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**Analysis of the implications of the Lakes R Us PL  
proposal for national water reform**

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for the National Water Commission*

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## Lakes R Us and National Water Reform

1. Lakes R Us Pty Ltd (LRU) have applied for third party access to the storages and associated transmissions channels of Snowy Hydro Limited (SHL). The purpose of this application is to allow the private management of unused water allocations in the Snowy system.
2. The National Water Commission has sought an analysis of the implications of the LRU Proposal for national water reform as embodied in the National Water Initiative (NWI) and requested Marsden Jacob Associates (MJA) to provide a brief analysis and advice.

### The proposal

3. Lakes R Us Pty Ltd is a company specifically set up to manage unused water allocations in the Murray and Murrumbidgee River systems which are connected via the Snowy system.
4. LRU seeks declaration for the purpose of third party access of *“the storage and transportation of water, stored in and transported through, Snowy Hydro Ltd facilities, to release to downstream irrigators and other stakeholders at their request, in subsequent years. The water is from allocations provided to irrigators by State Water Authorities in the allocation year but not used by the irrigators or other stakeholders in the allocation year.”*<sup>1</sup>
5. The proposal is that:
  - LRU have first priority for Snowy Hydro Ltd’s (SHL) unused capacity up to 800 GL after SHL storage needs;
  - water will be transferred into SHL’s storages by swapping required release water coming out of these storages for water unused by downstream stakeholders in that year;
  - subject to environmental constraints, the accumulated water of LRU stored water will be released when the owners of that water require it; and
  - if the total storage space available to SHL fills and a spill occurs, then the amount of water that spills will be deducted from LRU water stored with SHL. A spill is water that travels down a spillway provided for that purpose. SHL will provide notification of a likely spill, in advance.
6. The LRU proposal seeks to utilise water storable in the Snowy system to improve the reliability of water allocations to participating irrigators.<sup>2</sup>

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<sup>1</sup> Application by Lakes R Us Pty Ltd, p.1.

<sup>2</sup> A similar – but reverse – mechanism is the ‘Snowy Borrow’. Rather than seek to store the excess of irrigator allocations over use in the Snowy system, Murray Irrigation, Murrumbidgee Irrigation and the Rice

## Legislative framework

7. As noted in SHL's submission to the NCC, under the current legislative scheme, extractive use rights for water are not created in relation to water whilst it is located in the Snowy Scheme.
8. The regulatory regime which applies to the water passing through the Scheme and into the Murray and Murrumbidgee river systems is three tiered. These tiers can be described as follows:
  - a) *pursuant to the Snowy Hydro Corporatisation Act 1997 (NSW), Snowy Hydro is entitled to the grant of a licence giving it the rights to collect, divert, store and release water within a defined area known as the Snowy Catchment Area. All water located in the scheme is owned by the Crown, not Snowy Hydro or any private party;*
  - b) *once water is released from the Scheme, the water is subject to the Murray-Darling Basin legislative regime which is set out in complementary legislation enacted by the Commonwealth, the Australian Capital Territory and a number of States. This regime determines the allocation of the water between the States; and*
  - c) *pursuant to the New South Wales Water Sharing Plans for each of the Murray and Murrumbidgee rivers, New South Wales grants irrigators extractive use rights over the water allocated to that State under the MDB Agreement.*<sup>3</sup>

## Seasonal allocations and carryover

9. Unused water in the previous season plays an important role in underpinning the reliability of the lower security entitlements in all parts of the Southern MDB.
10. Unused water may be described as allocations provided to a state – or to its irrigators by the state water authorities – in an allocation year but not used in that allocation year. This water forms part of the volume of water contained in the storages at the beginning of each allocation year.
11. The Murray-Darling Basin Agreement which is the primary equity mechanism for water sharing between the three States, specifies how unused water should be treated at the state level. At this level, there is 100% carryover in relation to State shares of Murray waters through a 'Continuous Accounting' policy. This provides for accounting of the two upper States' use of Murray waters not just for one year as is the

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Growers' Association have in recent years sought to borrow or bring forward to the current season, water that would otherwise be released by SHL in the following season and to repay this water in kind in the following season(s). Although the volume of water borrowed is repaid in kind, SHL faces a change in potential release patterns which may impair its income from either electricity sales or ancillary services and as a result, significant 'compensation' has been charged by SHL for these 'borrows'. Extract from Murray Irrigation Ltd submission.

<sup>3</sup> Source: Mallesons Stephens Jacques, Briefing Paper to the National Competition Council, 24 February 2005.

policy applying to individual water users but progressive carry-over for the long term, subject to specified operational criteria.

12. Below the level of the States, ie., at the level of individual entitlement holders, unused water from an allocation year is treated in two ways:

- in most cases it becomes common property and forms part of the consumptive pool for the next allocation year. Under the management rules, the level of allocations are based on the consumptive pool which in turn reflects the volume of water held in storage at the beginning of the season, plus minimum expected inflows; and
- general security entitlement holders in the NSW Murray and Murrumbidgee have, since 1999, been permitted to carryover a portion (50% and 15% of entitlement, respectively) of their unused water in their individual water accounts.

This water is not part of the consumptive pool in the next season and therefore is separate from allocation levels announced for the next season. For these entitlement holders, in the next season they will be entitled to recover the announced allocations plus their individual carryover.

In years of extreme drought, the individual carryover can exceed the announced allocation by a considerable margin. For example, in the 2002-03 season, the allocative level for Murray Irrigation Ltd (MIL) was only 8% but carryover averaged 15%. On average, MIL general security irrigators were entitled therefore to 23% of their entitlement.

13. In NSW the carryover rules are specified in the relevant water sharing plans (WSP). The WSP for the NSW Murray states:

*Carrying over of water allocation credits*

*Water allocation remaining in the water allocation accounts of domestic and stock access licences, local water utility access licences, regulated river (high security) access licences, regulated river (conveyance) access licences and supplementary water access licences cannot be carried over from one year to the next.*

*The maximum volume of water allocation that may be carried over in the water allocation accounts of a regulated river (general security) access licences in the Murray Water source from one water year to the next shall be equal to 0.5 ML multiplied by the number of unit shares specified in the access licence share component.<sup>4</sup>*

14. Table 1 summarises the current carryover rules for the different forms of entitlement across the Southern MDB.

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<sup>4</sup> *Water Sharing Plan for the New South Wales Murray and Lower Darling Regulated Rivers Water Sources 2003*, Part 9, Division 1, para 46.

**Table 1 : Prohibitions and restrictions on private carryover of unused allocations from one season to another**

<b>NSW</b>	
<ul style="list-style-type: none"> <li>▪ Town, high security, high security supplementary (off-allocation) and domestic and stock</li> <li>▪ General security Murrumbidgee</li> </ul>	<p>No private carryover of unused water</p> <p>Since 1999, a maximum 15% of individual entitlement may be carried over. Usable up to an aggregate seasonal allocation of 100%.</p> <p>Currently subject to review.</p> <p>Since 1999 maximum 50% of individual entitlement may be carried over, subject to a 5% (1/20<sup>th</sup>) reduction for leakage and evaporation. Usable up to an aggregate seasonal allocation of 100%</p>
Murray	Since 1999 maximum 50% of individual entitlement may be carried over, subject to a 5% (1/20 <sup>th</sup> ) reduction for leakage and evaporation. Usable up to an aggregate seasonal allocation of 100%
<b>Victoria</b>	No private carry-over of unused water
<b>South Australia</b>	No private carry-over of unused water

*Sources: Water Sharing Plan for NSW Murray and Lower Darling Regulated Rivers Water Sources 2003; Water Sharing Plan for Murrumbidgee River Water Sources 2003.*

15. Across the Southern MDB, all entitlement holders have the potential to store unused water from one season for use in another in private dams. On farm, most irrigators could construct ‘shallow turkey nest’ dams. Apart from their construction cost, such on-farm storages will generally involve pumping costs and high rates of evaporation.
16. Larger and more efficient storages could also be constructed. For instance, MIL as the largest single entitlement holder in the Southern MDB, has several times explored the concept of a 30 GL storage at ‘the Drop’, a site downstream of Yarrawonga Weir.
17. To date, the physical potential to store more unused water has not been realised because these options have not been cost effective at the prevailing opportunity costs for water or – as in the case of potential storages at Euston-Beneena – they involve unacceptable environmental impacts. Nonetheless, in the Murrumbidgee catchment the New South Wales Department of Infrastructure, Planning and Natural Resources is conducting feasibility studies for the construction of additional off-stream storage facilities. Additionally, Murrumbidgee Irrigation Limited is in the advanced planning stages for the development of a water storage facility at Barren Box Swamp.<sup>5</sup>

<sup>5</sup> The Barren Box Swamp Project being pursued by Murrumbidgee Irrigation Limited involves the construction of water storage facilities at Barren Box Swamp (including active storage capacity of 22,000 ML and immediate storage capacity of 5,000 ML) an en-route water storage facility (with 2,500 ML capacity) and various other inlet/outlet, regulating and transportation facilities en-route to Brays Dam. The project is aimed at improving the security of water supply to the Wah Wah Irrigation District and achieving on average a minimum of 20,000 ML in water savings per annum. An environmental impact assessment is currently being conducted into the proposal. (Source: Mallesons Stephens Jacques, Briefing Paper to the National Competition Council, 24 February 2005).

18. The LRU application raises the prospect of using existing large storages high up in the catchment(s) to hold back unused water and to store it in unused airspace and through notification and swap arrangements to avoid pumping costs. The LRU proposal has the potential effect of making storage of unused water economically feasible.

## Relevance of NWI framework

19. Examination of Intergovernmental Agreement on a National Water Initiative indicates two statements of broad relevance to the issues. These are that:

*Governments have a responsibility to ensure that water is allocated and used to achieve socially and economically beneficial outcomes in a manner that is environmentally sustainable,*

and that

*The objective of the Parties in implementing this Agreement is to provide greater certainty for investment and the environment, and underpin the capacity of Australia's water management regimes to deal with change responsively and fairly (refer paragraph 23).<sup>6</sup>*

## Assessment against NWI objectives

20. Against these objectives, the proposal has some attractive features, particularly the intent to increase the ability and flexibility of irrigators to manage their water use within and between years. Specifically,
- it would remove the incentive to waste unused water at the end of season that arises under the 'use it or lose it' consequences of prohibiting or limiting private carryover; and
  - it would provide general and lower security entitlement holders with additional options to manage their water security from year to year and over the longer term.
21. However, the unused water allocations are already an integral part of the water management framework and decisions in the Southern MDB which reflect agreed positions across multiple stakeholders on the balance between economic, social and environmental objectives. As a result, the proposal to increase the extent of private ownership of unused allocations involves unavoidable third party impacts on:
- **Individual non-participating irrigators.** This effect arises because (in order to keep within the extractive limits) the increase in water carried over would necessitate a reduction in the announced allocations for general (low) security entitlements in NSW. Further effects on individual irrigators may arise if the additional (privatised) carryover is given any priority other than last in the bulk delivery system (ie. the rivers and structures) which is severely constrained at

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<sup>6</sup> Intergovernmental Agreement on a National Water Initiative, between the Commonwealth of Australia and the Governments of New South Wales, Victoria, Queensland, South Australia, the Australian Capital Territory and the Northern Territory, para 5.



multiple points during the irrigation peak (Box 1). The airspace of Blowering dam, one of the many capacity constrained pieces of infrastructure, provides a case study of the issues involved (Box 2);

### **Box 1 : Capacity constraints on bulk delivery in the southern Murray-Darling Basin**

The heavy focus on insufficient volumes of water in the southern MDB tends to overshadow the multiple constraints on bulk delivery capacity. These include:

- turbine capacity of T-3 and Blowering constraints on delivery volumes in the Tumut River due to the need to avoid flooding of landholders;
- Steam Plain to Khancoban;
- Hume Weir to Yarrawonga;
- Mulwala Canal;
- the Barmah-Millewa choke; and
- the input and output capacities of Lake Victoria.

These constraints are either subject to explicit individual sharing arrangements or their presence factored into the management and sharing arrangements more generally. The agreement relating to Blowering provides a simple case study (see Figure 3).

### **Box 2 : Blowering Airspace Agreement**

Through a formal Agreement with Snowy Hydro, State Water provides 190,000 ML of air-space in Blowering Dam to enable short bursts of high releases from T3 Power Station on Talbingo Dam, thereby avoiding unnatural flooding of private property along the Tumut River.

In the Blowering Airspace Agreement there is provision for Snowy to reserve the Blowering Airspace account volume in the Scheme for release in drought times.

Snowy Hydro provides a compensatory volume of water within the Scheme in accord with air-space account. There is no payment by Snowy Hydro for the airspace reservation. The air-space management is integrated with a program to maintain the carrying capacity of the Tumut River from Blowering Dam to the Murrumbidgee River Junction to an agreed level. Snowy Hydro pays \$120,000 per year towards that program. Releases from Blowering Dam pass primarily through the Blowering Power station augmented as required by releases from irrigation valves. Snowy Hydro pays a rental for the Power Station.

Introduction of a third party having rights to Snowy releases raises issues in relation to access to Blowering storage and definition of rights to access Blowering Power station. Contract provisions would be required including State Water's cost recovery policies.

*Source:* Submission by State Water Corporation on the Lakes R Us application to the National Competition Council for declaration of a water storage and transport service.

- **the environment.** This unavoidable third party impact arises because, although the water sharing plans would require a downward adjustment in the general allocation in order to ensure the same volumes of environmental flows, the number and height of spills and floods would also be reduced. This occurs because carryover is currently stored in the mid to lower dams which spill regularly, but under the LRU proposal would be increasingly held in the higher Snowy dams which spill rarely. For instance, over the past 109 years Hume Dam has spilt regularly, say, 1 in 2 years, Dartmouth spills, say, 1 in 3-4 years, but the Snowy storages spill say 1 in 50 years with more frequent enforced generation.

The proposal to increase private ownership of unused allocations and to store these in the higher dams would shift the flow of water from occasional spring spills and floods to a greater coincidence with the peak summer demands. The result is to increase the regulation of the river and to move the flows further away from a natural pattern. The reduction in spills would reduce flows into red gum forests, wetlands and billabongs, the latter being essential to preserve appropriate nutrient and breeding cycles. Thus the LRU proposal would confound the intent of governments as expressed in the NWI, Living Murray and Water For Rivers to improve the environmental condition and sustainability of the river systems;

- **other states.** South Australia, in particular, relies on flushing flows down the Murray to reduce salinity and maintain water quality for Adelaide. In addition there are a wide range of impacts on irrigators as a result of the impact of the LRU proposal on sharing arrangements. For instance, under the MDBA , water use is, as noted, subject to continuous accounting rules and the two major states have the ability to carryover water in storages (eg. Hume and Dartmouth) up to 50% of the storage capacity. Above this level, the water accrues to the other state. Reducing NSW's public carryover in the MDB storages would reduce water available to Victoria; and
- **Snowy Hydro Ltd.** Storage and release of water from Snowy storages entails enforced generation: it is not possible to release the water without affecting Snowy's release and generation pattern. The Snowy Hydro Corporatisation Act requires that SHL be compensated for any loss of income resulting from changes in its release pattern, as a result of providing water to downstream users. This requirement insulates Snowy, in part, from major third party impacts, but Snowy's flexibility in the provision of risk management and 'ancillary services' may be reduced due to lose of airspace and transmission capacity. A key ancillary service is to guarantee system reliability through the provision of instantaneous generation in the event of the failure of a major thermal power station/transmission line to rebalance frequency and offset the lost load. A second key ancillary service is the ability to black start the NEM following a major blackout. If releases to LRU were occurring through Snowy turbines at a time when such risk management services were suddenly required then the potential magnitude of such emergency and start-up generation may be restricted.

In summary, the LRU proposal would have multiple third party impacts which were not anticipated in current sharing arrangements agreed by the governments, entities/agencies or other stakeholders. These may combine to reduce the opportunities to balance responsibly and fairly the objectives of social benefit, economic benefit and environmental sustainability.

## Implications

22. Water management in the Southern MDB is codified under several core agreements which would be affected by a change in spills and flood frequency. All prior agreements would need to be reconsidered and redrafted. As noted, the implementation of the LRU proposal would affect all parties to these agreements to some extent. Furthermore, the agreements themselves are predicated on detailed hydrological simulations, the outcomes of which would be changed by the implementation of the LRU proposal. The agreements which would need to be reconsidered and redrafted include:
- Murray-Darling Basin Agreement 1992 including Schedule F, ie., the Cap on Diversions;
  - NSW Water Management Act 2000;
  - NSW Murray and Murrumbidgee Water Sharing Plans;
  - the Snowy Corporatisation Act, the Snowy Licence, the Snowy Water Enquiry Outcomes Deed and other related documents;
  - NSW State Water Corporatisation Act; and
  - counterpart legislation and subordinate legislation in Victoria and South Australia.
23. Increased private ownership of unused allocations confers major potential efficiency benefits. Indeed, the shift in 1999 from complete socialisation of unused allocations to limited private carryover for general security entitlement holders in NSW reflects the recognition of these benefits. However this is not the only criteria. Carryover is of most benefit to general or low security entitlement holders and of little or no benefit to high security entitlement holders. The 50% and 15% levels of carryover for the NSW Murray and Murrumbidgee, respectively, were seen by NSW as the maximum consistent with other obligations and objectives following analysis of spills, floods and other system characteristics as indicated by detailed hydrological simulations.
24. The LRU Proposal envisages increased private ownership of one major component alone of the storage and transmission systems. Consideration of the practical impact and operation of the proposal identifies delivery capacity, constraints and assigned priorities as key issues. Under current arrangements the bulk delivery capacity is essentially socialised and dealt with at the wholesale level and is not a matter in which individual irrigators or entitlement holders have a direct interest. However, for the LRU Proposal to increase private carryover to deliver meaningful results, release priority, delivery capacity and evaporation losses would need to be defined and similarly assigned to private ownership. This is not an impossible task, but would

require a substantial technical and analytical investment in addition to the extensive consultative and deliberative process which would also be required. A detailed specification of the entire system and its management from a market/private perspective would need to be developed. Significant implementation and transaction costs would be involved by allowing retail entitlement holders to make decisions about what are currently wholesale operations.

25. There are other timing issues. For instance, for the NSW Government to avoid compensation claims, reconsideration of these issues would need to coincide with the 10 year review of the NSW Murray and Murrumbidgee WSPs. However, the preparatory work necessary to understand the issues and tradeoffs would need to begin rather earlier.
26. In terms of furthering the objectives of national water reform, the LRU Proposal indicates the scope to harness private incentives, but should be seen as a warning that simple easy fixes are unlikely to be easily realisable; that they risk reducing the opportunities to balance the economic, social and environmental objectives; and, that careful groundwork and strategy is likely to be required to identify and realise opportunities for better management. Nonetheless, they should remain on the agenda list and be explored in preparation for more systematic reviews of current arrangements and opportunities for win-win changes.

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