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John Pierce
Chairperson
Electricity Supply Industry Expert Panel

*By email: contact@electricity.tas.gov.au*

Dear Mr Pierce

**Comments on Draft Report: An Independent Assessment of the Tasmanian Electricity Supply Industry**

Thank you for the opportunity to submit to the draft report which has comprehensively considered the recent history of the Tasmanian Electricity Industry and produced substantial recommendations for its progress.

The Australian Energy Market Operator (AEMO) operates the National Electricity Market (NEM), the Victorian Declared Wholesale Gas Market (DWGM) in Victoria and the Short Term Trading Markets (STTM) for gas at hubs in Adelaide, Sydney and Brisbane. AEMO is also responsible for the procurement and planning of the shared network and connections of electricity transmission in Victoria and has a range of national planning functions for electricity and gas transmission.

One of AEMO's predecessors, NEMMCO, oversaw the introduction of the Tasmanian region into the NEM in 2005. This was a challenging and complex project and AEMO has substantial expertise in these matters.

AEMO agrees that Tasmanian customers have not achieved the same benefits of competition as has occurred in other NEM regions. AEMO broadly supports the direction of Reform Path 2 as being consistent with the competitive principles underpinning electricity reform. In this submission we have discussed the implementation challenges. AEMO strongly supports the Panel's rejection of Reform Path 3, and considers the draft report has under-estimated the disadvantages of this Path.

Whilst AEMO agrees that network regulation has largely moved to the national sphere, there are some opportunities to improve efficiency in transmission planning that are within Tasmania's control but have not been considered in the draft report.

If you would like to further discuss any matters raised in this submission, please contact Ben Skinner 03 9609 8769.

Yours sincerely

David Swift

**Executive General Manager, Corporate Development**

Attachments: AEMO submission


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NEW SOUTH WALES QUEENSLAND SOUTH AUSTRALIA VICTORIA AUSTRALIAN CAPITAL TERRITORY TASMANIA

# AEMO Submission to Electricity Supply Industry Expert Panel: Draft Report

## 1. NEM competitive design principles

The NEM is widely recognised as a very successful electricity market design, unlocking genuine competitive efficiencies whilst providing a high level of customer reliability.

The NEM has been shown capable of delivering:

- Strong dispatch efficiency, by relying upon an energy-only, security-constrained dispatch, which has successfully adapted to external challenges, such as growing peak demand and intermittent generation.

- Transparent pricing of supply and demand, supporting vibrant contract markets critical to managing risk without undermining short-term incentives.

- Long-term incentives to invest, with new entrants having been attracted into the generation and retail markets.

However these positive outcomes rely upon an industry structured such that:

- Reasonable competition and new entry opportunity exists in generation, retailing and ancillary service markets in all locations with a low risk of government intervention.

- Pricing regions are determined such that the wholesale spot price and generation dispatch outcomes are mostly consistent.

Delivering the full benefits of the market has been challenging in geographical areas where competition is limited by the structure of physical generation, its ownership and the extent of network connection to other areas.  In the NEM, market power derives from the physical arrangement, and changes to notional pricing regions will only affect the manner in which it presents.

## 2. Operation of the Tasmanian Region in the NEM

The Tasmanian region presents complex technical challenges: it is perhaps the most difficult of all NEM regions to manage and to understand the relationship between dispatch and price outcomes.  Its unique characteristics include:

- The nature and particular operating characteristics of the Basslink interconnector; a single high voltage direct current (HVDC) link including the need to manage:
    - the impact of an interruption of Basslink, which presents by far the largest single contingency in Tasmania.  The contingency is managed by a dedicated "System Protection Scheme" (SPS) which can initiate the interruption of customer loads.  The SPS is in turn managed by the dominant generator.

- a "no-go zone" 100MW wide which imposes a large non-linear constraint upon the linear dispatch and pricing mechanism, resulting in frequent counter-price flows across the interconnector.
- the ability to transfer significant but not complete frequency control ancillary services (FCAS), also limited by the no-go zone constraint, which often requires the recruitment of some FCAS services specifically located within Tasmania. This contrasts with the procurement of FCAS services from other locations and transferring them across the interconnector, which is more often the case elsewhere.

- The naturally lower availability of inertia within Tasmania, resulting in FCAS requirements being in turn dependent upon the commitment decisions of the dominant generator.
- Different frequency control standards applying in Tasmania from the rest of the NEM.

These characteristics must be managed within the dispatch process' objective of minimising cost. Some of these factors are co-optimised with others within the dispatch optimisation process e.g. the flow on Basslink and local FCAS provision. Some, such as inertia and the SPS, are not dispatchable and rely on Hydro Tasmania to manage within their operations[1]. These characteristics and their mutual dependencies must be recognized when considering current outcomes and the likely outcomes of proposed reform paths.

The technical complexity of dispatching and pricing the region is a reflection of the physical circumstances. Attempts to assume away the complexity by over-simplifying its representation in spot market pricing cannot address an underlying lack of physical competition, and will make the exercise of market power less transparent.

In its role in overseeing the introduction of Tasmania to the NEM, AEMO has developed substantial expertise in these complex matters and is willing to assist the Panel in any design matters relating to the Reform Paths.

## 3. Reform Paths

AEMO concurs with the Panel's views expressed in the draft report that experience shows that the region has failed to deliver competition in the generation and retailing activities to the levels achieved elsewhere in the NEM. In seeking to address this, AEMO agrees that the Panel faces a choice described by the first two reform paths:

- Retaining the existing industry structure and market operations, but to apply a permanent form of market power regulation on Hydro Tasmania through an obligation to auction contracts on all Hydro Tasmania's supportable uncontracted capacity.
- Permanently divesting this contracted capacity to three gentraders.

In both reform paths, Aurora's retail load is to be divested in three parcels and full retail competition introduced.

AEMO considers either path compatible with the market design. The latter path, through the introduction of competition, deregulation and privatisation, is arguably most consistent with

[1] More detail can be found in the following documents: http://www.aemo.com.au/electricityops/0100-0009.pdf, http://www.aemo.com.au/electricityops/0200-0004.pdf and http://www.aemo.com.au/electricityops/0100-0015.pdf

the national competition principles that lead to the creation of the NEM. The challenges of this path lie in its implementation and whether the contracts and parcels can be constructed to be attractive to commercial participants whilst also supporting the efficient management of the generation portfolio in Tasmania in all timeframes.

AEMO considers that the third path, combining the Victorian and Tasmanian regions, would not have resolved competition concerns in generation, and would have created serious new problems.

AEMO is unable to comment upon other recommendations relating to regulated retail price cap setting, the revaluation of Tamar Valley Power Station and the governance of the State Owned Energy Businesses.

### 3.1. Path One-Mandatory Auction of Contracts

AEMO agrees in principle this path should assist competitive retail access to wholesale market offerings in Tasmania compared to the status quo. The implementation is more straightforward than the other paths, and the arrangement does not require any changes to the existing spot market arrangements with their focus on dispatch efficiency.

The mandatory offering of contracts however imposes a regulated characteristic upon the wholesale energy market which would likely remain permanent. The path then relies on the regulated construction of the auction to unlock efficiencies and innovations for that market, which would be a challenging task.

The path requires that the majority of Hydro Tasmania's capacity must be traded through auction, not just the volume that has not been commercially contracted. Presumably this is necessary to avoid creating an opportunity to subvert the auction through first contracting its output to a single preferred retailer. However this in turn means that retailers (and ultimately customers) cannot negotiate more innovative products from Hydro Tasmania outside the auction design.

The path proposes a quarterly rolling tranche auction, with the volume of mandatory offering being reset based on hydrological conditions. This has some implications, which represent potential inefficiencies in comparison to a more commercial arrangement that might develop within a competitive environment:

- The regulatory algorithm to convert hydrological conditions into a mandatory auction volume would not be straightforward to design nor without judgement. As discussed in the paper, it would need to be conservative, therefore artificially limiting the contracting capacity available to meet Tasmanian demand.

- The task of balancing of security against market value will primarily shift to the algorithm. If the algorithm takes current storages into account in determining the volume of contracts to offer, Hydro Tasmania's incentives to optimise storage levels between auctions may alter, and may also be affected by knowledge of the algorithm itself.

- Because the auctions are necessarily periodic, there will be delays between a change in hydrological conditions and a change in contracting volumes. By contrast, normal contracting markets entail continuous adjustments to contracting strategy.

- Retailers will be reliant on the regulated construct of the auction to meet the needs of their own activities. It will be very difficult to determine an optimal package of contracts, both in terms of the nature of the contracts (e.g. swap, cap, swaption, etc.) and the tenors to optimally meet the needs of the retailers, which in turn results from the preferences of customers.

- Some of the capacity sold in these auctions would presumably be supported from imports through Basslink. Hydro Tasmania's costs in relation to providing this support will relate to mainland pricing conditions at that time. The reserve price may need to consider mainland market conditions to avoid placing Hydro Tasmania in a loss making position.

Whilst assisting retail entry, the path does not appear to assist the entry of independent generation to the degree that the alternate Path Two could. It would be difficult for potential generation investors to have sufficient confidence to operate in the Tasmanian region without effective long-term access to some existing capacity and/or Basslink capacity.

The need to impose regulation on the Tasmanian FCAS market appears to remain. The current approach could be retained, or FCAS contracts could be included in the mandatory energy contract auction.

If Path One is pursued, AEMO recommends that the use of a sophisticated auctioning technique such as that used by AEMO to auction Settlement Residue Instruments[2] should be considered. This allows buyers to link bids for capacity across multiple dimensions, e.g. different tenors and products. This permits them to apply internal constraints, e.g. a buyer can make one combined bid for two products. A simultaneous feasibility constraint ensures that the maximum capacity is not exceeded at any time, and a linear program ensures the auction realises the greatest feasible return from the bids received.

### 3.2. Path Two-Trader Rights

This path involves creating three entities vested with permanent virtual access to Hydro Tasmania's physical capacity. If physical separation is unachievable for other reasons, this model appears most consistent with the competitive environment anticipated when the NEM was designed. Although the paper has suggested the traders could remain government owned, sale of the traders at the same time as the break up and sale of Aurora's retail book seems more conducive to competition and more likely to be of interest to existing NEM participants. This could see Tasmanian trader and retail positions integrated within the national portfolios of private energy players. Such an outcome could provide a basis for the Tasmanian customer to benefit from the competition and scale economies that already exist for energy consumers on the mainland.

The relationships between the traders and Hydro Tasmania will need detailed consideration to maximise efficiency. Whilst the concept of a power purchase agreement (PPA) is common in the NEM and other electricity markets, unique challenges to be overcome in this case include:

- Multiple competitive parties contracting with the same physical capacity.
- A very disaggregated portfolio of physical generators, with differing characteristics;
- A generation portfolio dominated by hydro with its inherent need to manage energy limitations, short and long term storages and hydrological risk.

[2] http://wwww.aemo.com.au/electricityops/550-0206.html

There are, however, examples from which useful lessons could be drawn:

- The Queensland Callide C coal-fired generator is contracted to two competing parties, who call upon their contracted capacity from day to day. These requests are in turn automatically converted into NEM bids that optimise the physical delivery of generation to meet both requests.

- Pre-NEM, the Snowy Mountains Authority operated as required to meet the mutual requests of the electricity commissions of Victoria and NSW. Snowy would optimise its operation when responding to separate requests for physical energy or pumping from either party. After the event, all energies were resolved to identify for whose benefit it was operated and from which storage. Each party's share of each storage was tracked. Water gained through precipitation or pumping, or lost through generation, evaporation or spillage, was tagged and adjusted against the relevant shares. The continuous tracking of water shares in each storage, combined with spill accounting, avoided a need to explicitly distinguish discretionary and non-discretionary energy as proposed by the draft report.

The role of Basslink in the Trader model will be important. The trader contracts are likely to be more attractive to national participants if they come with a reliable share of the residues in both directions, to assist them in optimising a national position. In turn, the design will need to retain incentives on Hydro Tasmania to optimise its FCAS and inertia provision to maximise Basslink's performance.

The implementation will need careful consideration of technical matters related to the optimisation of FCAS, inertia and Basslink flows. The draft report has proposed retaining FCAS regulation. Another approach would be to pass through to the traders, along with energy, dispatch rights to Hydro Tasmania's FCAS and exposure to funding FCAS costs that result from the energy produced on each traders' behalf.

### 3.3. Vesting of Tamar Valley

The draft report has not clarified where the Panel recommends vesting Tamar Valley in the new Tasmanian industry structure. The choices appear to be either within a retail parcel, one of the three gentraders or into Hydro Tasmania's broader portfolio. This choice has important ramifications regarding incentives to efficiently dispatch, contract and fuel this plant.

Vesting Tamar Valley into one downstream entity would be administratively simpler as one party would directly manage its operations and trade its output. If the new structure creates genuine upstream competition, then this could be efficient. If the new structure is not competitive, it could cause the party holding Tamar Valley to operate the plant more than is efficient, foregoing cheaper hydro generation or Basslink imports when they are available. It should also be noted that Tamar Valley is exposed to paying FCAS causer-pays charges, but does not sell FCAS. This may mean that the current arrangements which protect Tamar Valley from high FCAS prices need to continue if the generator is not part of the larger Tasmanian generation portfolio.

If Tamar Valley is moved into the aggregated Hydro Tasmania portfolio, then it should allow the plant to be efficiently dispatched against hydro plant and Basslink flows. Its capacity could be included in the total capacity of contracts auctioned (Path One) or shared between the gentraders (Path Two). In Path Two this would make the gentraders less dependent upon hydrological conditions, but at the same time add complexity to the design as the gentraders would need to consider Tamar Valley commitment decisions and gas trading incentives.

### 3.4. Path Three-Combined Tasmanian and Victorian Region

AEMO considers that this path was unlikely to achieve its objectives, and would have created serious unintended consequences. AEMO agrees with the Panel that

> "the single region is the most complex in terms of the number of stakeholders involved to achieve agreement and resolution of operational and technical issues."[3]

AEMO agrees with the challenges listed in the report, such as FCAS dispatch, Basslink conversion, treatment of Marginal Loss Factors and administrative complexity in delivery. AEMO supports the Panel's decision to not pursue the path, but feels the draft report has not adequately recognised some of the most serious issues that would arise had it been pursued. AEMO disagrees with the following views:

> "By removing spot price difference between Victoria and Tasmania, this reform path would largely remove Hydro Tasmania's ability to exercise market power in the spot market."[4]

> "…creating a single Vic-Tas region would consistently expose Hydro Tasmania to competition in a much larger market"[5]

and

> "…Hydro Tasmania would lose much of its (latent) market power as it faced the discipline of mainland competitive outcomes in both its spot market bidding and contracting behaviour."[6]

This market power arises as a consequence of the physical circumstance: a dominant generator behind a network bottleneck. Redrawing of the pricing boundaries does not change the fact that this generator is required to supply the majority of electricity demanded in Tasmania. The draft report has proposed that Hydro Tasmania would meet this demand via a Network Support Agreement with Transend, or a Network Support and Control Ancillary Services agreement with AEMO. This would simply result in the market power of Hydro Tasmania being moved from the energy spot market into these contractual negotiations. The market power would still exist, but could be exercised in a non-transparent manner, without an available means of regulation. There would also be an absence of any price signals or competitive pressure to create a new entry threat.

In turn, the costs of these agreements would be recovered from customers. As they are bilateral arrangements, they could not be hedged by those customers.

The modelling has valued the benefit of reduced market power in the spot market, but has ignored market power exercised in network support arrangements because it has assumed they would achieve efficient dispatch, so there should be no productive efficiency loss[7]. It is not certain that such arrangements would achieve dispatch efficiency, and increased costs passed through to customers could inefficiently discourage consumption.

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[3] Draft report, Pg 247.
[4] Draft report, Pg 246.
[5] Draft report, Pg 246.
[6] Frontier Economics report, Pg 75
[7] Frontier Economics report, Pg 88

Path three would also have disconnected Tasmanian customer pricing from the Tasmanian supply/demand balance. Tasmanian customers would now be exposed to a price in a region whose demands are inversely correlated to their own. They would have an incentive to reduce consumption during hot Melbourne days, when Tasmanian demand is low. They would have lost the incentive to reduce consumption when Tasmanian energy storages are constrained. Such an outcome would contradict COAG policy to encourage efficient demand-side participation.

The draft report recognises the option's loss of new generation locational incentives, but comes to the conclusion:

> "The net effect on generation incentives in Tasmania may be neutral."[8]

This is a confusing conclusion. The path would, for example, encourage the building of new plant in Tasmania designed to meet the Victorian summer peak, yet it would not add to Victorian supply because Basslink would be likely to be fully constrained northwards. By encouraging Victorian retailers to contract with Tasmanian generators, it could lead to the under development of generation in Victoria, causing a supply shortage there.

Another implementation challenge path not mentioned in the draft report[9] is that it would have required Victorian and Tasmanian TUOS charges to be grouped and shared across both states.

## 4. Transmission Approach

In terms of cost pressures faced by Tasmanian customers, transmission charges have had the greatest proportional increase at 300% nominal in the decade to 2010[10]. They will continue to grow at a high rate until 2014 under the current regulated revenue determination. The draft report has concluded that much of these expenditures result from an unavoidable need to replace ageing assets, and has suggested that incentives to achieve network expenditure efficiencies are a matter for the national sphere, and are presently being considered by national processes.

In AEMO's view, the materiality of these transmission increases oblige the Panel to consider the transmission arrangements more thoroughly, particularly those matters that are within Tasmania's control. The draft report has not benchmarked Tasmanian transmission costs against those in Victoria. In the three years to 2013/14, Tasmanian transmission costs will increase by 15.4% real, whilst Victoria's will increase 0.1%[11]. The Energy Users' Association of Australia also demonstrated this stark contrast in their presentation to the Hobart Stakeholder Forum, with Victorian TUOS charges remaining flat at about $9/MWh whilst Tasmania's increase towards $19/MWh.

It is true that some environmental circumstances make Tasmanian networks more costly than Victoria, such as the lower density of demand, but there are reverse pressures also. For example, Victoria has about a 20% lower load factor-which implies a 20% higher energy charge to recover infrastructure costs, and is subject to a growing peak demand. Of most concern is that Tasmanian transmission costs, which were once on par with Victoria, have now so substantially departed from them.

[8] Draft report, Pg 249
[9] Although it was acknowledged in the Frontier Economics Report, page 76
[10] Draft Report, Page 30
[11] Possible Future Retail Electricity Price Movements: 1 July 2011 to 30 June 2014, AEMC Dec 2011

Given the evidence, the Panel should consider the options with regard to transmission planning and investment; in particular the potential to implement some of the key components in the Victorian transmission arrangements. These include:

- The independent network planner and procurer model.
- Competitive tendering of new transmission augmentations.
- Privatisation of the legacy asset owning entity.
- The use of reliability planning based on assessing the value of investment to users rather than a redundancy standard.

In 2006, more onerous reliability standards were imposed upon Transend than had historically been the case[12]. This has only been obliquely mentioned in the draft report[13]. Some augmentations might have been deferred had an economic cost/benefit approach been used as is used in Victoria. These standards are due for review by the Office of the Tasmanian Economic Regulator in 2012. The Panel should recommend to that a strict cost/benefit outcome-based approach should be applied to all augmentations.

These four key transmission approaches do not require national adoption and are within the power of the Tasmanian government to introduce. The National Electricity Law contains provisions allowing jurisdictions to transfer network planning and procurement functions to AEMO.

## 5. Other Customers for Tamar Valley's contracted gas

The draft report has discussed the take-or-pay gas purchase arrangements contracted to Tamar Valley Power Station noting that these have encumbered it with an excess of gas in the short-term unless alternative customers for the gas can be found[14]. AEMO is unable to comment on commercial issues; however we would like to point out that AEMO manages gas trading markets that are intended to provide opportunities for participants to trade around their gas positions.

If the gas can be physically diverted into Victoria's Declared Wholesale Gas Market at Longford, then it could be injected and sold at the Victorian system marginal price. Injection offers can be made in a day to day manner, similar to the way generators bid their output into the NEM. This would mean that the operator of Tamar Valley could make day to day decisions as to which spot market, Victorian gas or Tasmanian electricity, provided it the most value. Should the ownership of Tamar Valley, or its trading rights, remain with Aurora or go to another party this approach would effectively find "alternative customers" for this gas without obliging Aurora to seek from Hydro new wholesale electricity contracts as suggested in the Draft Report[15]. Tamar Valley could still be operated to support any contractual commitments when Tasmanian electricity prices were high.

[12] Transmission Network Security and Planning Criteria, OTTER, July 2006.
[13] See page 55, "Transend's augmentation projects have primarily been aimed at addressing compliance obligations…"
[14] Draft Report, Page 229
[15] Draft Report, Page 229