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Simon Corbell MLA

ATTORNEY GENERAL
MINISTER FOR THE ENVIRONMENT, CLIMATE CHANGE AND WATER
MINISTER FOR POLICE AND EMERGENCY SERVICES
MINISTER FOR ENERGY

MEMBER FOR MOLONGLO

Mr Tony Windsor MP
Chair
Standing Committee on Regional Australia
PO Box 6021
Parliament House
CANBERRA ACT 2600

Dear Mr Windsor

The ACT Government welcomes the opportunity to provide a Submission to the Inquiry into the Impact of the Murray-Darling Basin Plan in Regional Australia. The ACT Government's Submission is attached.

At the outset, I would like to confirm that the ACT Government supports the overarching objective of the proposed Basin Plan to return water to the environment by setting catchment sustainable diversion limits (SDLs) as a necessary action to ensure the sustainability of the Basin.

However, the ACT Government has a number of concerns with the inequitable approach that the Murray-Darling Basin Authority (MDBA) has adopted in its *Guide to the Proposed Basin Plan* (the Guide) to set the proposed SDL for the ACT. This results in the ACT having the highest percentage of proposed water reductions of all Basin jurisdictions, despite its track record of successful water resource management.

The ACT Government's Submission demonstrates that the MDBA's approach, if maintained in the final Basin Plan, will result in significant socio-economic impacts in the ACT, including on local business activity and community well-being.

The ACT's key concerns with the Guide, outlined in the Submission in detail, include:

- no recognition of the ACT as a distinct water resource management area with a history of prudent water resource management;
- determining the ACT surface water SDL on the basis of the ACT Cap under the Murray-Darling Basin Agreement rather than the ACT Water Sharing Plan, which actually describes the ACT water resource. This disadvantages the ACT in respect of other Basin jurisdictions whose SDLs are based on existing water sharing plans;

ACT LEGISLATIVE ASSEMBLY

London Circuit, Canberra ACT 2601 GPO Box 1020, Canberra ACT 2601
Phone (02) 6205 0000 Fax (02) 6205 0535 Email corbell@act.gov.au

- setting the ACT SDL on a net (gross extractions minus water returned to the river system) rather than gross basis, the only one out of the 29 SDL areas in the Basin. In addition to treating the ACT inequitably, a net SDL undermines water reuse incentives, particularly for non-potable reuse activities such as watering sports fields;
- no regard for ACT critical human water needs, a requirement under the *Water Act 2007* (Cwlth) [Water Act], or consideration of the importance of future population growth, with the proposed SDL that can only be met with permanent and increasingly stringent water restrictions;
- no regard for the need to support and maintain the National Capital's unique administrative responsibilities, which include the provision of water for service industries; and
- the absence of any analysis of the socio-economic impacts of the proposed Basin Plan on the ACT region, despite this being required under the Water Act.

To redress the lack of ACT socio-economic analysis in the Guide, the ACT Government commissioned an independent study by the Centre for International Economics. This is summarised in, and attached to, the Submission. The study demonstrates that the costs of imposing water restrictions to manage demand to meet the proposed SDL are substantial, rising from about $45 million per year to $220 million per year as the population grows and higher level restrictions become necessary.

The Submission also describes an alternative, more equitable approach to setting the ACT surface water SDL that the ACT has put forward to the MDBA for consideration. This involves basing reductions for the ACT SDL on the current ACT Water Sharing Plan rather than the ACT Cap, and setting a gross rather than net SDL.

I look forward to the opportunity to meet with you to discuss the ACT Government's Submission in more detail.

Yours sincerely

Simon Corbell MLA
Minister for the Environment, Climate Change and Water

7.2.11

DEPARTMENT OF
THE ENVIRONMENT,
CLIMATE CHANGE,
ENERGY AND WATER

ACT Government

submission to the

House of Representatives Standing Committee on Regional Australia

Inquiry into the impact of the Murray-Darling Basin Plan in Regional Australia

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Executive summary

The Australian Capital Territory (ACT), the home of the Nation's Capital City Canberra, is both the largest urban centre and the biggest economy in the Murray-Darling Basin (Basin). Although only a minor water user in the Basin context, the ACT community is entirely dependent on Basin water resources and has a proven track record in sustainable water resource management.

This record is reflected in the fact that while fully half of the ACT's water resources are protected by legislation for environmental use, the ACT only diverts on average 14 per cent for consumptive use (or a net 8 per cent after accounting for the return of highly treated sewage effluent to the Basin river system).

The ACT Government supports the overarching goal of the proposed Basin Plan to return water to the environment as a necessary action to ensure the sustainability of the Basin. However, it has a number of concerns with the inequitable approach the Murray-Darling Basin Authority (MDBA) has taken in its "Guide to the proposed Basin Plan" (Guide) to set the proposed surface water sustainable diversion limit (SDL) for the ACT.

The approach in the Guide, which does not treat the ACT consistently with other Basin jurisdictions, will result in significant socio-economic impacts in the ACT, including on local business activity and community wellbeing. Moreover, these impacts are not taken into consideration in the development of the proposed Basin Plan as the MDBA has excluded the ACT from its analysis of socio-economic impacts. The approach adopted by the MDBA results in the ACT having the highest percentage of proposed watercourse reductions (34 – 45 per cent) of all Basin jurisdictions, despite its sustainable water resource management record.

More specifically, the ACT's concerns with the MDBA's approach to setting the proposed ACT surface water SDL in the Guide include:

- *There is no recognition of the ACT as a distinct water resource management area with a history of prudent water resource management. The ACT is treated as a sub-unit of the broader Murrumbidgee region, which is over-allocated, without any analysis or understanding of the sustainable management of water resources within the ACT region.*
- *The proposed ACT surface water SDL is determined on the basis of the ACT Cap (under the Murray-Darling Basin Agreement) rather than the ACT Water Sharing Plan (an interim water resource plan under the Water Act 2007 (Cwlth) [Water Act]) which actually describes the characteristics of the ACT water resource. This disadvantages the ACT in respect of other Basin jurisdictions for whom SDLs are based on transitional or interim water resource plans.*
- *The proposed ACT SDL is the only one out the 29 SDL areas in the Basin that is designated on a net (gross extractions minus water returned to the river system) rather than gross basis. Water reuse is widely accepted as an appropriate water management and supply option for inland cities in the Basin. In addition to treating the ACT inequitably, a net SDL undermines water reuse incentives, particularly for non-potable reuse activities such as watering sports fields. This is because the more water is reused the less is returned to the river system which means the quicker the SDL is reached.*
- *There is no regard for ACT critical human water needs, a requirement under the Water Act, or consideration of the importance of future population growth for the Nation's Capital. Based on hydrological simulations to assess the level of restrictions required to constrain water demand to the proposed SDLs, the ACT will need to be on permanent water restrictions should the MDBA's proposals be adopted.*

- *The lack of regard for the need to support and maintain the National Capital's unique administrative responsibilities which includes the provision of water for service industries.*
- *The absence of any analysis of the socio-economic impacts of the proposed Basin Plan on the ACT region, despite this being required under the Water Act.*

To redress the lack of socio-economic analysis in the Guide, the ACT Government commissioned an independent study by the Centre for International Economics. This demonstrates that the costs of imposing water restrictions to manage demand to meet the proposed SDLs are substantial. Costs are estimated to start at around $45 million per year, rising to $220 million per year as the population grows and higher level restrictions become necessary.

This translates to a cost per megalitre (ML) of water foregone of between $3,000 and $8,000 per megalitre (ML). This is significantly higher than the Guide's cost estimates of $230 and $780 per ML of water foregone in terms of lost regional product for the Murrumbidgee and the Basin, respectively.

The ACT Government recognises that the MDBA's Guide is the first step in an ongoing consultation process to develop the final Basin Plan. The ACT Government is constructively engaging with the MDBA to ensure its views are considered.

In conclusion, because the ACT is already an effective environmental water resource manager, the proposed SDLs will have a perverse policy outcome in the ACT. There is limited scope to pursue further actions to reduce water consumption to the levels required by the proposed SDLs, beyond imposing community-wide water restrictions with substantial socio-economic impacts, with no additional benefit for the ACT environment.

To ensure a positive policy outcome, the ACT Government has put forward to the MDBA an alternative more equitable approach to setting the ACT surface water SDL that treats the ACT in the same manner as other Basin jurisdictions. This involves basing reductions for the ACT SDL on the current ACT Water Sharing Plan rather than the ACT Cap, and setting a gross rather than net SDL.

1 Introduction

The ACT Government welcomes the opportunity to provide its views in relation to the terms of reference for the Standing Committee on Regional Australia's inquiry into the impact of the Murray-Darling Basin Plan on regional Australia (the Inquiry).

The ACT Government's submission focuses on the first element of the Inquiry's terms of reference viz. "the direct and indirect impact of the proposed Basin Plan on regional communities, including agricultural industries, local business and community wellbeing"; the element that is most directly relevant to the ACT.

The ACT Government supports the overarching objective of the proposed Basin Plan, which is to ensure the sustainability of the Murray-Darling Basin (the Basin) through the integrated management of the Basin's water resources.

However the approach the Murray-Darling Basin Authority (MDBA) has adopted in setting the proposed sustainable diversion limits (SDLs) in its *Guide to the proposed Basin Plan* (Guide), the key mechanism to secure the long term health of the Basin, has no regard for, nor indeed measures, the socio-economic impacts on the ACT community. The approach also does not reflect or recognise the ACT's history of sustainable water resource management. In its current form the proposed Basin Plan will compromise the ability of the city of Canberra to fulfil its function as the National Capital.

The ACT Government submission to the Parliamentary Inquiry comprises three parts.

The first sets out the legal framework of ACT water rights and the unique characteristics of the ACT in the context of the Basin, in particular its sustainable water resource management record.

The second outlines the ACT Government's principal concerns with the approach the MDBA has adopted in its Guide. This includes the lack of consideration for the ACT as distinct water resource management area; the designation of a net surface water SDL for the ACT; the proposed approach to setting the ACT surface water SDL; lack of regard for ACT critical human water needs and future population growth; and the absence of any analysis of the socio-economic impacts of the proposed Basin Plan on the ACT region.

The third part sets out an alternative approach to setting the ACT surface water SDL that the ACT Government has put forward to the MDBA for consideration. It involves basing reductions for the ACT SDL on the current ACT Water Sharing Plan rather than the ACT Cap, and setting a gross rather than net SDL. The proposed alternative treats the ACT on the same basis as other jurisdictions, is consistent with the MDBA's broader approach to setting SDLs across the Basin, better reflects the ACT's sustainable water management record and addresses the ACT's current and future critical human needs requirements.

2 Background: The ACT in the Murray-Darling Basin context

2.1 Water resource management in the ACT

2.1.1 Introduction

The ACT is located in the upper catchment of the Murrumbidgee River and its related tributaries. The ACT was founded in this area because of the general availability of water in the upper Murrumbidgee catchment and the streams flowing from the Brindabella Range. The historical selection of the site and boundaries for the ACT as the National Capital was based on the requirement that there be an adequate water supply for Canberra the National Capital and for its long term growth. A map of the ACT water management areas is at **Appendix A**.

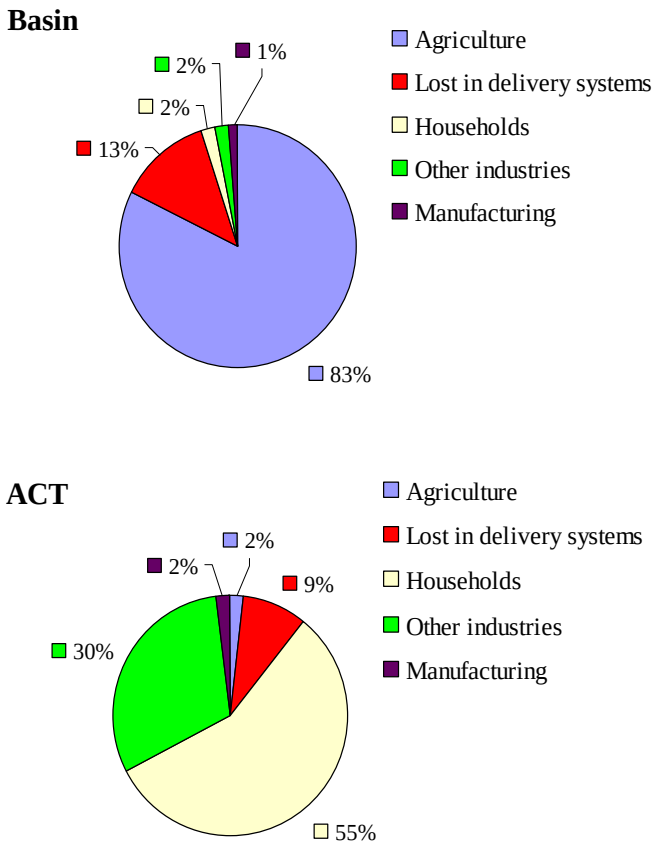
The ACT water supply system (see *Chart 1*) also serves NSW urban populations in Queanbeyan and Weetalabah under the Queanbeyan Water Supply Agreement. The ACT, unlike other capital cities in Australia, is entirely dependent on Basin water resources.

Chart 1: ACT water supply system schematic[1]

Source: ACTEW

[1] Schematic includes some future proposals such as the Murrumbidgee to Googong Water Transfer.

Chart 2: ACT water use compared to the Basin



The ACT is entirely within the Upper Murrumbidgee River catchment. This covers an area of 13,000 square kilometres (km^{-2}) with the ACT occupying 2,400 km^{-2}. The catchment includes a number of significant tributaries such as the Cotter, Gudgenby and Molonglo.

The ACT's water infrastructure has been expanded over the 20th and 21st centuries to accommodate the ACT's growth and to allow for climate change and climate variability, the major factor influencing water availability.

The ACT Government manages its surface water and groundwater on an interconnected basis.

The ACT is unlike other regions of the Basin in its use and conservation of water resources. Its water needs are almost wholly for urban and Government administration and service requirements (*Chart 2*).

Source: Basin water use ABS 2008b; ACT water use ABS 2006.

The structure of water consumption in the ACT follows from the broad pattern of economic activity in the region. Key points emerging from the newly released ABS *National Water Account*[2] for the 2008-09[3] water year are as follows:

- most water consumed in the ACT is by households, which account for 57 per cent of total water consumption (a higher proportion of any other state or territory);
- household water consumption per capita in the ACT is currently around 78 kilolitres (kL), lower than the national average of 81 kL;
- manufacturing and agricultural use of water is extremely small, accounting for just over 4 per cent of consumption; and
- 'other industry' consumption is around 24 per cent of total use. Other industries in the ACT comprise entirely services industries and include a large number of government related services.

[2] ABS 2010c.
[3] The ACT was under Stage 3 water restrictions during this year.

In the Basin context the ACT is a very low volume water user and returns about 40 – 50 per cent of the water it extracts for consumptive use to the Basin river system in the form of highly treated sewage effluent. The ACT on average only uses about 0.1 per cent of long-term average water inflows into the Basin and 0.8 per cent of available water in the Murrumbidgee catchment.[4]

Unlike many other parts of the Basin, the ACT has ensured appropriate environmental flows and successfully managed consumptive water extractions from the balance, even during the recent drought. As such the ACT has avoided over-allocating water for consumptive use, a common problem across the Basin.

The ACT Government has sought to manage ACT water resources effectively and efficiently. This is reflected in the policies underlying the current water strategy, Think Water, Act Water, and also its adoption of water reform measures since the 1990's. The ACT has managed its water resources in a way that will allow growth in the ACT, and also provide environment protection and water for downstream users.

2.1.2 Legislative and policy framework

Water resource management in the ACT is governed by a framework of legislation and intergovernmental agreements. The key parts of this framework are summarised below.

Under the *Seat of Government Acceptance Act 1909* (Cwlth) which created the ACT, the Commonwealth Government was given the land and water of the ACT. It also gave the Commonwealth paramount rights to the use and control of the NSW waters of the Queanbeyan and Molonglo Rivers and their tributaries for all the purposes of the Territory.

With the grant of self-government to the ACT in 1988, the responsibility to make strategic decisions about ACT water resources, to dispose of and use water in ACT dams, passed to the ACT, subject to any valid provision of the National Capital Plan.

The ACT Government gained responsibility for water resources, public utilities and ACT land under the *Australian Capital Territory (Self Government) Act 1988* (Cwlth), and for the management of Territory land (including water in or on Territory land) under the *Australian Capital Territory (Planning and Land Management) Act 1988 (Cwlth)*.

The *Australian Capital Territory (Planning and Land Management) Act 1988* (Cwlth) [ACT Planning and Land Management Act] also sets out the planning principles and policies for the development of the National Capital. It includes the development of the National Capital Plan. The *Planning and Land Act 2007* (ACT) provides for the Territory Plan which is required to be consistent with the National Capital Plan.

Under the Planning and Land Management Act,[5] 108.3 GL/a of streamflow diversions from the Cotter, Queanbeyan, Molonglo and Ginninderra catchments were recognised for consumptive use in the ACT, including for water supply, riparian use and irrigation.

The National Capital Authority (which manages National Land within the ACT, including Lake Burley Griffin) administers the National Capital Plan with the aim of ensuring that Canberra and the ACT are developed in accordance with their national significance. Adequate water supply from upstream sources is crucial to achieving this goal. For example adequate environmental flows from

[4] Based on average net consumptive use of 40 GL per annum and inflow data from MDBA (2010a), Table 5.1, p.47.
[5] ACT Planning and Land Management Act, Appendix E, Designated Stream Flow Diversions.

Googong Dam and in the Molonglo River catchment are essential to preserving Lake Burley Griffin as a feature of the National Capital.

The Commonwealth Government has tabled legislation in Parliament to give control of Commonwealth water resources within the ACT (for example the waters of Lake Burley Griffin and groundwater under Defence land) to the ACT. The Commonwealth recognises the ACT's water management framework and administration is achieving balanced environmental and socioeconomic outcomes in accordance with the National Water Initiative (NWI). Therefore rather than setting up its own regime to comply with the *Water Act 2007 (Cwlth)* [Water Act] and meet objectives of the NWI it has requested the ACT Government take on the responsibility.

Under the *Canberra Water Supply (Googong Dam) Act 1974* (Cwlth) [Googong Dam Act] Googong Dam was built on the Queanbeyan River on land acquired by the Commonwealth. The Googong Dam Act provides that waters from the Googong Dam Area[6] are primarily and principally for use in the ACT, although water can be supplied to places in NSW subject to Commonwealth agreement. The ACT has overall management responsibility for water supply and land management within the Googong Dam Area and has power to carry out works in NSW necessary for ACT water supply.

Queanbeyan and Weetalabah have been supplied with water by the ACT under a long standing agreement since the early 1920s. This was re-affirmed in September 2008 with the signing of the Queanbeyan Water Supply Agreement.

The ACT Government manages the use of ACT water resources through the *Water Resources Act 2007* (ACT) [Water Resources Act]. The ACT Water Sharing Plan, which is set out in two instruments[7] under the Water Resources Act, sets out the volumes of water to be allocated to the environment and for consumptive use. First priority is given to environmental flows. The ACT Water Sharing Plan is an interim water resource plan for the purposes of the Water Act and the Basin Plan.[8] The ACT water sharing plan integrates groundwater and surface water recognising that the two are linked and that groundwater abstractions will have an impact on surface water availability and dependent ecosystems.

The ACT is also subject to a cap (the ACT Cap) on consumptive surface water extractions under the inter-governmental Murray-Darling Basin Agreement.[9] This currently allows the ACT to take out of the rivers a net 40 gigalitres (GL) of water per year with credits or debits accruing annually. The cap allows the amount of water allocated to the ACT to grow as the population increases, by applying a growth factor of 75 per cent of the 2006 population water use.[10] The Cap is also intended to be subject to adjustment based on climate and the imposition of water restrictions, with the specific details yet to be finally agreed.

Think Water, Act Water is the ACT Government's long-term water resource strategy, setting directions for water resource management until 2050. The strategy, developed with extensive community consultation, input from a range of experts, and collaboration with relevant government

[6] The *Canberra Water Supply (Googong Dam) Act 1974* Act defines the Googong Dam Area as 5,000 hectares of land comprising the dam and its foreshores, within the larger catchment area identified by the *Seat of Government Act 1909*.
[7] The *Water Resources (Water management areas) Determination 2007 (No 1)* details the water management areas. The *Water Resources (Water available from areas) Determination 2007 (No 1)* details the surface water and groundwater available for taking from each water management area.
[8] Section 242 of the Water Act defines an ***interim water resource plan*** for the purposes of the Basin Plan.
[9] Section 9 of the Murray-Darling Basin Agreement Schedule E Cap on Diversions.
[10] There are also other climate-related annual adjustments.

agencies, takes a catchment perspective and focuses on the integration of stormwater, water supply and wastewater elements, to address key targets that include:

- reducing *per capita* use of mains (drinking supply) water by 12 per cent by 2013, and 25 per cent by 2023;
- increasing wastewater reuse from 5 per cent to 20 per cent by 2013;
- ensuring the level of nutrients and sediments entering ACT waterways is no greater than from a well-managed rural landscape; and
- reducing the intensity and volume of urban stormwater flows to pre-development equivalents.

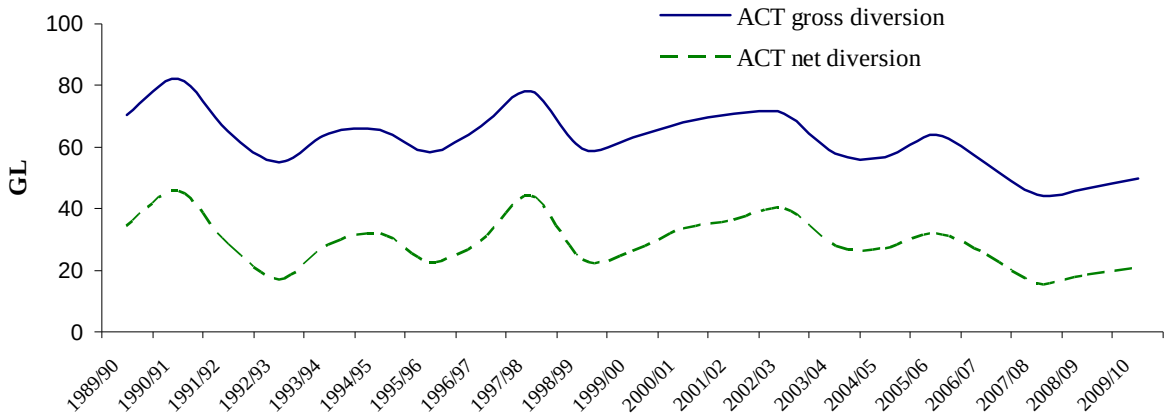
The strategy is currently under review.

2.1.3 Sustainable water use

The ACT long term average water inflows to 2003 averaged around 492 GL per annum (GL/a), with around 244 GL/a legislated for environmental flows under the ACT's Water Sharing Plan. Of the remaining 248 GL/a available for consumptive use after providing for the environment, the ACT, in an average year without water restrictions, takes about 70 GL/a[11] (65 GL for urban use and 5 GL for non-potable use) from the rivers. Of this water, approximately 30 GL/a goes through sewage treatment systems where it is treated to a high level before being discharged back into to the river system. This means the ACT's net consumptive use from the Basin has been around 40 GL/a.[12]

In recent years, water use in the ACT has been skewed downwards because of the drought and high-level water restrictions. This is reflected in *Chart 3* which shows ACT surface water diversions over the last 20 years.

Chart 3: ACT surface water diversions over the last 20 years



Source: ACTEW

Groundwater use in the ACT is managed precisely with all licenced groundwater extraction, no matter how small, metered. Total groundwater use is less than 1 ML/a.

This means that while 50 per cent of ACT water resources are protected by legislation for environmental use, the ACT only diverts on average a gross 14 per cent for consumptive use, or a

[11] ACT potable water consumption varies with climate. The ACT Government's demand management program is expected to result in medium term total annual potable water consumption to remain at around 70 to 75 GL/a.
[12] In recent years this has been much lower due to drought-related water restrictions.

net 8 per cent. This compares to the NSW portion of the Murrumbidgee valley where about 60 per cent of the water resource is diverted for consumptive use.[13]

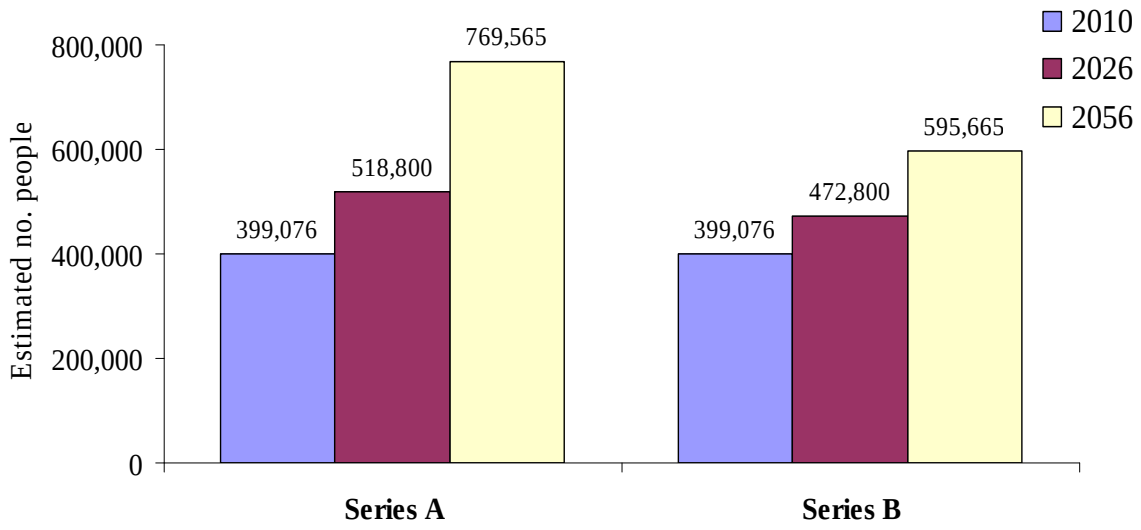
For over 40 years the ACT, through its water utility, has operated one of the industry's best practice sewage treatment plants, the Lower Molonglo Water Quality Control Centre. The plant was specifically designed to protect water quality for downstream users, and has performed to a high standard in improving water quality downstream of the ACT. The water quality of the outflows is as good as the quality of the water in the Murrumbidgee entering the ACT. No other Basin jurisdiction has invested the same resources in sewage treatment, over such a long period, in order to protect downstream water quality.

2.2 National capital and largest urban centre

The ACT is the home of the Nation's Capital City and is the only non-agrarian jurisdiction in the Basin. Canberra-Queanbeyan is by far the largest urban centre accounting for about 18 per cent of the total Basin population[14]. It has unique and extensive National Capital functions and services. The region was home to an estimated 399,076[15] people in 2010 and is expected to grow substantially over the next 50 years (see *Chart 4*).

The ACT Government estimates a potential increase of between 49 to 93 per cent to between 595,665 and 769,565[16] people by the year 2056 (see *Chart 4*). The ACT's population has grown over time as a result of population movement from southern Basin rural areas, among other factors. There is also potential for additional population growth as a result of people shifting from rural areas in the Basin as a result of the Basin Plan.

Chart 4: Canberra-Queanbeyan population growth projections



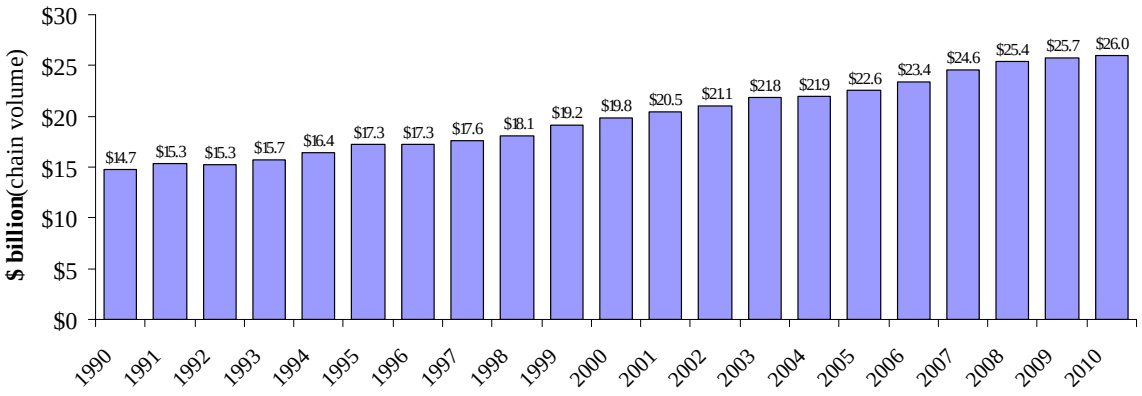
Source: ABS 2008a and ABS 2010 for the ACT; adapted from NSW Government 2010 for Queanbeyan

[13] Adapted from MDBA 2010a, Table 5.2, p.50.
[14] ABS/ABS/BRS 2009, p.4.
[15] ABS 2010b for the ACT and adapted from NSW Government 2010 for Queanbeyan.
[16] ABS 2008a, p.7 for the ACT and adapted from NSW Government 2010 for Queanbeyan.

2.3 Key economic player

The ACT economy is the largest in the Basin. The ACT's Gross State Product (GSP) was about $26 billion in 2009-10 (see *Chart 5*). Although data limitations prevent a direct comparison, the ACT economy is clearly significantly larger than the $15 billion contribution of the Basin to national agricultural production as reported in the Guide.[17] The ACT GSP has grown on average about 2.9 per cent per annum over the last 20 years (see *Chart 6*). This level of growth is expected to be maintained over the longer-term as the ACT population grows.

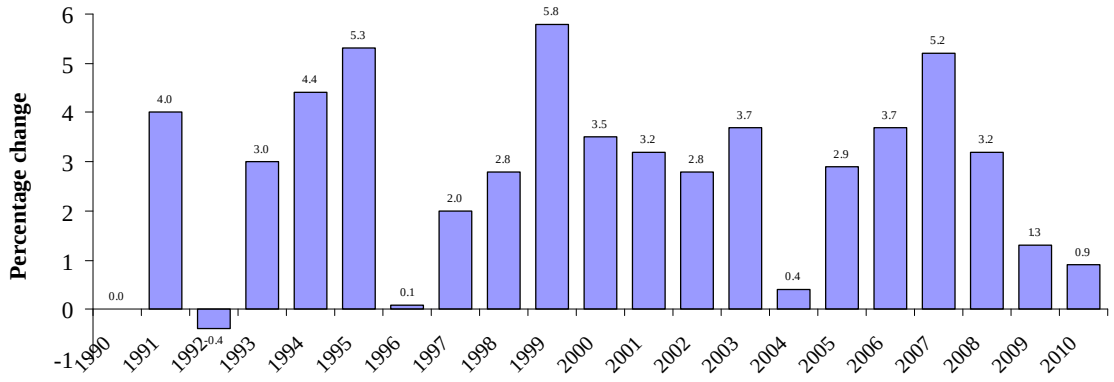
Chart 5: ACT Gross State Product



Source: ABS 2010a

In 2008-09 the GSP per GL of water consumed in the ACT was $536 million, considerably higher than the national average of $89 million per GL.[18]

Chart 6: ACT annual growth in Gross State Product



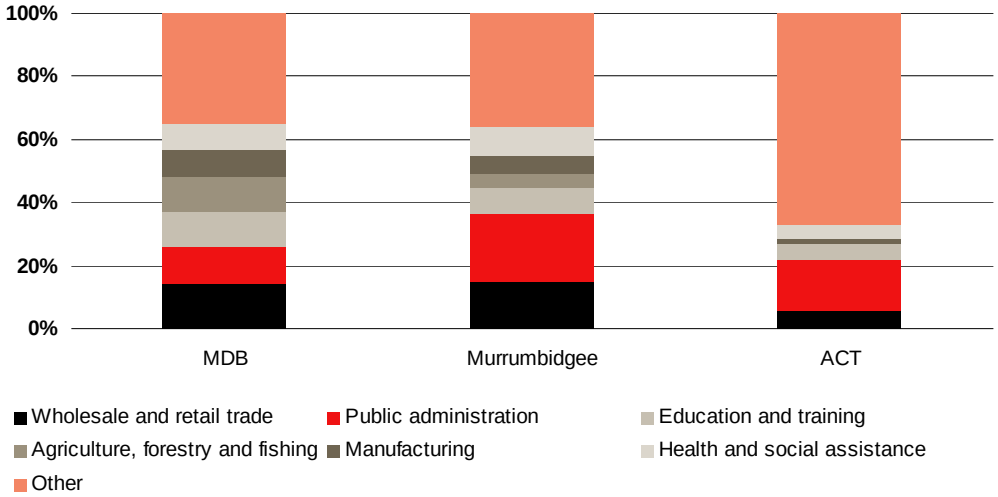
Source: ABS 2010a

The ACT economy has a different structure to other Basin economies. *Chart 8* shows key differences in the structure of employment between the ACT and elsewhere in the Basin. Within the Basin, wholesale and retail trade was the largest employment sector, with around 14 per cent employed persons. Public administration was second with 12 per cent, most of who were in Canberra. The ACT has considerably larger employment in the services sector ('other' in *Chart 8*) than elsewhere in the Basin.

[17] MDBA 2010b, p.22.
[18] ABS 2010c.

The ACT accounts for about 21 per cent of the total number of employees in the Basin, with a labour force of about 201,200 in 2006.[19]

Chart 7: Employment by sector, Murray-Darling Basin, Murrumbidgee and ACT



Source: **Appendix B**, p9.

[19] ABS/ABARE/BRS 2009, p72.

3 Key concerns with the proposed Basin Plan SDL approach

The ACT Government's key concerns with the MDBA's approach to setting the ACT surface water SDL as set out in its Guide are discussed in this section.

3.1 The ACT is a distinct water resource management area

The MDBA does not recognise the ACT as a separate water resource management area that generates and manages water resources within the broader Murrumbidgee River catchment. The ACT, while identified in the Guide as a SDL area, is simply treated as a sub-unit of the broader Murrumbidgee region, without any analysis or understanding of the management of water resources within the ACT region. The Guide simply adopts a figure of 39 GL/a as the watercourse current diversion limit for the ACT SDL area, which is based on the ACT Cap under the Murray-Darling Basin Agreement.

As a pertinent example, the Guide only provides a summary of the entire Murrumbidgee region[20] which describes it as being in very poor ecological, hydrological and streamflow condition. The CSIRO report on which this summary is based states that the relative level of surface water use under current development in the region is 53 per cent, noting this is an extremely high level of development.[21] This description is not reflective of the Upper Murrumbidgee River catchment where the ACT sits.

3.2 Approach to setting surface water sustainable diversion limits

Section 23 of the Water Act requires SDLs to reflect an "environmentally sustainable level of take". The intention is to "ensure that water is taken from Basin water resources on an environmentally sustainable basis rather than based on historical levels of surface water use as is the case for current long-term diversion caps set under Schedule F[22] of the Murray-Darling Basin Agreement." [23]
In order to develop its surface water SDL proposals, the MDBA estimated current diversion limits (CDLs) for each of the 29 identified SDL areas, including the ACT. The Guide identifies the ACT current diversion limit at 51 GL (net[24]) per annum. This comprises 39 GL for watercourse diversions, based on the ACT Cap, and 12 GL[25] for forestry and farm dam interception activities.

The environmental water requirements within each upstream catchment were then met by reducing the CDL within the respective catchment. Additional environmental water requirements to meet downstream catchment needs (i.e. River Murray and Darling River) were then sourced from connected upstream catchments in proportion to the estimated CDLs, unless a greater reduction was needed to meet internal catchment needs.

On this basis the Guide proposes ACT watercourse reductions of 13 – 18 GL/a under the three SDL proposals (see *Table 1*).

[20] MDBA 2010d.
[21] CSIRO 2008, p.4.
[22] Now Schedule E in the amended Water Act.
[23] Paragraph 54 of the Revised Explanatory Memorandum to the Water Bill 2007.
[24] The proposed ACT SDLs are net rather than gross to account for water returned to the river system after recycling – all other proposed SDLs are gross.
[25] The ACT Government has concerns about the accuracy of the data used by the Authority to calculate this volume – see section 4 of this submission.

Table 1: Proposed ACT SDLs in the Guide

	Proposed watercourse SDL GL/a	**Reduction in CDL** (if taken from watercourse diversions only)	
		GL/a	**Per cent**
Scenario 1: 3,000 GL	26	13	34%
Scenario 2: 3,500 GL	23	16	41%
Scenario 3: 4,000 GL	21	18	45%

Source: MDBA 2010a

The MDBA opted to use the estimated CDLs as the basis for sourcing additional environmental water for downstream catchments on the basis that "this approach recognises that current diversion limits established by existing water resource plans, as per the Water Act, as an equitable starting point from which to base reductions …".[26] The Guide further states that "where transitional or interim water resource plans are in place, the baseline reflects the limits placed on take expressed in those plans."[27]

The ACT Government's view is that the MDBA has adopted an inequitable approach to setting SDLs that does not recognise historical prudent water resource management, for the following reasons.

The first is the MDBA's decision to base the ACT CDL on the ACT Cap rather than the diversion limits set out in the ACT Water Sharing Plan, which is an interim water resource plan under the Water Act. Sourcing additional water for downstream environmental requirements based on CDLs only has merit if the CDLs are based on current water resource plans that describe the water resource and base diversion limits on the characteristics of the resource. Despite various statements to the contrary in the Guide described above, the MDBA has not applied this basis to the ACT SDL.

The ACT Cap reflects historical net urban consumptive water use (with provision for future population growth) and bears no relation to the characteristics of the ACT water resource. Moreover, the ACT Cap reflects historical under-use of the ACT water resource, the opposite of the case for other Basin jurisdictions where their Cap reflects historical over-allocation of water resources.

Secondly, the decision to place an upper limit on water reductions where the percentage reduction for local environmental needs is higher than the overall percentage reduction necessary favours catchments (and jurisdictions) that have overallocated their water resources, at the expense of those that have not. The latter are largely upland catchments such as the ACT.

The only place in which the Guide does recognise the ACT's current prudent approach to water resource management is in the detailed surface water SDL scenarios published along with the Guide.[28] The scenarios indicate that all of the additional water required from the ACT under the three SDL proposals is for downstream environmental requirements, with no extra water required for within-catchment environmental needs.

[26] MDBA 2010b, p.158.
[27] MDBA 2010b, p.179.
[28] MDBA (2010c).

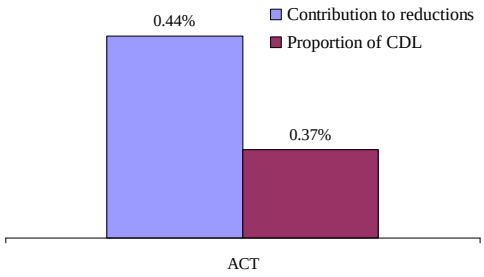
Table 2: Proposed CDL reduction across Basin jurisdictions

	% reduction in CDL (if taken from watercourse diversions only
ACT	**34-45**
NSW	27-37
Qld	27-36
SA	26-35
Vic	27-36
Total	**27-37**

Source: MDBA 2010a, p.xxiv

The inequity of the Authority's approach is demonstrated by examining the Guide's SDL proposals at a jurisdictional level. Applying the MDBA's approach to watercourse diversions only results in average CDL reductions of 27 to 37 percent across the Basin. As illustrated in *Table 2*, the ACT receives the largest percentage reduction of all Basin jurisdictions, despite its sustainable water resource management history. Moreover, again using the Guide's figures, the ACT is expected to contribute 0.44 per cent to the total proposed Basin water reductions, while only comprising 0.37 per cent of the Basin-wide CDL (see *Chart 8*).

Chart 8: ACT contribution to proposed Basin reductions



Source: Calculated from MDBA 2010b, Table 4.10, p.164

3.3 Net sustainable diversion limit

The Guide indicates[29] that the ACT is the only SDL area to which a net surface water SDL will apply under the Basin Plan. This decision has significant drawbacks for promoting water reuse, particularly for non-potable projects such as watering sports fields. All other SDL areas across the Basin will be subject to a gross limit.

Water reuse, that is using water more than once such as by recycling waste water, is a key issue for inland cities in the Basin and is widely accepted as an appropriate water management and supply system. This is reflected at the jurisdiction level with the ACT Think Water, Act Water strategy target of increasing wastewater reuse from 5 per cent to 20 per cent by 2013. At the federal level the Commonwealth is funding significant investment in water reuse projects.

In contrast the Guide gives little consideration to water reuse, and in the particular case of the ACT, the net basis of the proposed SDL is a disincentive to water reuse. This is because the more water reused the less is returned to the river system which means, all other things being equal, the faster the SDL is reached. The benefits of water reuse schemes, especially on a local basis, therefore cannot be realised.

[29] Any return flows that are currently accounted for in implementing the Cap have also been accounted for in developing SDLs." MDBA 2010b, p.182.

At a Basin level, the Guide anticipates that as measurement of return flows improve over time, this will be reflected in future amendments of the Basin Plan.[30] This implies that in future irrigation returns will be netted off relevant SDLs. Such a move has the potential for unintended water quality consequences by encouraging nutrient rich irrigation returns to the river systems.

3.4 Providing for critical human water needs

The Water Act requires the Basin Plan to be prepared having regard to the fact that the Commonwealth and Basin jurisdictions have agreed that critical human needs are the highest priority water use for communities dependent on Basin water resources.[31] The ACT Government interprets this to mean that the MDBA should consider critical human needs in setting any SDL that impacts on a Basin community reliant on Basin water resources, which includes the ACT, the single largest community in the Basin.

This view is supported by the Intergovernmental Agreement on Murray-Darling Basin Reform, the basis for the *Water Amendment Act 2008*, which states that "the volume of water required to meet critical human needs in each Basin jurisdiction will be specified in the Basin Plan."[32]

The Guide also makes several statements to this effect. For example:

> *Water set aside and used for critical human water needs will be included in the long-term average sustainable diversion limits (SDLs) for each region. Water resource plans will have to provide for critical human water needs as the highest priority.*[33]
>
> *Catchment contributions to additional environmental water requirements cannot be made at the expense of critical human needs for the catchment.*[34]

The intent for the Basin Plan to provide for critical human needs across the Basin is also reflected in the expected outcomes of the Plan listed in the Guide:

> *Signposts of success:*
> - *meeting critical human water needs, thus safeguarding the needs of the communities that rely on the Basin's water resources, wherever they are in the Basin*[35]

However, in the final analysis neither these statements nor the requirements of the *Water Act* appear to be reflected in the surface water SDLs proposed for the ACT. The proposed ACT SDLs of 21-26 GL/a are only likely to be achievable with some level of water restrictions, all of the time.

This conclusion is drawn on the basis of hydrological simulations undertaken by ACTEW[36] to assess the excess water demand that is likely to emerge relative to the proposed SDLs and therefore the level of restrictions needed to constrain demand to the SDLs. The mid-range SDL of 23 GL/a was used for analysis purposes, with 20 GL/a available for ACTEW to supply potable water to urban customers after 3 GL/a is made available for ACT non-urban extraction.

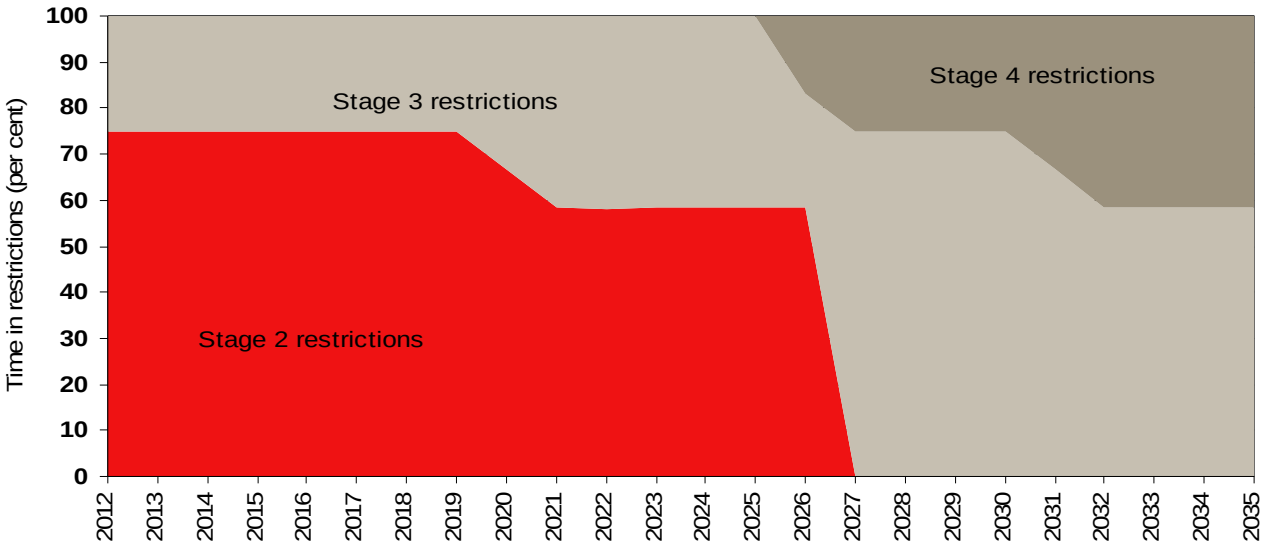
Chart 9 shows that in order to meet the net abstraction target under a 23 GL/a SDL the ACT will need to be on permanent water restrictions. In the early years this will be combination of Stage 2 and Stage 3 restrictions. However as the population grows (see section 3.5 on population growth

[30] MDBA 2010b, p.182.
[31] Section 86A(1) of the Water Act.
[32] Intergovernmental Agreement on Murray-Darling Basin Reform, paragraph 7.8.
[33] Guide to the proposed Basin Plan, Overview, p147.
[34] Guide to the proposed Basin Plan, Technical background Part I, p157.
[35] Guide to the proposed Basin Plan, Overview, pxxxiii.
[36] The ACT water utility.

below), restrictions will move to the Stage 4 level. This would be regardless of the actual water availability in the ACT i.e. even if dams were overflowing.

Other proposed SDLs, 21 or 26 GL/a, will produce very similar results, although the particular timing of water restrictions may vary by one or two years.

Chart 9: Time in restrictions to match demand with 23 GL SDL



Source: **Appendix B**, p 15.

Living under permanent and increasingly severe water restrictions has significant implications for the liveability of Canberra and its role as the National Capital. Adequate supplies of quality water are crucial to a city's liveability, including through the provision of healthy waterways and green open spaces which play a key role in community health, well-being and social cohesion. Water restrictions also have significant costs to the Canberra community and industry, which are explored in section 3.6.

In addition, the ACT has less flexibility to provide for critical human needs than other Basin jurisdictions. This is because the ACT's water use is almost entirely urban, about 86 per cent compared to about 4 per cent across the Basin as a whole (see section 2 above). Other jurisdictions have the flexibility to deal with critical human needs requirements by trading-off community and agricultural water use. In contrast any reduction in the ACT CDL translates directly to less water for critical human needs with no volumes of agricultural water available to trade-off.

3.5 Accounting for population growth

Another important issue for the ACT is population growth. As discussed in section 2.3, the ACT Cap under the Murray-Darling Basin Agreement, which the MDBA has used as the basis for setting the ACT SDL, has a provision for population growth through a growth factor and the accumulation of Cap credits. It was on this basis that the ACT agreed to the Cap in 2008. The Guide makes no such allowances for future population growth.

The ACT Government understands that a population growth factor for the ACT or any urban centre, without some mechanism for offsetting water diversions elsewhere in the Basin, would undermine the SDL concept. Nevertheless, the ACT is expecting substantial population growth over the next 50 years. This issue may also be exacerbated by population movements from rural areas in the Basin to the major urban centres as a direct result of the socio-economic impacts of the Basin Plan. As such, the population growth issue needs to be recognised in the Basin Plan.

3.6 ACT socio-economic analysis

3.6.1 Lack of ACT analysis by the MDBA

The ACT Government considers that the economic analysis that underpins the Guide is seriously flawed and may not meet the requirements of the Water Act in that it is limited to the value of agricultural production and the associated flow on effects from changes in the agricultural production as a result of introducing the proposed SDLs.

Under the Water Act the Basin Plan is required to provide for the use of Basin water resources in a way that optimises social, economic and environmental outcomes[37] and, subject to the environmentally sustainable limits, to maximise the net economic returns to the Australian community.[38] The Water Act also specifies that the MDBA, in exercising its powers and performing their functions must "act on the basis of the best available scientific knowledge and socio-economic analysis".[39]

In an effort to address these requirements the MDBA has undertaken a socio-economic assessment of the potential impacts of the proposed Basin Plan, and in particular the SDLs. The assessment is based on the value of agricultural production and the associated flow on effects from changes in the agricultural production as a result of introducing the proposed SDLs, but excludes any consideration of the ACT economy.

As the largest urban centre in the Basin, and with water use almost entirely used for urban requirements, water provides a considerable economic benefit to the ACT. This benefit applies to both the residential and non-residential sector, including the construction industry and the recreational sector. The MDBA has not considered the economic impact on any of these sectors, or the impact on the ACT's population growth of the proposed SDLs.

Excluding the ACT economy from the socio-economic analysis of the SDL impacts appears to conflict with the legal requirement to utilise the best available socio-economic analysis. Moreover, it is hard to reconcile the MDBA's decision to limit the economic analysis to just one component of the economy, namely the flow on effects from changes in the value of agricultural production as a result of the proposed SDLs with its legal obligations to maximise the net economic returns to the Australian community, and optimise the economic, social and environmental outcomes.

The Guide is also remiss in not providing a socio-economic description of the ACT. The Water Act requires a description of the social and economic circumstances of Basin communities dependent on Basin water resources as mandatory content of the Basin Plan.[40]

3.6.2 CIE analysis of the cost to the ACT of the proposed SDLs

In an effort to redress the lack of ACT analysis in the Guide, the ACT Government commissioned an independent analysis of the costs of the proposed SDLs to the ACT. This section summarises the findings, with the full analysis at **Appendix B**.

[37] s.3(c) of the Water Act.
[38] s.3(d)(iii) of the Water Act.
[39] s.21 (4)(b) Water Act.
[40] s.22(1) Item 1 of the Water Act.

Valuing water in the ACT

Because the ACT does not use significant water for irrigated agricultural production or for manufacturing activities, most of the value of water to the ACT community cannot be directly estimated from the goods it is used to produce. Instead, the value arises through a range of valuable services that water assists in providing.

The CIE report measures the value of these services by considering the cost to the community of restricting water use and therefore of reducing the services that water helps provide.

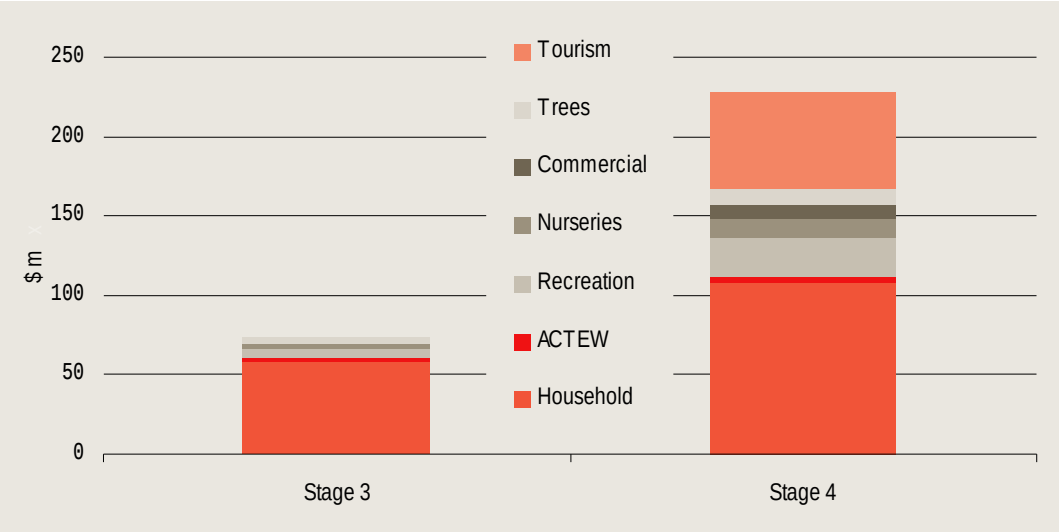
Cost elements of water restrictions

There are several means by which reduced water availability, measured through the need to impose water restrictions, lead to economic costs for the ACT:

- **household costs** arise from the need for households to alter their behaviour under water restrictions and to accept lower amenity from gardens and other outside uses of water;
- **recreation costs** arise from the closure of sporting fields and other public spaces due to poor condition;
- water restrictions impact on **commercial and industrial operations** by limiting water used by businesses and also reducing demand for products that require water for their use, such as nurseries;
- water restrictions affect the physical appearance of the ACT environment and severe restrictions are likely to affect the **tourism industry**; and
- the cost of lost **street trees** due to water restrictions is the cost associated with removal and replacement of the trees and the lost services the trees provide.

Chart 10 summarises the cost in 2010 of stage 3 and stage 4 water restrictions, showing the relative magnitude of the individual components. It shows the cost of spending one year at the indicated level of restriction.

Chart 10: Elements of the cost of water restrictions



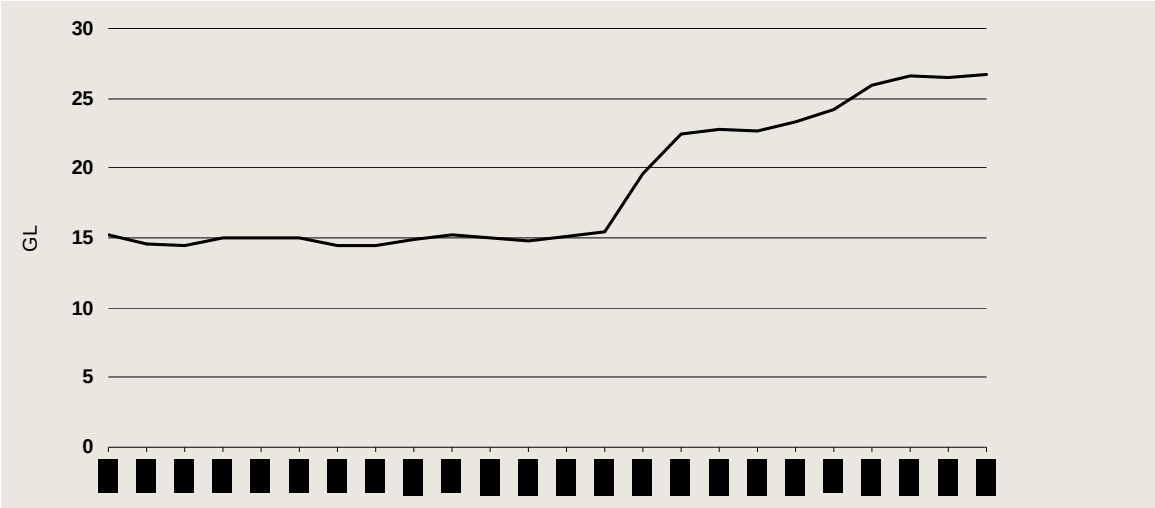
Source: **Appendix B**, p 15.

Modelling restrictions to meet the SDL

Hydrological simulations undertaken by ACTEW (described in section 3.4 above) are used to assess the excess water demand that is likely to emerge relative to the SDL, and therefore the level of water restrictions needed to constrain demand to the level required by the SDL.

Chart 11 shows the extent of this difference in demand under a 23 GL/a SDL. Excess demand as a result of the SDL starts at around 15 GL and increases to 27 GL by 2035. This is clearly a substantial difference. For example, by 2035, unconstrained net abstractions are expected to be more than double allowed net abstractions under the SDL, requiring a 56 per cent reduction in total demand compared with its baseline level.

Chart 11: Projected excess demand as result of the 23 GL/a SDL

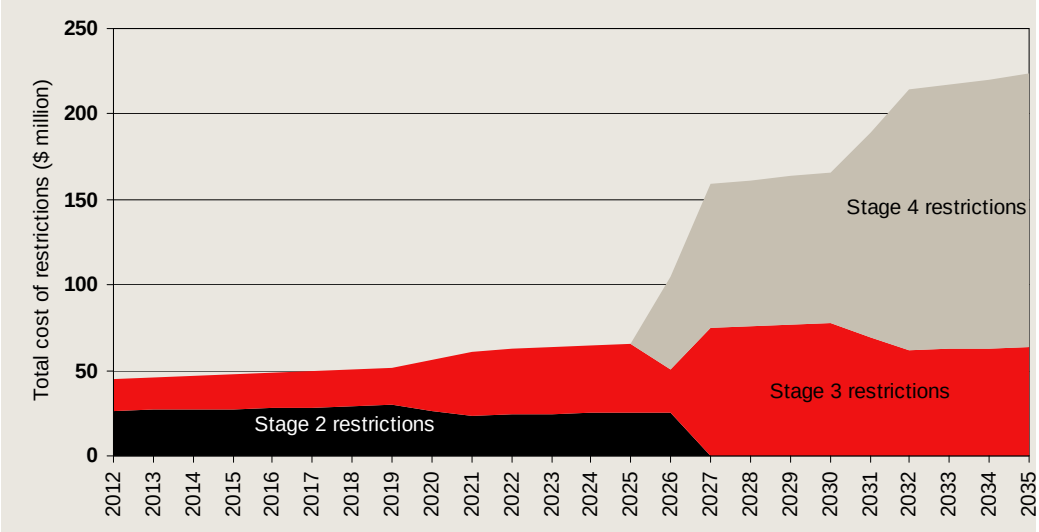


Source: **Appendix B**, p 14.

Cost of restrictions needed to meet the SDL

This excess demand can be translated into the time that will need to be spent in mandatory water restrictions in order to meet the net abstraction target under the SDL (see *Chart 9* in section 3.4 above). The time in restrictions is then matched with the cost elements described above to calculate the economic costs to the ACT. *Chart 12* demonstrates that imposing this level of restrictions will be very costly.

Chart 12: Cost of restrictions to meet the SDL



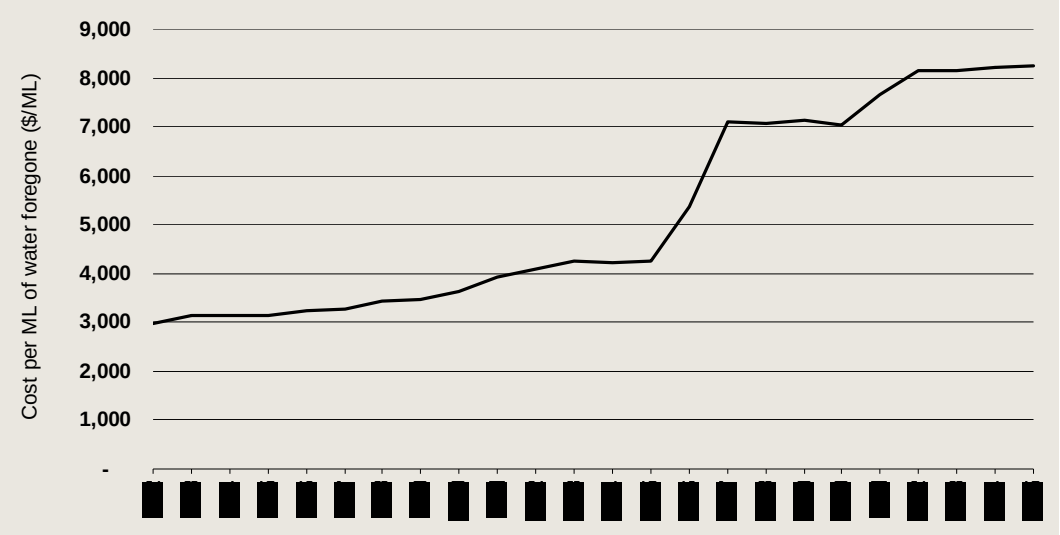
Source: **Appendix B**, p 16.

Costs start at around $45 million per year, mostly composed of stage 2 and stage 3 restrictions. However as the population continues to grow, and stage 4 restrictions become necessary, this cost increases substantially, to up to $220 million per year.

The cost of water foregone

Chart 13 shows the cost per megalitre (ML) of water forgone under the SDL. It is calculated by dividing the cost of restrictions in *Chart 13* by the difference between the unconstrained and constrained net abstraction. The cost of water forgone starts at around $3,000 per ML and increases to around $8,000 per ML by 2035.

Chart 13: Economic cost per ML of water forgone under the ACT 23 GL/a SDL



Source: **Appendix B**, p 17.

This cost is significantly larger than the costs, in terms of regional product forgone, calculated in the Guide for the Murrumbidgee and the entire Basin (see *Table 3*).

Table 3: Cost of water forgone

	Cost of water forgone as a result of SDL $/ML
Murrumbidgee	230
Total Basin	780
ACT	3,000 - 8,000

Source: **Appendix B**, p 17.

4 Alternative ACT surface water SDL approach

5.1 The approach in principle

The ACT Government has requested that the MDBA consider basing reductions for the ACT surface water SDL on the current ACT Water Sharing Plan rather than the ACT Cap, and setting a gross rather than net SDL, for the following reasons:

- the Water Sharing Plan describes the characteristics of the ACT water resource, and provides for environmental sustainability. Some 50 per cent of the water resource is allocated for environmental flows as first priority;
- the Water Sharing plan has been recognised by the MDBA as an interim plan for the purposes of the Water Act.[41] The MDBA has given weight to this approach through statements in the Guide such as "where transitional or interim water resource plans are in place, the baseline reflects the limits placed on take expressed in those plans";[42]
- this approach will treat the ACT the same as the other Basin jurisdictions whose current water sharing plans have been recognised as the basis for current levels of take;
- this approach calls for the same treatment for the ACT as other jurisdictions and is consistent with the broader SDL setting process across the Basin. In practice this means that while the proposed SDL volumes for other catchments may change across the Basin to reflect changes to the ACT SDL, the modelling process need not change;
- it will not disadvantage the ACT for past prudent management of its water resources;
- a gross rather than net SDL is consistent with the treatment of other Basin SDL areas and will remove any disincentives for water reuse.

5.2 Alternative surface water CDL

The data underpinning the ACT's alternative proposal is presented in this section. *Table 4* sets out the maximum watercourse and groundwater volumes currently available for diversion under the ACT Water Sharing Plan from the ACT water resource (excluding the Googong catchment which is in NSW). This provides for a surface water diversion limit of about 167.8 GL/a.

Table 4: Alternative basis for the ACT surface water CDL

Maximum ACT water resources available for consumptive use[43]	**GL/a**
Total water diversion	**175.0**
Groundwater sub-component	7.25
Watercourse sub-component	167.8

Source: ACT Water Sharing Plan

Table 5 sets out the alternative gross ACT surface water SDL that reflects the ACT Water Sharing Plan and a forestry interception limit based on the more current ACT forestry plantation area.[44] The proposal results in a total gross ACT surface water CDL of 175.6 GL/a, comprising a watercourse diversion limit of 167.8 GL/a and an interception limit of 7.9 GL/a.

[41] MDBA 2010e, p.4.
[42] MDBA 2010b, p.179.
[43] Excluding the NSW Googong catchment.
[44] The Guide bases the ACT forestry interception component on an outdated plantation area.

Table 5: Alternative ACT surface water CDL

Surface water CDL components	**GL/a**
Watercourse diversions	167.8
Forestry	6.8
Farm dams[45]	1.1
Total interception activities	*7.9*
Total gross ACT surface water CDL	**175.6**

Source: ACT Water Sharing Plan for watercourse diversions; MDBA 2010a for farm dam diversions; ACT Government calculations for forestry interception.

5.3 Alternative ACT watercourse SDLs

Applying the maximum percentage reductions to watercourse diversions adopted by the MDBA in the Guide to the watercourse component of the alternative ACT CDL set out above generates alternative ACT gross watercourse SDLs ranging from 92 – 101 GL/a (see *Table 6*).

Table 6: Alternative ACT watercourse SDLs

	Alternative watercourse SDL GL/a	**Reduction in CDL** (if taken from watercourse diversions only)	
		GL/a	**Per cent**
Scenario 1: 3,000 GL	101	67	40%
Scenario 2: 3,500 GL	92	76	45%
Scenario 3: 4,000 GL	92	76	45%

Source: MDBA 2010a

5.4 Benefits of the alternative approach

Setting the ACT surface water SDL along the lines set out above will deal with the ACT's key concerns with the MDBA's current approach to setting the ACT SDLs:

- it will recognise the ACT as a distinct water resource management area, separate from, but connected to the broader Murrumbidgee River catchment;
- it will treat the ACT on the same basis as other jurisdictions in relation to setting proposed SDLs;
- it will recognise the ACT's prudent and environmentally sustainable approach to water resource management;
- it will provide for the ACT's critical human needs requirements and go a long way towards providing for future ACT population growth;
- a gross SDL will remove the disincentive to water reuse in the ACT; and
- it will use current ACT forestry plantation area as the basis for calculating the forestry interception component of the CDL.

Moreover, an ACT SDL of 92-101 GL/a would have no immediate impact on the availability of water in the Murrumbidgee River below the ACT as the ACT currently, under normal conditions, takes an average of about 70 GL/a. The difference would remain available as environmental water until ACT consumption grew over time.

[45] The Guide's ACT farm dams interception figure of 1.1 GL/a is based on an assessment of farm dams in the Upper Murrumbidgee which has a significantly higher density and average size of farm dams than the ACT. Further work will be conducted to quantify actual interception by farm dams in the ACT.

5 Policy aspects related to Basin Plan impacts on the ACT

Notwithstanding the 2002-2010 drought, the ACT and its water utility ACTEW have undertaken considerable expenditure to reduce water consumption and improve the ACT's water security. This is reflected in the ACT's water resources strategy, Think Water, Act Water, released in 2004. There are a broad range of demand management programs in place, together with an extensive set of infrastructure projects being undertaken by ACTEW to ensure future water supplies.

There is limited scope, beyond imposing community-wide water restrictions (with substantial cost impacts described in section 3 above), to pursue further actions to reduce water consumption to the levels required by the proposed ACT SDLs in the Guide, with no additional benefit for the ACT environment.

Moreover, the ACT will receive no benefit from broader Commonwealth water reform programs aimed at helping restoring the Basin to environmental health. This is because the ACT, unlike other Basin catchments, does not have a pool of water entitlements for sale, which reflects how the ACT manages its water resources by giving priority to the environment. There is also no scope for the Commonwealth to recover water by funding irrigation works in the ACT.

As such, the two main Commonwealth initiatives, the Restoring the Balance in the Basin program (that directly buys environmental water from willing sellers) and the Sustainable Rural Water Use and Infrastructure program (that recovers environmental water through irrigation infrastructure efficiency upgrades) have no application in or benefit for the ACT.

6 Conclusion

In conclusion, the ACT Government supports the overarching goal of the proposed Basin Plan to return water to the environment as a necessary action to ensure the sustainability of the Basin. However, it has a number of concerns with the inequitable approach the MDBA has taken in its Guide to set the proposed SDLs for the ACT.

The approach in the Guide, which does not treat the ACT consistently with other Basin jurisdictions, will result in significant socio-economic impacts in the ACT, including on local business activity and community wellbeing. Moreover, these impacts are not taken into consideration in the development of the proposed Basin Plan as the MDBA has excluded the ACT from its analysis of socio-economic impacts. The approach adopted by the MDBA results in the ACT having the highest percentage of proposed watercourse reductions (34 – 45 per cent) of all Basin jurisdictions, despite its sustainable water resource management record.

The costs of imposing water restrictions to manage demand to meet this level of proposed SDLs are substantial. Costs are estimated to start at around $45 million per year, rising to $220 million per year as the population grows and higher level restrictions become necessary. This equates to a cost per ML of water forgone of between $3,000 and $8,000 per ML. This is significantly higher than the Guide's cost estimates of $230 and $780 per ML of water forgone in terms of lost regional product for the Murrumbidgee and Basin, respectively.

The ACT Government recognises that the MDBA's Guide to the proposed Plan is the first step in an ongoing consultation process to develop the final Basin Plan. The ACT Government is constructively engaging with the MDBA to ensure its views are considered.

The ACT Government has put forward to the MDBA an alternative more equitable approach to setting the ACT surface water SDL that treats the ACT in the same manner as other Basin jurisdictions. This involves basing reductions for the ACT SDL on the current ACT Water Sharing Plan rather than the ACT Cap, and setting a gross rather than net SDL.

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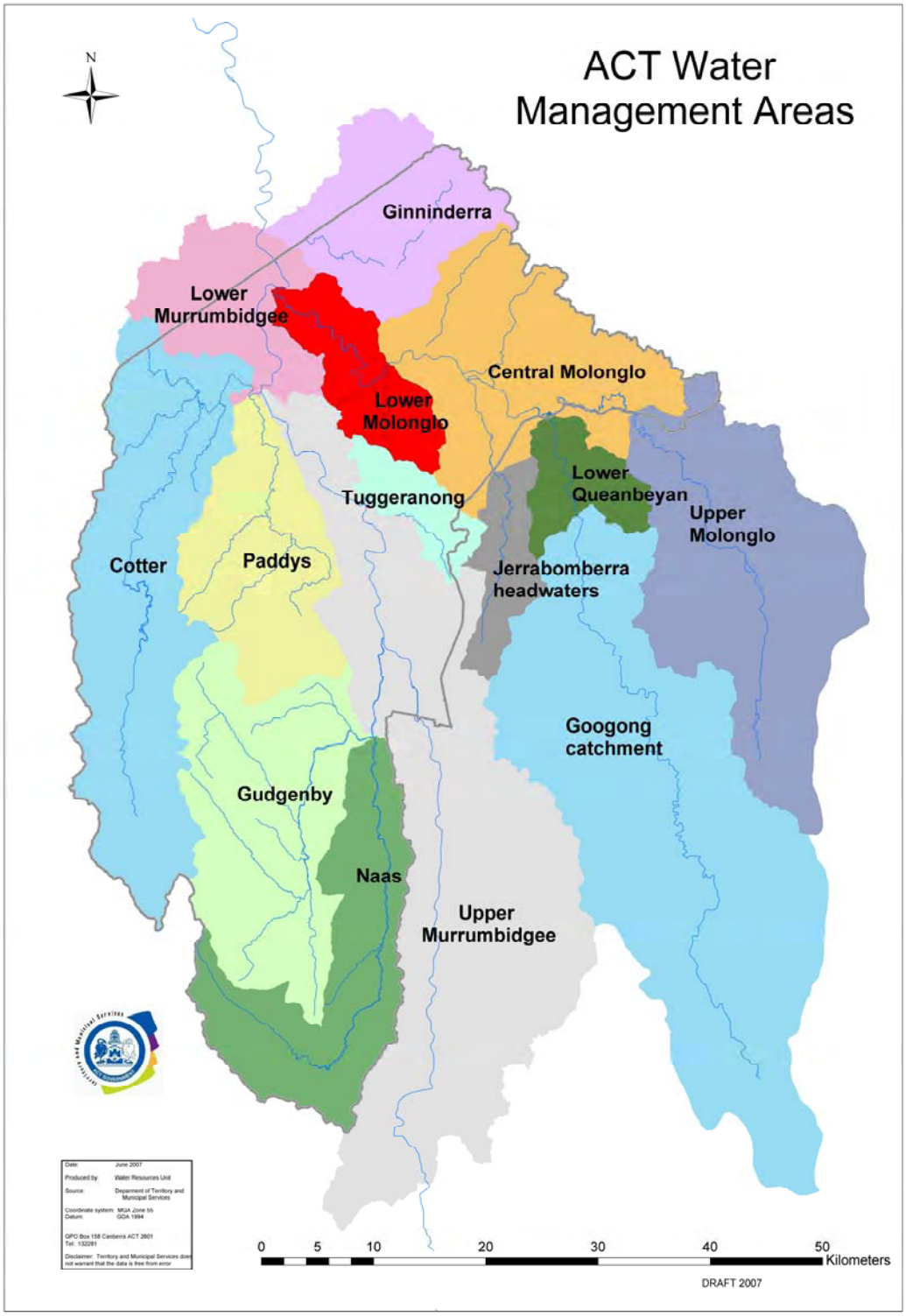
8 Appendices

Appendix A: ACT water management areas



Source: Water Resources (Water Management areas) Determination 2007 (No 1)

Appendix B: CIE analysis of the impacts of the proposed SDLs on the ACT economy