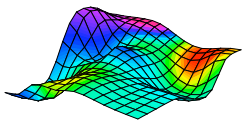
Submission to the

ACT Independent Competition and Regulatory Commission

Enlarged Cotter Dam Water Security Project Investigation

30 November 2009



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Acknowledgement

BDA Group has prepared this submission to promote sound water policy decision making in the ACT.

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EXECUTIVE SUMMARY

The Independent Competition and Regulatory Commission (ICRC) has been directed by the ACT Attorney General to report by the end of June 2010 on, *inter alia*, whether the projected costs of the enlarged Cotter Dam water security project are prudent and efficient in terms of meeting the water security standards required of ACTEW.

In this regard, we believe the ICRC is being asked to assess whether the enlarged Cotter Dam (ECD) is the best water supply augmentation option for the ACT taking into account whether:

a) the project is prudent in terms of the water yield anticipated from the project and the water security standards required of ACTEW; and

b) that the project is efficient in delivering this additional water yield given its projected costs and the cost of alternative water supply options which individually or collectively could provide the same yield.

As detailed in this submission, ACTEW has been predisposed to the ECD option and reluctant to embrace the Tantangara transfer option. However maintaining the ECD as part of the ACT's overall water strategy will impose unnecessary costs on the community, which we estimate are in the order of $200m.

When the water yield contribution of the Murrumbidgee to Googong transfer project are included, along with the estimated value of the water restrictions that supply augmentation would prevent,

> ***... the ECD was independently estimated in 2009 by the Centre for International Economics to deliver a net economic cost of $241m to the ACT.***

That is, progressing the ECD was estimated to impose costs three times greater than the value of the water restrictions it would prevent.

Under a much more pessimistic climate scenario - where the weather profile expected in 2070 occurs from 2012 - the ECD was estimated to provide a positive net economic benefit, but only a fraction of the $1 billion net economic benefit the Tantangara alternative could provide.

The sequence of analyses conducted by ACTEW is instructive, and briefly described below.

The 2005 economic assessment of water supply options

To allow a comparison of the relative cost-effectiveness of water supply options, water utilities typically calculate the 'levelised cost' of options. Levelised cost is the net present value of the cost of an option, inclusive of all capital and operating costs, divided by the amount of water supplied by that option over the period being investigated.

However the levelised cost method ignores the community costs of time in water restrictions. To overcome this the *net economic benefit* to the community can be estimated, which is the gross community benefits expected from reduced water restrictions (with the costs of water restrictions quantified in monetary terms), less the capital and operating costs of implementing that option over the period being investigated.

The Centre for International Economics (CIE) 2005 reported the net economic benefit of both the ECD and Tantangara transfer project at around $122m. Neither project by itself was found able to totally eliminate future water restrictions - the ECD due to limited dam inflows and the Tantangara transfers due to an annual 25 gigalitres (GL) cap placed on transfers from the Murrumbidgee to Googong.

The 2007 economic assessment of water supply options

Following the record low catchment inflows in 2006, CSIRO revised its climate and inflow projections in 2007, and ACTEW updated its economic analysis of water supply options.

Based on this analysis, ACTEW claimed that the ECD was superior to the Tantangara option in terms of net economic benefit, although ACTEW chose not to report the estimated net economic benefits of either water supply option - it is at best surprising that such a definitive claim could be made without supporting documentation.

ACTEW did however report the levelised cost of the ECD and Tantangara transfer options as independently estimated by the CIE. As shown in Table E1, the supply cost of water from the Tantangara option was estimated at around two-thirds that of the ECD.

Table E1: Levelised cost of water supply options

Water Option	2007 estimate [a] $NPV / ML	2009 estimate [b] $NPV / ML
Tantangara releases	$2,220	< $2,000
Enlarged Cotter Dam	$3,020	> $7,000

References: a ACTEW 2007
b Derived by BDA Group based on more recent cost information

Based on these revised water supply costs, we estimate that Canberra's water security could be met through increased transfers from Tantangara at a cost some $200m less than that of the ECD-centred water supply strategy.

The 2009 economic assessment of water supply options

With the blow-out in the cost of the ECD, ACTEW in 2009 commissioned the CIE to update its assessment of the net economic benefits of a number of water supply options and suites of options for augmenting Canberra's water supply.

The analysis found that the ECD will only provide a net economic benefit if a worst case climate scenario eventuates. Clearly deferring investment until if and when deteriorating weather conditions eventuate would seem prudent given the relatively short construction period needed. However even under the most cautious approach where supply augmentation is sought now, the ECD was found to deliver small benefits compared to the Tantangara option.

The major finding of the updated CIE assessment was that the Tantangara option in conjunction with the already approved Murrumbidgee to Googong transfers, would be both prudent and efficient in meeting the water security standards required of ACTEW whilst the ECD clearly is not.

Mindful of the need for transparent, objective and evidence-based decision making, the updated CIE 2009 analysis of water supply options by the CIE - which shows the costs of the ECD to significantly outweigh the benefits - should have been made available in the EIS / Development Approval process.

It is not known whether the ACT Government had been provided with the updated CIE 2009 analysis of the ECD and other options when it quashed further assessment of the Development Approval by ACTPLA through employing its call-in powers to approve the ECD.

> ***The failure of ACTEW to publicly release the CIE 2009 report warrants particular consideration by the ICRC, the ACT Government and the people of Canberra.***

Concluding comment

A new dam may hold popular attraction, particularly as Canberra battles it way through a prolonged drought. However the era of dam building in SE Australia is drawing to a close, while an era of greater inter-state cooperation and the more efficient allocation of available waters is upon us.

As an inland city in a fully committed catchment, there is no 'new' or 'unused' water to be garnered from a new dam - new storage capacity is only needed if there are constraints on transferring water from current storages, such as Tantangara Reservoir, to Canberra.

It is argued in this submission that no technical or economic constraints to increasing transfers from Tantangara exist, but rather bureaucratic intransigence appears to have resulted in poor decision making. The result is that the ECD project is neither prudent nor efficient in terms of meeting the water security standards required of ACTEW.

While a finding along these lines by the ICRC is unlikely to halt the construction of the ECD, it is hoped that it may result in more transparent and balanced decision making in the future.

1 Focus of submission

The Independent Competition and Regulatory Commission (ICRC) has been directed by the ACT Attorney General to report by the end of June 2010 on:

1. whether the projected costs of the enlarged Cotter Dam water security project are prudent and efficient in terms of meeting the water security standards required of ACTEW;
2. the approach taken to put in place an alliance arrangement with contractors to secure delivery of the enlarged Cotter Dam water security project to provide water security for the ACT and region;
3. the process undertaken to develop and test the costings of the enlarged Cotter Dam water security project at all stages from 2005 to November 2009;
4. the potential for any new cost variations to be incurred by ACTEW under the contractual arrangements put in place for the enlarged Cotter Dam water security project delivery;
5. the scope for cost savings to be passed on to ACTEW to the benefit of ACT and regional water users; and
6. other matters the Commission considers relevant to the inquiry.

With regard to the first of these matters, we believe the ICRC is being asked to assess whether the enlarged Cotter Dam (ECD) is the right water supply augmentation option for the ACT taking into account whether:

a) the project is prudent in terms of the water yield anticipated from the project and the water security standards required of ACTEW; and

b) that the project is efficient in delivering this additional water yield given its projected costs and the cost of alternative water supply options which individually or collectively could provide the same yield.

Our submission primarily focuses on the second aspect of this first task sought of the ICRC.

2 ACTEW's water security program

In October 2007, the ACT Government announced a range of new water supply projects including the Enlarged Cotter Dam (ECD), the Murrumbidgee to Googong water transfer project and water transfers from Tantangara Reservoir.

Construction of the $100m Murrumbidgee to Googong transfer project was approved by the ACT Government in March 2009. It is forecast that the project will provide between 8-10 gigalitres (GL) of additional water per year from the Murrumbidgee River into Googong Reservoir. This is expected to increase with the addition of water transferred via the Murrumbidgee from Tantangara reservoir in NSW, with some water rights already purchased for this purpose.

The construction works for the ECD commenced in November this year and the project is proposed to be completed in 2011.

Earlier in 2009 ACTEW advised a major increase in anticipated construction costs for the ECD project. Specifically the anticipated cost has increased from $145m in 2007 to a current estimate of $363m. This will have significantly increased the supply cost of water from the ECD, and several groups have expressed concern whether the ECD remains the most efficient option to secure Canberra's water supply.

In addition, continued drought conditions and other factors pertinent to longer-term water security have impacted the relative merits of the alternative water supply options. These considerations include concern that the current drought might represent a 'step change' in climate, which together with the impact of the 2003 bushfires and potential environmental flow requirements collectively reducing water supply availability, while a potentially faster ACT population growth would increase water demand.

This changing water supply and demand balance has led to ACTEW to comment that there is likely to be an increasing reliance on transfers from Tantangara into the future. This raises the obvious question of whether increased transfers from Tantangara in the near term would be a better option than construction of the ECD, given Tantangara has a capacity of around 230 GL compared to only 78 GL for the ECD.

As detailed in this submission, ACTEW appears to have been predisposed to the ECD option and reluctant to embrace the Tantangara transfer option. However maintaining the ECD as part of the ACT's overall water strategy in lieu of increased transfers from Tantangara will impose unnecessary costs on the community, estimated in the order of $200m.

A brief overview of the Tantangara transfer option and its linkages with other aspects of ACTEW's water security program is provided in section 3 ahead of an analysis of the relative efficiency of each in section 4.

3 The Tantangara transfer option

The Tantangara transfer scheme was initially developed by ACTEW and evaluated as an *alternative* to the ECD. However as described in Section 3, increasing pessimism over longer-term climate and catchment inflows, has led ACTEW to develop this option in *conjunction* with the ECD.

Alternative configurations of the Tantangara transfer option have been investigated by ACTEW.

3.1 Final option design

The final option design and progress in securing initial transfers are described on ACTEW's website[1].

The Tantangara transfer involves transferring water from the regulated Murrumbidgee River to the ACT via the Snowy Mountains Scheme. This would involve:

- *Buying NSW water entitlements from Murrumbidgee River irrigators downstream of the ACT;*
- *Agreeing on commercial arrangements with Snowy Hydro Limited for the storage and release of water from Tantangara Reservoir;*
- *Putting in place arrangements between the NSW and ACT Governments to allow for transfer of water from NSW to the ACT.*
- *Delivery of water to the ACT via the Upper Murrumbidgee River.*

Many options have been assessed in terms of a mechanism to physically transfer the water from Tantangara to the ACT. The preferred option at this time is to release the water into the Murrumbidgee River, allow it to flow to the ACT, then pump it from the Murrumbidgee River through a 13 kilometre underground pipeline to Burra Creek, which flows into Googong Reservoir.

Inter-Governmental arrangements are required to enable purchased water entitlements to be transferred from irrigators downstream of the ACT and be stored in the Snowy Mountains Scheme, in the Tantangara Reservoir. Commercial negotiations are also required for the storage and release of water from Snowy Hydro Limited infrastructure.

It is envisaged that it will take until the end of 2009 to complete political, legal and commercial work on this option.

ACTEW has to date purchased around 12.5GL of general security water entitlements and continues work to source more. Negotiations with the NSW Department of Environment, Climate Change and Water, Office of Water are progressing over the proposed inter-governmental arrangements. Talks with Snowy Hydro Limited are advancing to finalise the commercial arrangements between the two organisations.

1 www.actew.com.au/WaterSecurity/MajorProjects/tantangara_transfer.aspx, accessed 22/10/09

3.2 Murrumbidgee to Googong water transfer

As noted above, a key element of the Tantangara transfer option is a means to transfer water from the Murrumbidgee into a local storage. This will be achieved through the Murrumbidgee to Googong Water Transfer Project which involves transferring water from the Murrumbidgee River through an underground pipeline to Burra Creek in NSW, which flows into Googong Reservoir.

Construction access and easement acquisition for some local Williamsdale and Burra properties will be needed. ACTEW is seeking voluntary land acquisition whenever possible, whereby a compensation package for the easement is negotiated and agreed by both ACTEW and the landowner[2].

3.3 Potential for increased transfers from Tantangara

The current suite of water security measures being pursued by ACTEW includes annual transfers from the Murrumbidgee to Googong of up to 20GL, with around half of this water being initially sourced via the Tantangara transfer arrangements.

ACTEW has advised that the Murrumbidgee to Googong transfer infrastructure has an annual capacity of 100 GL per year[3], which would therefore allow a significant increase in transfer volumes from Tantangara. However public statements by ACTEW suggest some confusion about the capacity of the transfers. For example, Dr Bickford, ACTEW Director of Water Security and Major Projects, has stated that the transfer capacity is 100 ML per day, or only around 36 GL annually.

Clearly clarification is required. Nevertheless, even this lower level would allow a significant increase in transfers from Tantangara, and augmenting transfer capacity over and above this amount is likely to be possible at modest cost (particularly if it had been done from the outset).

Tantangara Reservoir has a capacity of around 230 GL compared to the 78 GL for the ECD. Importantly, as Tantangara is part of the Snowy Mountains Scheme, flows through the reservoir each year average around 300 GL, and ACTEW advise that high security entitlements held in Tantangara would *'be always guaranteed'* [4].

With pumping, piping and land acquisition costs associated with the Murrumbidgee to Googong transfer already committed, and inter-governmental and commercial negotiations to facilitate transfers from Tantangara to the ACT due to be completed by the end of 2009, the marginal cost and administrative challenge to increase transfers from Tantangara are likely to be small.

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2 www.actew.com.au/WaterSecurity/MajorProjects/murrumbidgee_googong.aspx, accessed 22/10/09

3 Pers. comm., ACTEW Water Security - Major Projects, 28 July 2009

4 Mark Sullivan, Managing Director ACTEW, Canberra Times 27/3/09, page 1

4 Cost of the Tantangara and ECD water supply options

Assessments of water supply security require analysis of a multitude of variables relating to the current and future performance of the water supply system. As noted by ACTEW, the results of an assessment can be significantly altered according to the underlying assumptions made by the modellers[5].

In this section, the economic and related analysis undertaken by ACTEW in relation to the ECD and Tantangara transfer options is described. The impact on relative cost-effectiveness of these options is also investigated in light of more recent information across a range of modelling parameters such as climate change and construction costs.

4.1 Outcomes of the independent 2005 analysis of water supply options

ACTEW has gone through an extensive process investigating options to secure Canberra's water supply. The initial selection, design and analysis of potential options culminated in a 2005 independent assessment by the Centre for International Economics (CIE), who had been commissioned by ACTEW to undertake a cost-benefit analysis of the short listed water supply options.

The water supply options have very different capital and operating costs, can provide varying volumes of water and differ in their ability to provide water during drought years. For example, the construction cost of the ECD was put at $145m at this time and represented the major cost component of the option. In the case of the Tantangara transfer option where water is transferred via the Murrumbidgee to Googong Dam at up to 60ML / day, the initial purchase of water rights was estimated to cost some $38m but the option also involves significant ongoing costs including compensation payments to Snowy Hydro for the opportunity cost of forgone electricity generation.

To allow a comparison of the relative cost-effectiveness of water supply options, water utilities typically calculate the 'levelised cost' of options. Levelised cost is the net present value of the cost of an option, inclusive of all capital and operating costs, divided by the amount of water supplied by that option over the period being investigated. While this cost could be estimated from the information assembled by the CIE in 2005, it was not separately reported.

Rather CIE noted that the levelised cost method ignores the community costs of time in water restrictions. To overcome this they estimated for each option the *net economic benefit to the community*, which is the gross community benefits expected from any reduced probability of water restrictions (with the costs of water restrictions quantified in monetary terms), less the capital and operating costs of implementing that option over the period being investigated.

Based on the estimated cost to the community of residual water restrictions under each option and the assumed timing and size of capital and operating costs, the estimated net economic benefits of the ECD and Tantangara transfer options is shown in Table 4.1. Across the alternative modelling assumptions and options investigated, the Tantangara transfer option had the fourth highest ranking while the ECD had only the fifth highest ranking.

5 ACTEW 2009, Executive Summary, page 4

Table 4.1: Net economic benefit of supply options averaged across medium growth and prudent planning baselines (NPV expressed in 2005 dollars)[6]

Water Option	Net economic benefit
Tantangara releases (60 ML/day)	$122m
Enlarged Cotter Dam (78 GL capacity)	$121m

It is notable that due to a cap on transfers placed on the Tantangara transfer option investigated, the option by itself was assessed at not preventing ongoing water restrictions, with forecast restrictions similar to those expected under the ECD option.

4.2 Outcomes of the 2007 review of water supply options

In 2007 ACTEW reviewed its 2005 *Future Water Options* recommendations[7]. It investigated the following key questions:

- Which option(s) will provide the most rapid recovery from the current drought?,
- Which option(s) will provide the best water supply security over the longer-term?; and
- Which water supply option(s) will best secure ACT's water supply if the current drought continues (or if it occurs again in the future)?

In particular, ACTEW sought to incorporate more recent information on potential climate change, ACT population growth, the impact of the 2003 bushfires, compliance with the Government's Environmental Flow Guidelines, and so on. The two most significant changes in climate assumptions from the earlier 2005 analysis were:

- Googong Reservoir modelled inflows were reduced to reflect the recently observed low inflows; and
- Modelling commenced at the low water storage levels of April 2007.

Together these changes resulted in an almost 50% reduction in the ACT's long term average reservoir inflows over the forward option assessment period.

The review examined nine individual options, including the ECD and Tantangara transfers. Option performance was primarily assessed in terms of net economic benefit to the community and the probability that water restrictions would be needed in the future.

Unfortunately, the estimated net economic benefits of each water supply option are not reported. Rather ACTEW simply state that the ECD was found to provide the greatest net economic benefit of the nine individual options.

6 CIE 2005, Figure 5.4, page 56

7 ACTEW 2007

ACTEW go on to state that with only the addition of the ECD, recovery from a drought similar to that prevailing at the time would be contracted and impose significant costs on the ACT community through water restrictions. Therefore eight combinations of future water options were examined, with all combinations including the ECD.

The conclusions from the review were incorporated into ACTEW's July 2007 recommendations to the ACT Government, namely that the ACT Government agree that ACTEW should:

1. *immediately commence the detailed planning and construction of an enlarged Cotter Dam to 78 gigalitres capacity;*
2. *add to its capacity and operational flexibility to extract water from the Murrumbidgee River by undertaking the work necessary to proceed to construction of a pumping capability near Angle Crossing, which could also be used to transfer additional flows released from Tantangara Dam if such flows become available;*
3. *obtain additional water from a source not largely dependent on rainfall within the ACT catchments through either;*
    a. *the Tantangara transfer option; or*
    b. *the Water Purification Scheme.*

ACTEW will advise the ACT Government on which option is preferred for the future by December 2007 after determining whether satisfactory legal and commercial arrangements can be made to transfer water to the ACT via the Tantangara Dam, including the establishment of an ACT Water Cap, and after more detailed examination of the Water Purification Scheme, especially further analysis of salt management options[8]

However in undertaking the 2007 review, ACTEW carried forward the inappropriate modelling assumptions that had been tied to the Tantangara transfer option in the 2005 analysis by the CIE. The implications of this are noted by ACTEW itself:

The purchase of water from Snowy Hydro's Tantangara Reservoir and release to the Murrumbidgee River, if it can be implemented quickly, can make a great contribution to drought recovery. In the longer term it is also economically advantageous, but this is more due to its low cost than its capacity to limit the occurrence of water restrictions. Modelling of this option used a simplistic scenario and is constrained by assumptions that include (i) an upper limit on pumping of Tantangara water from Murrumbidgee River and (ii) no annual holdover storage capacity at Tantangara Dam. If these constraints can be overcome, this option becomes more advantageous[9].

8 ACTEW 2007b, Executive Summary, page X

9 ACTEW 2007, Executive Summary, page XII

ACTEW was more forthright in its recommendations to the ACT Government:

> *This proposal [Tantangara transfers] has always been very attractive in theory, but as ACTEW advised in the 2004/2005 reports, it involves a high level of legal and political assurance to provide the confidence to rely on such an option. Since the 2004/2005 reports were completed, the nationwide deliberations on water that have taken place in 2007 have produced a more conducive environment in which to discuss these issues. ACTEW is more confident that the ACT can obtain the political and legal assurance needed to proceed.*
>
> *On the face of it, the Tantangara transfer has more to recommend [than the wastewater recycling plant], because by purchasing more water rights downstream over the coming decades, ACTEW could access more water from the Tantangara Dam as the population grows. However, until intergovernmental and commercial negotiations are concluded, it is not absolutely clear that the Tantangara transfer is the right option.*[10]

ACTEW have not been predisposed to the Tantangara transfer option from the outset, presumably due to the administrative difficulties associated with securing and using rights to water held in Tantangara reservoir and a perception that they would not have total control over the stored water. And whether by design or other reasons, the arbitrary cap placed on transfers from Tantangara has obscured the economic effectiveness of this water supply option.

The extent of this is evident in the reported levelised cost of supply from each option, which is shown in Table 4.2 for the ECD and Tantangara transfer options.

Table 4.2: Levelised cost of supply from options (expressed in 2007 dollars)[11]

Water Option	**Levelised cost** NPV $/ML
Tantangara releases (25 GL/yr)	$2,220
Enlarged Cotter Dam (78 GL capacity)	$3,020

Given the lower cost of water from the Tantangara transfer option, a modest increase in transfer volumes, which could be accommodated by the pumping capacity being installed at Angle Crossing for the Murrumbidgee to Googong transfers, would overcome any residual water restrictions and elevate this option to clear superiority over the ECD option in terms of net economic benefit.

10 ACTEW 2007b, Executive Summary, page IX

11 ACTEW 2007, Table 6-6, page 41

4.3 Changes between 2007 and 2009

Since the ECD project was announced by the ACT Government in October 2007, a number of developments have served to further undermine the economic merit of the ECD compared to the Tantangara transfer option. These developments are briefly canvassed below.

- ***More pessimistic climate modelling***

  The ECD has failed to meet most of ACTEW's own criteria established for new water supply assets, namely:

  - X *maximising the use of existing infrastructure, both ACTEW's and others;*
  - X *increasing the diversity of sources of water;*
  - X *ensuring the availability of one source of water which is not dependent on rainfall in ACTEW's water supply catchments;*
  - X *maximising operational flexibility to provide backup capabilities in the event any part of the system is out of operation for whatever reason;*
  - √ *providing a net economic benefit to the community [although this should have been providing the greatest net economic benefit]; and*
  - X *minimising the consequent flow-on cost to consumers.*[12]

  Of these, the failure to diversify the ACT's water supply left the ECD option susceptible to reduced catchment inflows arising from climate change. Accordingly, in response to growing pessimism over longer-term rainfall in the ACT, ACTEW had to adjust its water security strategy in 2007 to include both the ECD and transfers of around 10 GL from Tantangara.

  However while ACTEW's water security strategy centred on the ECD needs the Tantangara transfers to ensure Canberra's water needs can be met, a strategy centred on a greater reliance on Tantangara would not require the ECD, offering potentially large cost savings.

- ***Tantangara transfer arrangements have been secured***

  The rights to some water in Tantangara Reservoir have already been purchased and ACTEW believe that it will only take until the end of 2009 to complete political, legal and commercial work on this option. This achievement paves the way for increased transfers and overcomes ACTEW's long-standing reluctance to the Tantangara transfer option.

12 ACTEW 2007b, Executive Summary, page vi

- ***Endorsement of the Murrumbidgee to Googong transfers***

  This project has been adopted and its implementation accelerated to provide short-term water supply enhancement. The project will allow some transfers from the Murrumbidgee even if no transfers from Tantangara were secured.

  Importantly however, it also provides a key part of the infrastructure needed for Tantangara transfers, and will allow greater transfer volumes without the need for additional infrastructure. With this expenditure committed, the marginal cost of increased transfers from Tantangara will be small.

- ***Increased cost of the ECD***

  ACTEW has advised that the anticipated construction cost of the ECD has increased from $145m in 2007 to a current estimate of $363m. This will have significantly increased the supply cost of water from the ECD and improved the relative cost-effectiveness of other water supply options.

  Specifically, with the 2.5-fold increase in the construction cost of the ECD, the supply cost of water from it is now probably in excess of $7,000 per ML compared to probably less than $2,000 for water from increased Tantangara transfers

Based on these revised water supply costs, we estimate that Canberra's water security could be met through increased transfers from Tantangara at a cost some $200m less than that of the ECD-centred water supply strategy.

4.4 Outcomes of the 2009 updated assessment of water supply options

With the blow-out in the cost of the ECD and increasing scrutiny of options through the EIS / DA process, ACTEW commissioned the Centre for International Economics (CIE) to update its assessment of the net economic benefits of a number of water supply options and suites of options for augmenting Canberra's water supply[13], where:

Net economic benefit = the value of fewer water restrictions less the cost of the option(s)

No modelling assumptions, data or definitions of options and climate projections are reported, so no comment on the efficacy of the analysis is possible.

Key findings by CIE are presented below, based on the cost of the ECD assumed to be $350m (ie: lower than expected), and using the average (mean) results of the scenarios reported.

- ***Preferred water supply options under a 2030 climate scenario***

  The results indicate that the Murrumbidgee to Googong transfers provide greater net economic benefits than the ECD *or* the ECD coupled with any other option.

  Indeed due to both the water yield and cost-effectiveness of the Murrumbidgee to Googong transfer project, which had already been approved by the ACT Government, progressing with the ECD in addition to these transfers was estimated to add greater costs than the value of the

13 CIE 2009

additional water restrictions it would prevent, *reducing the net economic benefits to Canberra by $241m.*

- ***Preferred water supply options under a 2070 climate scenario***

  Under the 2070 climate scenario, far more water restrictions are forecast compared to now, offering much greater benefits from supply augmentation. The analysis indicates the net economic benefit of the Murrumbidgee to Googong transfers to be almost $1.2 billion. Construction of the ECD could add another $400m, but greater benefits would come from addition of the Tantangara transfers which are estimated to add over $1 billion in net benefits.

  While not separately reported, the analysis led CIE to comment that *'This implies that Angle Crossing [the Murrumbidgee to Googong transfers] and Tantangara provide a robust strategy in the 2070 climate sequence* (Page 9)' - the ECD is not needed!

In conclusion, progressing with the ECD under the possible climate patterns that may prevail over coming decades represents a waste of money. The ECD will only provide a net economic benefit if a worst case climate scenario eventuates - where the weather profile expected in 2070 occurs from 2012. Clearly deferring investment until if and when deteriorating weather conditions occur would seem prudent given the relatively short construction period needed. However even under the most cautious approach where supply augmentation is sought now, the ECD offers small benefits compared to the Tantangara option.

The major finding of the updated CIE assessment is that the Tantangara option would be both prudent and efficient in meeting the water security standards required of ACTEW whilst the ECD clearly is not.

5 Failure of the ECD's EIS / DA process

The Environmental Impact Statement (EIS) and Development Application (DA) process provide a statutory safety net to ensure new developments are justified, sustainable and in the community's best interests.

In the case of the ECD, the EIS and DA approval have not been made in light of robust and current information on the economic merit of the ECD. In particular, and as argued in this submission, a robust comparison of alternatives such as the Tantangara transfer option has not been provided.

The *EIS Scoping Document* prepared by ACTPLA required ACTEW to provide an evaluation of the ECD against a number of impact headings including 'Cost Benefit Analysis'.[14]

As no economic assessment of the proposed ECD was provided in the draft EIS, ACTPLA wrote to ACTEW in April 2009 seeking, pursuant to section 224 of the Planning and Development Act 2007, that *'the results from the Cost Benefit Analysis'* be provided in the Revised EIS for Enlargement of the Cotter Reservoir.[15]

The request for Cost Benefit Analysis (Item 18) was addressed in Attachment 11 of ACTEW's response of May 2009 to the section 224 notice[16]. However it merely repeats sections 8.6, 10 and 11 from ACTEW's July 2007 *Water Security for the ACT Region: recommendations to the ACT Government*, without any attempt to update the analysis.

In the revised EIS for the ECD[17], ACTEW included what was termed a 'socio-economic impact assessment' at Appendix O. In the revised EIS ACTEW state that:

1. the ECD will provide 'a net economic benefit to the community' (Executive Summary, page 3);
2. the ECD provides 'the greatest net economic benefit to the community (relative to options individually and in varying combinations)' (page 30); and
3. 'the socio-economic impacts of the Project to increase storage capacity by enlargement of the Cotter dam are mostly positive' (EIS Appendix O Executive Summary page 13).

However the first conclusion is not sufficient, as the test for a cost-benefit analysis is that the project provides the *highest* net benefit of available options, not simply a positive benefit. The third conclusion suffers the same limitation. Moreover, the 'socio-economic impact assessment' provided at Appendix O of the revised EIS has almost no resemblance to a cost-benefit analysis. Indeed it is surprisingly not quantitative, and does not even seek to show option costs and benefits let alone the overall net benefit of the ECD or other options.

Indeed the analysis in this Appendix is summarised in its closing statement that the ECD *'will contribute towards increased real Gross Domestic Product, increased aggregate employment, and a rise in capital*

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14 ACT Planning and Land Authority 2009, page 20

15 see documentation at www.actpla.act.gov.au/topics/design_build/da_assessment/eis/completed_environmental_impact_statements/cotter_eis

16 ACTEW 2009b, available at //www.actpla.act.gov.au/__data/assets/pdf_file/0011/14213/ECD_EIS_Section_224_Notice_Response_200801867.pdf

17 ACTEW 2009c

stocks as certainty of water supply makes the ACT and region more conducive to investment'. However the expenditure of hundreds of millions of dollars on almost anything - such as repeatedly digging and filling holes - will create employment and economic activity multipliers, but not necessarily deliver a net economic benefit.

The second conclusion in the revised EIS would be compelling if it could be substantiated. However as noted above, ACTEW in its July 2007 analysis of options significantly constrained the assessment of the key alternative to the ECD (increased transfers from Tantangara Reservoir) by limiting potential transfer volumes under that option. Moreover no account of the blow-out in the construction cost of the ECD has been incorporated into the (dated) assessment.

ACTPLA in its Assessment Report of the Revised EIS make no reference to the July 2007 analysis provided by ACTEW in its response to the section 224 notice. Rather, ACTPLA refer only to the assessment provided in Appendix O of the final EIS and paraphrase its conclusions:

- *Socio-economic and health*

  In relation to water supply security a socio-economic assessment (EIS Appendix O) was undertaken for the ECD project and found that the likely impacts associated with the increase in water security are mostly positive.[18]

Despite the inadequacies of the assessment in Appendix O of the final EIS, and the fact that ACTPLA note that *'several concerns were raised during the consultation process regarding socio-economic impacts including ... the potential cost burden to ACT rate payers'*, ACTPLA accepts the revised EIS and recommends that the Minister take no further action in relation to it.[19]

Subsequent community submissions in response to the ECD DA, highlighting the inadequacies of the economic analysis, provided an opportunity for ACTPLA to reassess its position, and hopefully, to advise the ACT Government to seek further information from ACTEW.

Notably however, the ACT Government quashed further objective assessment by ACTPLA through employing its call-in powers to approve the ECD DA[20]. It is not known whether the ACT Government at this time (or subsequently) had been provided the updated CIE 2009 analysis of the ECD and other options.

Finally, and mindful of the need for transparent, objective and evidence-based decision making, the updated analysis of water supply options by the CIE - which shows the ECD would represent a net cost to the ACT while the Tantangara option would be both prudent and efficient - should have been made available in the EIS / DA process or otherwise released for public scrutiny.

The failure of ACTEW to publicly release the CIE 2009 report warrants particular consideration by the ICRC, the ACT Government and the people of Canberra.

18 ACT Planning and Land Authority 2009, page ix

19 Ibid, page xii

20 Canberra Times 2009, "*Call-in powers used for Cotter*", 27 August, p1

6 Conclusions

There are many factors that need to be taken into account when developing a water security strategy. For example, when ACTEW initiated its water security investigations it noted the potential difficulties in sourcing water from Tantangara. These centred on the difficulties posed by a fledgling market in inter-state water trade and the need for complex negotiations with Snowy Hydro who would need to be compensated for any loss of access to the waters of Tantangara.

On the other hand, water utilities are familiar with building and operating dams, and a predisposition for such infrastructure solutions is not surprising. Regrettably this has led to a similar situation as occurred in Tasmania where the State Hydro Authority sought to dam the Gordon below Franklin River despite the poor economics of the project.

In recent years SE Australia has seen a major overhaul in water rights and a freeing-up of water markets. In addition, worsening climate predictions have forced ACTEW to supplement its ECD-centred strategy with water sourced from Tantangara. As noted earlier, this has required ACTEW to overcome the remaining political, legal and commercial challenges and should have overcome ACTEW's long-standing reluctance to the Tantangara transfer option.

This would appear the case, as ACTEW no longer cite such concerns as a qualification to its current purchases from Tantangara. Rather in recent years ACTEW has argued that the ECD is the right option based on economic efficiency criteria. For example:

- when recommending the ECD to the ACT Government, ACTEW argued *'The results of the modelling under the future climate scenario indicate that an ECD provides the greatest net economic benefit'* (conclusions, page 53, ACTEW 2007, Water Security for the ACT and Region, Recommendations to ACT Government);
- similarly in its EIS for the project ACTEW claim that *'The ECD provides the greatest net economic benefit to the community*' (page 30 ACTEW February 2009, Revised EIS for the Enlargement of the Cotter Reservoir);

However the basis for these claims is not apparent. The ECD was not the most cost-effective option to secure Canberra's water supply when short-listed options were first assessed in 2005 by the CIE. In the updated analysis undertaken by ACTEW in 2007, the supply cost (levelised cost) of water from the ECD was again found to be higher than that for the Tantangara transfer option. However by arbitrarily limiting the volume that could be transferred under the Tantangara option the ECD was claimed to provide a higher net economic benefit.

With the recent escalation in forecast construction costs for the ECD, the claim that the ECD provides the greatest net benefits could not be maintained. This led to ACTEW choosing its words carefully when increasingly challenged throughout 2009 over the merits of the dam. For example:

- *'Mr Sullivan* [ACTEW Managing Director] *said the Cotter Dam would still provide economic value'* (Bills up to cover Cotter blow-out' Canberra Times 3 August 2009)

  While no longer claiming that the ECD would deliver the greatest economic value, even the grounds to claim that some value would be delivered are not apparent. The CIE 2009 analysis

shows that the ECD under a conservative 2030 climate scenario would result in a net economic cost to Canberra in the order of $241m (or over a quarter of a billion dollars if the current estimated cost of the ECD were used). Only under a pessimistic climate scenario is the ECD shown to deliver any economic value, but far less value than the Tantangara transfers.

- *'I've also read a number of comments saying that we should go ahead with other projects such as the Tennent Dam or the Water Purification (recycling) Scheme. While these projects were considered during the planning process, they were not the most cost-effective or reliable options for providing water security'* ("Actew's major projects will ensure water is on tap" an Opinion piece by ACTEW Managing Director in the Canberra Times October 2, p 17).

  Notably, and despite an opinion piece only weeks earlier arguing the economic case for the Tantangara transfers in lieu of the ECD[21], Sullivan chose not to engage on the relative merits of Tantangara versus the ECD.

In conclusion, a new dam may hold popular attraction, particularly as Canberra battles it way through a prolonged drought. However the era of dam building in SE Australia is drawing to a close, while an era of greater inter-state cooperation and the more efficient allocation of available waters is upon us.

As an inland city in a fully committed catchment, there is no 'new' or 'unused' water to be garnered from a new dam - new storage capacity is only needed if there are constraints on transferring water from current storages, such as Tantangara Reservoir, to Canberra.

It is argued in this submission that no technical or economic constraints to increasing transfers from Tantangara exist, but rather bureaucratic intransigence appears to have resulted in poor decision making. The result is that the ECD project is neither prudent nor efficient in terms of meeting the water security standards required of ACTEW.

While a finding along these lines by the ICRC is unlikely to halt the construction of the ECD, it is hoped that it may result in more transparent and balanced decision making in the future.

21 "Doubts increase on the choice to expand Cotter Dam, Opinion piece by Drew Collins in the Canberra Times August 10, p9.

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