with further items added.

As with all generalisations, there are sweeping statements. Obviously, inadequate understandings and errors will be present but I trust these are minor and am happy to correct, clarify and develop.

Three themed areas are now suggestively explored.

## D. INITIATIVES

### 1. *Energy and Transport: Where's AMI?*

**Hy+ initiatives** would, if done well, “reliable, cheap, renewable energy” locally produced across Australia.

- Fuel and cell technologies can favour distributed production, with considerable efficiencies. Returns on investment, current transport costs and resilience could conceivably all benefit.
- Balance of payments impacts would likely be net positive in terms of fuel import substitution.
- Enhanced export earning capabilities could follow technologies innovatively applied to problems in Australia.
- ➔ recognise the gamut of current opportunities and activities
- ➔ analyse beyond SO, including WT and properly consider “advantage”

**AIM** supply development for domestic markets could well have potential for:

- product export
- technology transfers and licensing revenues
- joint ventures offshore, and on.
- targeted Foreign Direct Investment
- intellectual property payments
- ➔ scope industry and enterprise potentials in and across regions
- ➔ audit for Strengths, Weaknesses and Potentials
- ➔ improve investment evaluations, and finance risk management

Governments across Australia are major transport operators in their own right who can:

- work to complement AIM development for mutual gain and potentially investment de-risking
- share evaluations of Hy+ projects and prospects, so promoting better projects and outcomes
- improve evaluations of transport infrastructure development, including remedying shortcomings identified here and elsewhere.
- ➔ adopt partners to progress perceptions, practices and performance
- ➔ note mindsets emphasise some things while ignoring others, which may be important
- ➔ accept that conventional wisdoms (especially when embedded in plans, project analysis, QA and the like) are neither eternal nor complete truths, so critically adjust and adapt

Permeating these and other aspects are problems relating to usage of all manner of Capitals. We are operating Short Run without needed generating and allocating needed returns to thrive Long Run.

This is true across nearly all Capitals and Sectors. Capital Rundown is indeed Comprehensive, as discussed in my 2020 paper.

## D. INITIATIVES

### 2. *Investment and Finance*

Suitably structured and termed **investments** can enhance Australian positions.

- Unfortunately, Australia has in recent decades had a somewhat cargo-cult mentality.
  - Balance of Payments deteriorated accordingly, with the Financial Account demonstrating a range of weaknesses and exposure points.
  - Inadequate Factor Income to Australia(-ns) needs to be addressed.
  - Comparative and competitive advantage can be built, and should not be simply assumed given and permanent, especially relatively.
- ➔ investigate options ways to improve External Balances and Wealth

**The Australian superannuation system** is largely:

- holding large tranches of shares traded on-shore and off;
  - reporting increasing interest in sustainable investments, in part because of previous outperformance of existing holdings;
  - a modest party in real property assets with potentially interest in extending into new areas;
  - capable of providing patient funding if risks are acceptable.
- ➔ investigate any potentially prudent options

**Otherwise the Australian financial system** is largely:

- commercial and private
  - preoccupied with personal household lending offset by holdings of deposits, government bonds and securities of uncertain and sometime clearly doubtful quality;
  - aggressively pursuing a trading strategy stance rather than one of long-term commitment to well-appraised investment funding.
  - illustratively, SMEs borrowing is often secured by real properties (eg family homes and factory buildings);
  - credit availability from banks has tightened markedly while broad money patterns are of ongoing concern;
  - carrying historically high debts with widespread property asset overvaluations which can provide a major reset trigger;
  - unable and apparently unwilling to provide significant patient funding appropriate for needed investments.
- ➔ establish and shock test potential lines of contagion and spread to the real sector

**Public Bank and differentiated funding options** need serious consideration.

- Savings options can also be improved with public savings banks.
  - Competitor nations/states and international agencies have established Development Banks to target important but otherwise neglected areas of funding needs.
  - Commonwealth and State Banks previous provided some such funds.
  - Their successes need to be revisited and their weaknesses examined as part of reintroducing a significant anti-trust influence while augmenting liquidity and investment options.
- ➔ actively work to establish such options drawing on recognised good arrangements and practices
- ➔ Commonwealth considerations can include
- a Transport Infrastructure Development Facility complementing open funding
  - a Post Office Savings Bank as a complement to bond issues
  - targeted bond issue options, including green bonds
  - direct retailing of government bonds
- ➔ State considerations can be developed similarly as may be appropriate

## D. INITIATIVES

### 3. *Public Management*

**Prudent public financial management** needs more complete establishment and robust application.

- Australia, unlike most nations, has a public central bank. This important advantage needs to be better utilized.
- Tools available to the RBA need augmenting if we are to transition to post-bubble finance without major disruptions and also avoid the perils of Quantitative Easing.
- Capabilities inherent in design of the Australian Reconstruction and Development Board legislation (Katter 2013) needs to be revisited to facilitate orderly write down of debts - particularly those made unrepayable by *force majeure* events, plague, natural disasters, “Acts of God” and other uncontrollable external events.
- Complementary strategies to ensure needed liquidity in times of crisis.

**Establish viable pathways** for needed transitions

- Real economy developments require prudence, much enhanced evaluation, apt finance and effective risk management. Scope options and good practices.
- Co-operatively canvass and profile lines of AIM development, including impediments.
- Australian Government positions can be developed to stabilize and (potentially / partially) de-risk developing Strengths and offset current Weaknesses
- Financial System rebalancing will, in the absence of Crisis, take insight, care, time and effort with much better Administrative and public financial Regulator performance.
- Pre-emptively examine and address Crisis possibilities, including those commonly regarded as Low risk but High Impact.

**Rebuilding** competencies of, and trust in, **public agencies**

- Commercialisation has too often seen much preference for potential payment stream capture, too often inhibiting “full and frank advice” as well as audit quality.
- Finance and law are similarly affected as are other professions.

**Rebuilding productive professional engagement**

Obviously these lists require further investigation and development as may be appropriate. Some may be seen as highly relevant, and others low. The underlying goal is to help better progress along important transition pathways.

Some transitions are underway, some should be and others can be anticipated. We need to build strategic insights and complement them with prudent investment involving all manner of capitals well utilized while sustainably impactful and impacting

Societies make needed transitions in various ways. Societal cohesion is one key. Optimally, government will complement this, but inertia and obsolete thinking and practices lead to needless disruptions, needless losses of capacity and wealth, diminished quality of life and the like.

Australians have made several major transitions successfully in the past. It is now our turn to rise to the many and varied challenges we face.

## E. **AMI DEVELOPMENT IN VARIOUS CONTEXTS**

Scoping some problems and possibilities...

## E. AMI DEVELOPMENT IN VARIOUS CONTEXTS

### 1. *When Manufacturing an Olympics.*

A number of inadequate positions held by Government Departments need to be recognised and reformed if we are to deliver on our Olympic promises in good faith.

Some positions are outlined overly briefly to demonstrate a few key issues.

Manufacturing an Olympics is one 2032 challenge for the South East, Queensland and Australia.

- All publics (via representatives aided by government Departmental agents) are investing heavily for an uncertain return.
- Private parties appear as Partners in some endeavours.
- “Planning will occur across a range of areas including critical infrastructure, venues, industry development and a dedicated legacy program designed to optimise community benefits over the next 20 years and beyond.”
- “The 2032 Games and the SEQ City Deal currently under development provide a catalytic opportunity for all three levels of Government to agree on key priorities including transport infrastructure projects.” ([VPA 2019](#))
- ➔ contributions and costs for component Games Projects need to be reconciled having due regard to returns on investments and other impacts now and into the future
- ➔ evaluations need to be articulated across all capital areas, with bland assertions and naive assumptions dismissed
- ➔

AMI roles should reflect current, developable and likely emerging capabilities. Ten years provides windows of opportunities

### 2. *Departments matter*

Transport is part of the challenge.

- Queensland Transport and Main Roads’ (TMR) Investment Plan (QTRIP) is in 2021-24 phase with funds nominated. 25 years ago “RIP” was essentially a simple indicative listing.
- “Delivering a \$27.5 billion 4-year program of work to help our economy recover” is the Departmental headline.
- A Gold Coast Light Rail Stage 3 Extension (GCLR3) project is pre-final intended signoff, while the proposed Stage 4 project is already in Community Consultation.
- GCLR 3 & 4 have been claimed to be integral to Olympics success, despite the proposed Extensions being South of, and relatively remote from, announced Olympic sites.
- ➔ Central planning approaches such as QTRIP can build inertia and blindness as to opportunities at hand, especially if processes are formalised, critical or strategic reviews are absent and opportunities exist for third parties
- ➔ “Honey pot” opportunities and risks should be specifically identified and guarded against
- ➔ FDI and oligopoly see AMI and public roles in Transport Infrastructure needlessly limited. AMI and Public Developmental pathways need review and apt development.

Energy, Renewables and Hydrogen, Public Works and Procurement are an emerging challenge and serious opportunity area.

- Department of Energy and Public Works (EPW) has a Strategic Plan 2021-25
- “Build a sustainable hydrogen industry” is an identified opportunity to be leveraged.
- A Queensland Hydrogen Taskforce has been established to fast-track the development, production, export and use of hydrogen in Queensland.

## E. AMI DEVELOPMENT IN VARIOUS CONTEXTS

- Hydrogen vehicles are being trialled and apprenticeship training is underway in a new centre.
- Other States AMI participants and serious Others are variously actively pursuing opportunities.
- ➔ Critical engagements and complementarities can yield well. Insights and lines of development need to be further articulated to foster investable areas and projects.
- ➔ Desired SEQ 2032 capabilities should be articulated carefully and used to drive technology developments and applications for AMI and others.<sup>7</sup>
- ➔ Slogans should be avoided, and “oversimplifications” can be very expensive in design, roll out and operations.

Obviously, other Departments and Agencies such as Queensland State Development, Infrastructure, Local Government and Planning, Infrastructure Australia and various Treasuries have roles to play and some new challenges to meet.

- ➔ Commencing with a tight focus such as Physical Delivery Options provides a basis for initial scoping and preliminary evaluations. Problems such as GCLR3 & 4 cost and obsolescence problems could have been avoided.
- ➔ Evaluation is ideally and prudently ongoing and not narrowly staged if Budget Bloat and like foreseeable risks and problems are to be effectively countered.
- ➔ Development should also be staged to practically allow for likely, contingent and latent risks. As GCLR1 showed, starting construction at both ends of a track needlessly extends and compounds business, traffic and other disruptions in each locality with then major delays when serious problems in the middle arose. Avoidable costs and risks should be sought and practically recognised, especially in brownfield areas.

Competitive market theory as commonly taught centres on covering variable costs, those costs directly associated with operating while assuming capital costs can be met.

- So planes will fly if fuel, fees and crew can be covered with anything left over a bonus to go towards meeting “fixed” cost of terminal rent, plane finance and the like.
- This is a Short Run view, one *assuming* investment obligations can somehow be met.
- Investments like GCLR3 pass neither criterion, as do many PPPs.
- Prudent borrowing *via* borrowing or bonds should demonstrate serviceability that includes capital repayment.
- PPPs offer concessions such as fees collected from managing or servicing operations, and fares if attractive to the private Partner.
- ➔ Revenue and cost allocations under PPPs need close scrutiny and shock testing.
- ➔ This is especially so when parties are “eager”, asymmetries are present and the like.
- ➔ Claims over infrastructures may impact other built, natural and societal capitals. Note that potentially privatisable infrastructures “worth” \$75 trillion globally have been identified.

Clearly there is much more we could discuss.

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<sup>7</sup> 1960s “Man on the Moon in a decade” aspirations drove success in 9 years for NASA and the USA with many spinoffs but not much value capture. However, greater expenses from wars in Vietnam and on Poverty debased the Budget and currency with the dollar devalued in the 1970s.



## E. AMI DEVELOPMENT IN VARIOUS CONTEXTS

### 3. “Hy+ Rejuvenating of Australian Manufacturing by 2032”?

Rejuvenating AMI is a Long Run proposition and should be so recognised.

Central to any investment by an enterprise is whether full costs of production can be met over the life of the investment.

Investment would

- A. “perhaps” proceed if revenues *are expected to* cover full costs
- B. prudently proceed if additionally impacts of unexpected adversities and risks as arising can be well accommodated within the finance or wider agreements

Today B is clearly needed but essentially absent in Australia.

Producers with a long run investment position often service markets where prices fluctuate “but should” balance around average variable cost.

- Some nations then provide subsidies to assist the meeting of fixed obligations.
- Others accommodate variations with fixed obligations met as feasible, development banks properly construed being an example.
- Factor inputs may also be subsidised in accord with some national purpose.

Australia does none of these.

Australian manufactures today must raise

- equity from parties with similar expectations (or the ability to build a portfolio where a “reasonable” investor average return can be expected) and/or
- a debt, with SMEs typically asked to provide security against real assets (home, factory, workshop) or financial assets (superannuation) and/or
- family funds, a once common practice, perhaps returning intergenerationally?

Development banks and other suitable onshore sources are needed if Australian manufacturing is to have reasonable prospects of not only servicing domestic and offshore markets but also improving Australia’s poor external factor income position.

While foreign investors may not be able to take the farm, factory or freeway home, they do repatriate incomes earned while sometimes running down the physical asset. Obviously capitals such as Intellectual Properties can also be repatriated offshore – or brought on shore which is an advantage in Joint Ventures between parties exhibiting different Capital type strengths.

Is Manufacturing to be “Australian” in terms of name only or also in terms of retained factor incomes and improved capital assets? This is a pivotal policy choice., with provision of sound financial arrangements a first requirement. Prudent investments can then be built.

## E. AMI DEVELOPMENT IN VARIOUS CONTEXTS

### 4. *Hy+ Horizons, including for Heavy Rail, Road freight, Urban Settlements and Beyond*

Some of the many current and emerging opportunities associated with new materials, energy and information technologies were indicated earlier.

We can now pose questions, the answers to which will provide basis elements for advancing further local to national development.

Will we have...

... no emission trains (other than steel rail-wheel noise) running

- short haul and long
- powered by mixes of batteries, Hydrogen, inertial storage and (rooftop) Solar
- without the need for overhead power or diesel
- carrying loads using “better” materials mixes
- with improved monitoring of performance and safety
- intermixing with existing networks that will over time themselves transition?

... quiet safe and smart trucks and tractors of all shapes and sizes

- fuelled from an array of production points across Australia
- with quick refill and fuel trailer options
- producing zero tail-pipe emissions
- potentially built using carbon fibre components
- manufactured from high quality Australian coal?

... buses

- of various sizes
- travelling singly and in electronically facilitated convoys
- offering fast transit
- on regular routes
- and door to door services
- with services despatchable
- so as to meet changing demand across the day or season ?

...boats and ships and planes

- of all sizes
- with no fumes
- and minimal noise
- safely fuelled by Ammonia
- built from even more advanced long-service cycle materials?

...using interchangeable Australian designed and manufactured components?

... with rejuvenated communities and more liveable settlements across the continent?

That’s what *could be* on the horizon!

Transitions are underway - and various mixes of elements will arise and be needed. We would be foolish if we did not actively and prudently engage, now to well-beyond the Olympics.