

Derivation of Long Term Diversion Limit Extraction factors in NSW Submission

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Introduction

The Australia Institute welcomes the opportunity to make a submission on the Long-Term Diversion Limit Extraction (LTDLE) factors.

LTDLEs are required to determine how much water has been recovered to meet the government's water recovery target under the Murray-Darling Basin reforms. LTDLE factors need to be resolved to bring certainty to communities and water licence holders about how much water has been recovered to date and the progress towards water recovery targets. The calculation of LTDLE's has been contentious and has generated distrust of governments among stakeholders since 2011.

It is critical that this process is transparent so stakeholders now, and in the future, can understand how LTDLE's have been calculated, and that there is ample opportunity for them to be scrutinised.

This submission outlines The Australia Institute's concerns with the proposed LTDLEs, which include:

- risks to the integrity of the water market;
- the contradiction between claims that LTDLE's represent 'real' water, yet directions that they **should not** be used by the finance sector to value water
- the perception that this process meets a predetermined outcome in relation to over-recovery in the Gwydir and Macquarie valleys, and no further recovery in other valleys; and
- attempts to limit the use of CEWH's portfolio to the LTDLE.

We have also offered some recommendations to progress the issues we have raised.

Background

In 2015, The Murray-Darling Basin Authority (MDBA) commissioned an explanation of LTDLE factors and a documentation of their history. We assume that the report was endorsed by MDBA because it was published on MDBA's website, with MDBA's logo. That report describes that historically LTDLE factors were used:

- *As a metric that describes an entitlement characteristic's "reliability".*
- *As an input to determine permanent water trade exchange rates, that enabled one class of entitlement to be 'converted' to another so that, averaged over time, the buyer diverted the same volume of water as that previously diverted by the seller (early 1990s).*
- *To compare the yield of one entitlement type to another and as an aid in assigning a dollar value to an entitlement.*
- *To determine how valley cap diversion limits would be affected by the trade of water entitlements (1995 onwards).*
- *To evaluate progress towards the 500GL/year water recovery Living Murray Initiative target (2003 onwards).*
- *To identify suitable water access entitlement characteristics for purchases by the Commonwealth under the National Plan for Water Security (2007 onwards).¹*

The Murray-Darling Basin Authority (MDBA) and NSW Department of Industry (DoI) are now proposing that:

- Baseline Diversion Limit (BDL) minus water recovery at 2018 LTDLE factors will become the SDL scenario to assess compliance with the SDL.²
- The 2018 LTDLE are only relevant to assessing progress towards water recovery targets.³
- The LTDLE factors in the BDL will not be the same as the 2018 LTDLE factors.⁴

¹ Barma Water Resources Pty Ltd, (2015), *History of Long Term Diversion Limit Equivalent Factors*, <https://www.mdba.gov.au/>

² Peter Hyde, (2018), *Email to The Australia Institute*

³ DoI, (2018), *Derivation of Long Term Diversion Limit Extraction factors in NSW*, <https://www.nsw.gov.au/improving-nsw/have-your-say/release-of-amended-cap-factors/>

⁴ Peter Hyde, (2018), *Email to The Australia Institute*

There are several versions of LTDLE factors. The factors currently used to calculate Transitional Cap reports and progress towards water recovery targets are known as the 2011 LTDLEs.⁵ The 2011 LTDLEs were used for The Living Murray water recovery.⁶ MDBA subsequently calculated new LTDLEs (2008 LTDLEs), based on the LTDLEs in the BDLs used for the Basin Plan, with some corrections to agreed model errors.⁷

In 2011, the Commonwealth Department of Sustainability, Environment, Populations and Communities recalculated water recovered to date, and water still to be recovered, using the Basin Plan 2008 LTDLEs. New progress to water recovery based on these factors were published on its website, without any consultation. Stakeholders were understandably concerned because the amount of water already recovered, and to be recovered, changed, literally overnight. There were also concerns that the new LTDLEs would have an impact on mortgages, if the finance sector used the new factors when valuing water and assessing risk of water licences.

The MDB Ministerial Council directed the Commonwealth to:

- revert to the original 2011 LTDLE factors; and
- finalise the LTDLE factors.

Governments have been using the 2011 LTDLE factors since then. The 2011 factors result in an under-recovery in the Murrumbidgee valley of about 70GL. The 2008 factors result in an over recovery in the Gwydir and Macquarie valleys of about 30 GL. Resolving the factors has been a major source of contention. Stakeholders distrust the process and are sceptical whether the methodology behind the current process is simply a 'fix' to finalise water recovery targets.

The LTDLEs proposed by NSW DoI are a product of Reliability and Utilisation. NSW DoI has advised that the LTDLE are calculated by the volume of water shares, reliability, utilisation and allocation trade.

- Water shares are the volume by entitlement type in Water Sharing Plans.
- Reliability is measured by a modelled long-term diversion limit.

⁵ MDBA, (2018), *Transitional Period Water Take Report 2016-17*, <https://www.mdba.gov.au/sites/default/files/pubs/transition-period-water-take-report-2016-17.pdf>

⁶ Barma Water Resources Pty Ltd, (2015), *History of Long Term Diversion Limit Equivalent Factors*, <https://www.mdba.gov.au/>

⁷ MDBA, (2014), *Derivation of version 10.8 Long Term Diversion Limit Equivalence factors – a companion document to the history of LTDLE factors*, <https://www.mdba.gov.au/>

- Utilisation is the actual amount of water used as a proportion of total water available for the period 2004 to 2016.⁸
- Water available is adjusted for allocation trade to reflect the correct usage in a valley.

⁸ DoI, (2018), *Presentation: Planning assumptions - Update of NSW cap factors*

Integrity of the water market

DIFFERENT FACTORS FOR WATER RECOVERY, BDLs AND SDLS

All the LTDLE inputs are also inputs into the BDL models. The BDL models therefore will also have LTDLEs as a model output.

NSW DoI has explained to The Australia Institute that the LTDLEs in the BDL and the LTDLEs for water recovery will be different. The Australia Institute asked MDBA and NSW DoI:

Will the 2018 cap (LTDLE) factors change the BDL?

NSW DoI replied:

No - Cap factors do not change the BDL.

Separately, the process followed to develop Cap factors (LTDLE's) highlighted some issues in the BDL models. NSW is working with the MDBA to update the BDL models as part of the WRP development process, and this is work that is now nearing completion. As has been telegraphed on a number of occasions over the last five years any changes in BDL will also alter the SDL, however the 2750 GL recovery volume remains fixed. This enables NSW and the MDBA to provide better estimates of the baseline condition limits as part of the NSW WRP process.

The LTDLEs will affect the SDLs by:

- the adjustment from the BDL to the SDL by the water recovery amount; and;
- the adjustment for permanent trades between valleys.

If the SDL scenario used for compliance is based on the BDL minus water recovery, and the LTDLEs in the BDL are different to those used for water recovery, there will be three different LTDLEs; one for the BDL, one for Water Recovery and one for SDLs. This is illustrated in Table 1, using a hypothetical example of 1,000,000 ML water shares with a LTDLE factor of 0.80 and water recovery of 200,000 ML with a LTDLE factor of 0.50.

Table 1: Hypothetical example of the impact on SDL with different LTDLE factors for the BDL and Water Recovery

	Shares	LTDLE factor	LTDLE
BDL	1,000,000	0.80	800,000
Water Recovery	200,000	0.50	100,000
SDL (BDL minus water Recovery)	800,000		700,000
SDL 'LTDLE factor' (700,000/800,000)		0.875	

This example results in a SDL with a 'LTDLE factor' of 0.875, which is different to both the original BDL factor and the Water Recovery factor.

If the LTDLE factors are the same for the BDL and Water Recovery, the SDL factor will also be the same, as shown in Table 2 using the same hypothetical numbers in Table 1.

Table 2: Hypothetical example of the impact of SDL with BDL-based LTDLE's

	Shares	LTDLE factor	LTDLE
BDL	1,000,000	0.80	800,000
Water Recovery	200,000	0.80	160,000
SDL (BDL minus water Recovery)	800,000		640,000
SDL 'LTDLE factor' (640,000/800,000)		0.80	

In this example, the LTDLE factors in the BDL and Water Recovery in Table 1 and Table 2 result in a 60,000 ML (9%) difference to the SDL.

In assessing compliance with the SDL each year, MDBA will adjust each valley's SDL for inter-valley trade and for trade between the consumptive and environmental pools. The trade adjustment for permanent trades will need to be made using an LTDLE factor. It is not clear whether MDBA will use the BDL factor, the Water Recovery factor, or the derived SDL 'LTDLE factor'. Any of these factors will further distort valley SDLs whenever the LTDLEs are different.

There will be a distortion of the SDL whenever the LTDLE factors are different between the BDL and Water Recovery. There is a risk that this approach will make the SDL meaningless, and this should concern all water holders.

The NSW DoI prepared a Working Draft of the *Planning Assumption principles* in August 2017. That draft states:

BDL-based LTDLE factors should be adopted and applied consistently to the recovery of water across all SDL resource areas.

We agree with this position and ask for an explanation of why NSW is no longer proposing BDL-based LTDLEs for water recovery.⁹

Recommendations:

The LTDLE factor used for water recovery should be the same as the LTDLE in the BDL.

MDBA should clarify what LTDLE factor will be used to adjust for permanent trades when assessing SDL compliance.

DoI explain why NSW is no longer proposing BDL-based LTDLE's for water recovery.

THE EFFECT OF LTDLES ON THE SDL

Water markets are affected by the SDL because the SDL sets the amount of water available for consumptive use, which in turn affects water prices. An LTDLE that is only applicable to environmental water will undermine the water market because different LTDLEs in the BDL and Water Recovery will result in a different SDL than if BDL-based factors were applied consistently. SDLs will also be affected when adjustments are made for permanent trades between valleys. That adjustment will vary, depending on which LTDLE's are used.

The importance of the water markets to the financial value of water licences was stated clearly by the Australian Bankers Association:

A nationally consistent water trading regime that is both liquid and gives rise to more stable prices would give banks more surety in their ability to lend against water as security. Further, the strength of water entitlements as security can

⁹ DPI, (2017), *Planning assumption principles relating to water recovery and compliance with surface water Sustainable Diversion limits in the Murray-Darling Basin; Working Draft for Senior Officials group review (Aug 17)*, Obtained by The Australia Institute

vary depending on how they are governed; a more consistent approach would be favourable.

This is important not just for the continuity of the provision of finance but also for the financing of the trade of water.

It was recognised in developing the principles that uncertainty needed to be managed by having processes that were transparent, consultative and informed by science.

These key principles remain relevant to the work of the Murray Darling Basin Authority.

Banks support policies for the sustainable resource management of water nationally, as incorporated in the principles and reforms adopted by COAG since 1994. We are concerned that uncertainty inherent in the MDB reform model may result in a reduction in the availability of finance and less favourable finance terms and conditions, in future, for agribusinesses.¹⁰

¹⁰ Australian Bankers Association, (2011), *Submission to the House of Representatives Committee: Proposed Plan for Murray Darling Basin*

LTDLEs and ‘real’ water

NSW DoI states that the method to determine the new LTDLE will ensure that:

the water recovered for the environment is ‘real’ water (DoI emphasis).¹¹

At the same time, they:

***should not** be used in assessing the value of water entitlements as an asset (DoI emphasis).¹²*

It is unclear to us how these two statements can both be correct. If LTDLEs are robust enough to determine how much ‘real’ water is owned by the environment, it should also be robust enough to inform the financial value of that water.

If the finance sector **should not** use the LTDLE’s then the case needs to very clearly stated how this is ‘real’ water. The CEWH is projected to have a \$3.2bn portfolio. If the underlying metric to determine that water **should not** be used by the finance sector, there can be no confidence that the financial valuation of the portfolio is valid.

Water Entitlements are a financial commodity that can be traded and borrowed against. The value of those entitlements will affect the availability and cost of finance.¹³

LTDLE’s have historically been seen as a proxy for the reliability of water entitlements, and hence an indicator of its financial value. This is described in a MDBA report prepared by Barma Water Resources Pty Ltd:

historically LTDLE factors were used to compare the yield of one entitlement type to another and as an aid in assigning a dollar value to an entitlement.¹⁴

The National Irrigators Council has also previously held this view:

the decision to change the factors without consultation had caused great concern throughout basin communities as it had devalued water already

¹¹ DoI, (2018), *Presentation: Planning assumptions - Update of NSW cap factors*

¹² DoI, (2018), *Presentation: Planning assumptions - Update of NSW cap factors*

¹³ Australian Bankers Association, (2011), *Submission to the House of Representatives Committee: Proposed Plan for Murray Darling Basin,*

¹⁴ Barma Water Resources Pty Ltd, (2015), *History of Long Term Diversion Limit Equivalent Factors,* <https://www.mdba.gov.au/>

bought by the Commonwealth in some valleys with the net effect being even more water would need to be purchased.

"We welcome advice coming out of today's Ministerial Council meeting that the Commonwealth Department will revert to the previous conversion factors. Ministers have recognised that this move caused great uncertainty for many in our communities and had the potential to have real impacts. For example, with the stroke of a pen it potentially devalued some entitlement types raising genuine concerns about debt and equity levels for irrigators.

"The bureaucracy must understand in future that it does not operate in a vacuum and the decisions they take can have an impact in the commercial world."¹⁵

Phillip Glyde, Chief Executive Officer of the MDBA is also on the public record saying that Cap Factors (LTDLE) can affect mortgages, as reported by the ABC:

"The cap factors matter, because it determines the value of the water recovery, the extent to which water has been recovered, and whether or not there needs to be more recovery.

"So it's a really critical question to have answered."

Mr Glyde said from the MDBA perspective, it would have been better if it was all resolved "several years ago."

"The bottom line is it is an area of uncertainty and that people's mortgages, their businesses... their certainty depends on being clear about that," he said.¹⁶

The draft Planning Assumptions document prepared by NSW DoI also recognises that LTDLEs can affect the financial value of water entitlements:

In particular, there are concerns that LTDLE factors underrepresent actual long-term extraction and consequently may devalue the access licences.¹⁷

¹⁵ NIC, (2011), *Media Release: Sensible Outcome at Today's Water Ministers Meeting*, <https://www.irrigators.org.au/sensible-outcome-at-todays-water-ministers-meeting/>

¹⁶ Dingle, (2018), *Murray-darling water licence rethink putting farmers mortgages in question, experts warn*, <http://www.abc.net.au/news/2018-05-04/property-mortgages-in-the-murray-darling-basin-in-question/9722894>

¹⁷ DPI, (2017), *Planning assumption principles relating to water recovery and compliance with surface water Sustainable Diversion limits in the Murray-Darling Basin; Working Draft for Senior Officials group review (Aug 17)*, Obtained by The Australia Institute

We understand that MDBA and DoI have emphasised that LTDLEs should not be used by the finance sector when assessing mortgages against water entitlements.¹⁸ Both agencies have stressed the 2018 LTDLEs are a product of the use of water licences over 12 years, and the long-term average modelled reliability. We agree that this metric is no longer particularly useful to inform the availability and cost of finance associated with water licences. We do not agree that this metric represents 'real' water.

We are concerned that there is no longer a publicly available and readily understood metric, developed by government, that can be used by the finance sector when considering finance against water licences.

Recommendation: DOI and/or MDBA provide clarification how a metric can determine 'real' water for the water recovery progress, while simultaneously be useless for the financial sector.

¹⁸ MDBA, (2018), *Media Release: Murray-Darling Basin Plan will secure the value of water entitlements*, <https://www.mdba.gov.au/media/mr/murray-darling-basin-plan-will-secure-value-water-entitlements>

Applicability of new LTDLE method

The LTDLE factors have previously been a metric to value water. If the new LTDLE method **should not** be used to value water, the method to determine the LTDLE alters the LTDLEs from a metric that no longer represents the value of a water entitlement, to a metric that is:

*a water accounting tool to measure how much water has been recovered for the environment.*¹⁹

MDBA and DoI have both stated that the LTDLE's are relevant to water recovery only and they have been developed to demonstrate that water recovery targets have been met.²⁰

The Australia Institute is concerned that an additional effect of this will be to limit the use of the Commonwealth Environmental Water Holder's (CEWH) portfolio to the LTDLE use.

MEETING WATER RECOVERY TARGETS

MDBA and DoI have both stated that the 2018 LTDLE's are relevant to water recovery only, and that they have been developed to demonstrate that water recovery targets have been met.²¹ The Australia Institute is concerned that the 2018 LTDLE method is intended to deliver the predetermined outcomes of over recovery in the Gwydir and the Macquarie valleys and full water recovery targets everywhere else.

NSW did not finalise the water recovery numbers until June 2018.²² However, MDBA seems to have known what the new LTDLEs would be for the Northern Basin before the Northern Basin review was finalised in November 2016. The Northern Basin Review report flagged that the Macquarie and Gwydir valleys were 'over-recovered' and this

¹⁹ DoI, (2018), *Presentation: Planning assumptions - Update of NSW cap factors*

²⁰ DoI, (2018), *Presentation: Planning assumptions - Update of NSW cap factors*

²¹ DoI, (2018), *Presentation: Planning assumptions - Update of NSW cap factors*

²² Department of Industry, (2018), *derivation of LTDLE factors in NSW,*

https://www.industry.nsw.gov.au/data/assets/pdf_file/0019/162181/technical-paper-derivation-technical-factors-nsw.pdf

‘over recovery’ could be returned to irrigation.²³ The Deputy Prime minister was advised in November 2016 that the ‘over-recovery’ in the Macquarie would increase to 28 GL after NSW DoI finalised their LTDLE factors.²⁴ This suggests that some of the factors were a foregone conclusion in order to demonstrate water recovery targets.

The LTDLEs that were presented to stakeholders on Friday 1 June 2018 showed ‘under-recovery in the Lachlan valley of 2,856 ML. that number changed to zero when the LTDLEs were presented to the All Stakeholder Advisory Panel meeting on the following Tuesday, 5 June 2018. The reason for the change was presented to that group as being a result of ‘updated information’. It is simply not credible that a process which has taken several years found new information over the weekend.

The Australia Institute has compared the utilisation factors in the 2018 LTDLEs against the water usage, water availability and allocation trade data published in the NSW DoI’s trade register for the Murrumbidgee and Lower-Darling Rivers. There appear to be significant discrepancies, which result in the overstatement of progress towards water recovery by more than 100 GL.

Some key data is missing from the technical document for the 2018 LTDLEs, including reliability and utilisation factors for some entitlement classes. Stakeholders cannot be expected to have any confidence in this process if all of the data is not available.

Recommendation: That the full workings of the Average Reliability and Utilisation rates used to calculate the 2018 LTDLE factors are published.

LIMIT THE USE OF THE ENVIRONMENTAL PORTFOLIO

Historically, there has been an under-utilisation of water licences across the Basin.²⁵ Under-utilised licences are colloquially known as ‘sleepers’. The introduction of trade in general, and the Commonwealth purchase of water for the environment in particular, has resulted in the utilisation of water licences that were previously unused. The full utilisation of all of these licences could create either a growth in use, which could result in an exceedance of SDL, or reduction in reliability of all water licence holders, as there are more users competing for the available water.

²³ MDBA, November 2016, *Northern Basin Review Report*

²⁵ MDBA, (2017), *Water Audit Monitoring Report 2011-12*,
https://www.mdba.gov.au/sites/default/files/pubs/Water-audit-report-2011-12_0_0.pdf

One way to alleviate this is to limit the use of CEWH's portfolio. The draft Planning Assumptions document developed by NSW DPI says:

*NSW understands that the Commonwealth Environmental Water Owner (CEWO) has committed to using environmental water in a manner that will not exceed the LTDLE factor over the long-term, noting that use will vary on a year-to-year basis. NSW assumes that this commitment over the long-term use of environmental water held by CEWO will continue into the future.*²⁶

If in fact, the CEWH has made a commitment to limit its long-term use to the LTDLE, there will be a subsequent diminishment of the CEWH's assets because no other water licence is subject to a restriction of use based on an LTDLE, or any other factor. If CEWH may also be in breach of its obligations with regards to managing financial assets under the Public Governance, Performance and Accountability Act.

The utilisation factor in the LTDLE calculation includes sleeper licences in the utilisation number. Restricting CEWH's use to the LTDLE means that CEWH will be deemed to have acquired all of the sleeper licences, and that these can never be utilised. If this policy is implemented, the CEWH's portfolio should be devalued to reflect only the utilised component, to reflect the limit on CEWH's use.

This position will also result in the consumptive pool being able to fully utilise all licences, as well as the CEWH's underutilised portion, up to the SDL. Taking the hypothetical example provided in Tables 1 and 2, CEWH is restricted to using 100,000 ML of their portfolio, compared to 160,000 ML if the licence was held in the consumptive pool. Assuming the total use is within the SDL, the consumptive pool has access to 60,000 ML of CEWH's portfolio, which it is restricted from using.

Limiting CEWH's use to the LTDLE will breach the Basin Plan Intergovernmental Agreement, which says:

*The characteristics of licensed entitlements held for environmental use will not be enhanced or diminished relative to like entitlements held and used for other purposes. This includes that they will be subject to no less favourable conditions, including with respect to fees and charges, access to allocations, capacity to use, trade and carryover, than like entitlements held for other purposes.*²⁷

²⁶ DPI, (2017), *Planning assumption principles relating to water recovery and compliance with surface water Sustainable Diversion limits in the Murray-Darling Basin; Working Draft for Senior Officials group review (Aug 17)*, Obtained by The Australia Institute

²⁷ *Intergovernmental Agreement on Implementing Water Reform in the Murray Darling Basin, (2013)*

This policy, if implemented is of serious concern to the integrity of the water market, because it discriminates against one type of water licence owner, to the advantage of others.

Recommendation: That the use of the CEWH's portfolio should not be limited to the LTDLE factors.

Conclusion

LTDLE's have been a major source of distrust between stakeholders and government since 2011. This resulted in stakeholders not accepting government's statements of progress towards water recovery.

If LTDLE's and progress towards water recovery targets are to be enduring, all stakeholders need to trust the process. The process to date has not engendered that trust. Key data have not been disclosed and utilisation factors do not appear to be consistent with DoI's own published data. Full disclosure of all workings and the source of underlying data is essential, so all stakeholders can be confident in these numbers.

The contention that the 2018 LTDLE's will ensure that progress towards water recovery is based on 'real' water, whilst at the same time **should not** be used to assess their financial value is ridiculous. We can accept that the 2018 LTDLEs are no longer a reasonable metric and **should not** be used by the finance sector. However, that itself, means that the 2018 LTDLE's do not represent 'real' water.

The suggestion to limit the long-term use of CEWHs portfolio to LTDLE will fundamentally undermine the taxpayer funded \$3.2bn water portfolio and property rights associated with water. Diluting water property rights undermines the entire water reforms of the past decades, including the Commonwealth's \$13bn investment.

Finally, all LTDLE Factors should be BDL-based. Different LTDLEs between the BDL and water recovery will result in 3 different sets of factors, which can only render all of the LTDLEs meaningless.

Recommendations

The LTDLE factor used for water recovery and the BDL should be the same.

MDBA should clarify what LTDLE factor will be used when assessing SDL compliance.

DoI explain why NSW is no longer proposing BDL-based LTDLE's for water recovery.

DOI and/or MDBA provide clarification how a metric can determine 'real' water for the water recovery progress, while simultaneously be useless for the financial sector.

That the full workings of the Average Reliability and Utilisation rates used to calculate the 2018 LTDLE factors are published.

That the use of the CEWH's portfolio should not be limited to the LTDLE factors.