

SUBMISSION TO  
UTILITIES COMMISSION, NORTHERN TERRITORY

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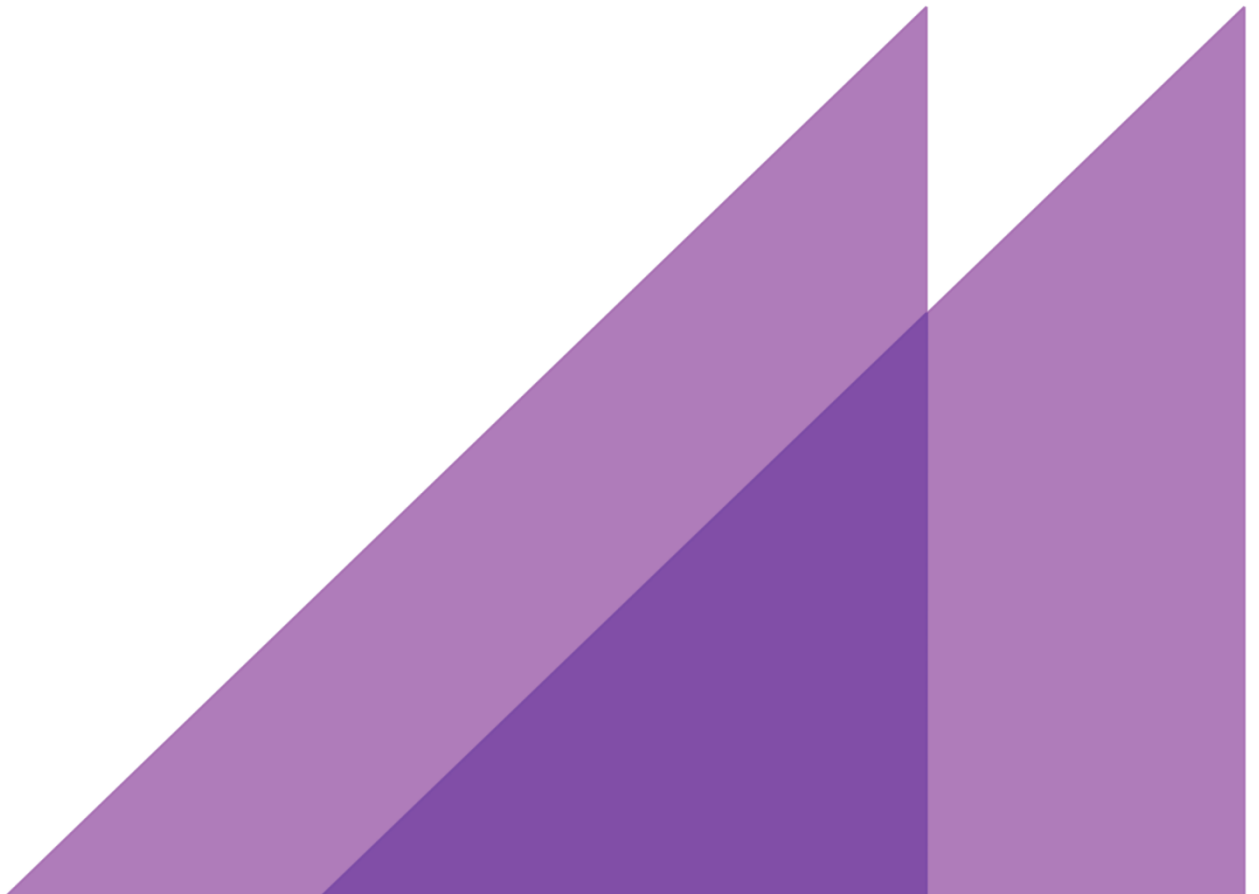
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# SUBMISSION

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REVIEW OF WHOLESALE  
ELECTRICITY GENERATION  
MARKET





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# 1 Background

In accordance with a ministerial request the Utilities Commission (Commission) is conducting a review into wholesale electricity market arrangements that are appropriate for the Northern Territory and has been asked to recommend preferred arrangements. In particular the Commission has been requested to consider the applicability of other wholesale electricity market arrangements including those operating in Eastern Australia (the National Electricity Market – NEM) and those operating in the South-West Interconnected system in Western Australia “that may be suitable for the Territory’s circumstances and capable of cost-effectively replacing sole reliance on bilateral contracting”. The Commission was to provide recommendations regarding the design and rules that could be adopted initially in the Darwin-Katherine generation market.

The Commission engaged Oakley Greenwood to assist with the review and their draft report was made available by the Commission for consultation. In our submission we will provide some prefatory remarks and then proceed to comment on the first “key areas of interest” identified by the Commission in its draft report for consultation - the proposed establishment of a NTEM with separate reliability assurance and energy trading mechanisms.

## 2 The Authors

The authors of this submission are Stephen Weston and Stephen Wallace.

Stephen Weston is a director of ACIL Allen Consulting. Based in Sydney he advises broadly on energy market related issues. His experience with energy markets has been acquired through a number of past energy trading, market analytical, management and advisory roles focused mainly on the National Electricity Market. Previously he has advised the Energy Users Association of Australia (EUAA) on a competitive structure for electricity generation in New South Wales and undertaken a review for the NZEM Rules Committee on electricity market outcomes in New Zealand. Stephen Weston worked together with Stephen Wallace in advising the Tasmanian Economic Regulator on options for regulating certain ancillary services in Tasmania and the design of an ancillary services safety net contract. Stephen Weston is also familiar with electricity supply in the Northern Territory having worked for Power and Water Corporation in a market structure role in 2008 and 2009 and thereafter as a consultant assisting the Utilities Commission on options for full retail competition in electricity in the Northern Territory.

Stephen Wallace is a director of SW Advisory. Stephen advises on a range of market issues from electricity market design, regulation and implementation to optimisation of generator operations. Stephen has extensive experience in the market design and implementation areas. He was involved in the development of the original NEM Rules and the NEM's spot market for frequency control ancillary services. Stephen has periodically reviewed the NEM's dispatch engine mathematical formulation for AEMO/NEMMCO and has provided advice to AEMC, AEMO, AER/ACCC, the Tasmanian Economic Regulator and IPART. As well, he has undertaken a number of assignments for the World Bank regarding market design and implementation issues in the Philippines and Vietnam.

### 3 Summary

In terms of facilitating competition, a robust spot market or real time market is generally a necessary condition but is rarely sufficient. To ensure adequate competition and efficient market outcomes an electricity market requires an efficient market design, efficient market implementation, appropriate industry structure, suitable regulation to manage participants with substantial market power, adequate initial contracting arrangements and provision of information and a steady and consistent regulatory environment that minimises any perceptions of sovereign risk.

In general the National Electricity Market's electricity trading arrangements have proved successful in facilitating competition in the supply of wholesale electricity. However the degree of success has varied on a jurisdictional basis with less success being enjoyed by those jurisdictions in which particular generators have been allowed to be dominant and in the position to exercise market power. The issue of a dominant generator will be an issue in the Territory and will need to be addressed through appropriate regulation of any dominant players rather than by tinkering with the market design. If this issue of market power is not dealt with appropriately, intending new-entry will be deterred as the trading arrangement will give rise to risks that cannot be effectively managed. We think that the experience of NEM entry and industry reform in Tasmania is particularly relevant here.

It is proposed in the consultation papers that a NTEM be established with separate reliability assurance and energy trading mechanisms. We consider this to be a sound proposal as an interim measure until there is adequate competition and a more mature market. However we think that optimisation of the important aspects of the design of the reliability assurance mechanism necessarily presupposes knowledge of the form of regulation that is to be applied to the dominant generator. Therefore while we agree with the "summary of recommended strategic direction" provided as section 4.6 of the Oakley Greenwood Report we consider that some of the more detailed features of the Reliability Assurance Mechanism presented in section 5 "Design elements" are lacking in justification and ought to have been stated more provisionally. We would have expected a number of potential designs to have been identified for evaluation. These could have ranged from a capacity market to some level of compulsory contracting.

## 4 Introductory remarks

According to the Draft Report for Consultation a particular market objective the Commission is required to consider is to “facilitate competition among generators and retailers in the Territory’s electricity system, including by enabling efficient new entry of competitors”. We shall refer to this subsequently as the Competition Objective.

It is stated in the Terms of Reference from the Regulatory Minister, “a significant impediment to competition in the generation and retail sectors is the lack of operational wholesale market arrangements in the Territory such as exists in the National Electricity Market (NEM) and in the Interconnected South West System of Western Australia (SWIS)” and “it is acknowledged that the current reliance in the Territory on direct bilateral contracting between generators and retailer, and the associated regulatory arrangements, is by far the most significant regulatory barrier to private sector investment in and entry into the Territory’s generation market.”

There is no doubt that the NEM has been successful in facilitating competition. However the quantum of success has varied widely by jurisdiction. The greater success has been obtained by those jurisdictions which complemented their adoption of the NEM wholesale market arrangement with disaggregation and subsequent privatisation of their generation and retail sectors. Tasmania where Hydro Tasmania was allowed to continue as a dominant generator (in hydro power) and at the same time maintain an interest in developing Tasmania’s excellent wind energy resource, provides compelling evidence, that the adoption of the NEM wholesale market arrangement without accompanying structural reform or regulation of the dominant generation business, will fail to meet the Competition Objective. Although Tasmania has been part of the NEM since 2005, there is presently no independent on-island generator competing with Hydro Tasmania. We have attached as an appendix to this submission our summary of electricity industry reform in Tasmania.

We believe that a piece-meal approach to reform in the Territory as elsewhere is unlikely to be effective. A transparent wholesale market arrangement such as that provided by the NEM, is a key component of any reform but to be successful in meeting the Competition Objective it must be complemented by appropriate industry structural reform and/or appropriate regulation. While the lack in the Territory of a wholesale market arrangement such as the NEM may be “the most significant *regulatory* barrier to private sector investment in and entry into the Territory’s generation market”, the Tasmanian experience suggests strongly that the presence of an inadequately regulated dominant generator is just as significant a barrier.

It is worth reviewing the problems an intending independent generator in Tasmania has to reckon with. To start with, Hydro Tasmania has substantial influence on the Tasmanian electricity spot price which under the NEM’s regional structure is the price relevant to the generator’s spot market revenue. There are no regulations restricting Hydro Tasmania’s pricing of its dispatch offers. Owing to its size and diverse generation portfolio, Hydro Tasmania is able to support the offering of standard electricity financial contracts or more customised contracts to retailers. Whether retailers request standard or customised (for example load following) contracts, they require “firm” contracts. By “firm” we mean that they

require generators to settle financially on the contract quantities irrespective of the availability or output of particular generators. A stand-alone independent generator lacks the support of a generation portfolio. For this reason it is not in a position to offer “firm contracts” without support from the dominant generator. It is a consequence then, that where a regional market is characterised by a dominant generator, that generator will be looked on to provide risk management products to new-entrant stand-alone generators. Naturally these regionally dominant generators are reluctant to facilitate new entry by providing these products. Regulation is required to oblige dominant generators to make these products available, to ensure that access to them is non-discriminatory, and to determine prices according to a transparent pricing methodology. In the absence of such regulatory arrangements, intending new-entrants can be expected to prefer to sell directly to the dominant generator which is the only market player in a position to take the output of the generator and turn this output into a product demanded by a retailer.

## 5 The proposed establishment of a NTEM with separate reliability assurance and energy trading mechanisms

We agree with the proposal to establish the NTEM with separate reliability assurance and energy trading mechanisms and note that there are many ways to implement this. The Oakley Greenwood report discusses a number of alternatives. As noted, the NEM wholesale market arrangement is an energy-only market which makes no explicit payment for available capacity. In contrast, Western Australia's WEM has distinct capacity and energy markets. We understand that the draft proposal is for a real-time spot market with generator dispatch offer prices to be based on "production costs" and a Reliability Assurance Mechanism which has a Reliability Manager determine the requirement for total generation (or demand side) capacity which it secures through a tender process. We understand further that successful tenderers obtain cap contracts under which they receive a fixed payment in respect of their assessed or tendered generation capacity and that at times of low reserve they are required to make payments to the Reliability Manager. Based on the description in the Oakley Greenwood report, we are not sufficiently clear as to whether the electricity spot price is uplifted by means of a calculated "low reserve adder" (p.19 Oakley Greenwood report) and the payment is essentially a difference payment associated with a cap contract referenced to the spot price or is a separate penalty payment.

If this proposal is adopted we anticipate it will be challenging for the Reliability Manager to settle on the level of capacity for which to contract. The consideration is not simply trying to adopt a theoretical target system reliability or reserve margin (which in practical application will be complicated by the proneness of power supply in the Territory to be significantly impacted by cyclones and severe storms), but achieving a risk-reward trade-off acceptable to intending new-entrant generators. If the capacity contracted is too high, electricity customers will ultimately bear the unnecessarily high costs of redundant capacity. If not enough capacity is contracted, the high risk of paying out on the cap contracts will deter investors. Clearly investors will need to obtain forward views on possible variations in reserve capacity and the financial consequences as determined by the "low reserve adder". It is not evident that the superiority of this particular capacity payment mechanism over others has been established.

One alternative would be to issue capacity credits to intending new-entrant generators on the basis of the assessed incremental firm support capacity of the electricity generation system as a whole. While this might be seen as socialising the portfolio benefits of the incumbent generator's portfolio, the benefits are accessible by all intending generators and customers ultimately benefit by efficient risk management. In particular, the recommended arrangements seem to favour gas-fired generation. It would be more problematic for an intending renewable energy generator based on solar or tidal energy both to take a view as to the risk, and to manage the risk in the absence of the dominant generator providing a capacity firming service. Another alternative would be to require retailers and wholesale participants to contract prudently such that their expected peak demands at times of system



peaks are fully contracted with a range of financial instruments. This approach does not require a central body to determine the value of any generator's capacity but allows the market to work this out.

Oakey Greenwood dismissed this alternative of having retailers being required to contract to specified levels as part of their retail licence requirements. The advantage of this approach would have been that this requirement would be a simple overlay on a NEM like wholesale market arrangement. Of course there are issues including establishing the equivalence of financial contracts and capacity requirements, and being sure retailers will be able to cost-effectively obtain the contracts sought. However with appropriate regulatory arrangements including for example on obligation on the dominant generator to offer transparently priced contracts these issues can be addressed.

In our view, based on the analysis available at this consultation stage, it is premature to recommend the particular form and more detailed aspects of the Reliability Assurance Mechanism.

## 6 APPENDIX - Electricity industry reform in Tasmania

On 1 July 2014, all electricity retail customers in Tasmania will become contestable. This will allow one of the stated objectives of the Tasmanian Government's year 2000 energy reform policy information paper "Meeting Tasmania's Energy Needs for the 21st Century" to be met. Another key element of the framework set out in this paper was "the creation of additional generation competition in the Tasmanian market" through the separation of the only existing thermal power station from Hydro Tasmania, the import of electricity via Basslink from interstate generators, and "encouraging the development of competing wind power projects". Other claimed benefits of the framework were "new investment in the Tasmanian electricity supply industry" and "the development of Tasmania's world class wind resource".

The objective of achieving additional generation competition in the Tasmanian market was always going to be seriously hampered by the insistence of Government that Hydro Tasmania be retained as a "single hydro generation business in Government ownership". Nonetheless the information paper still confidently predicted that by securing Basslink and the Tasmanian Natural Gas Pipeline, Tasmania's energy sector would be "fundamentally transformed" with "competition in electricity generation, both on-island in the form of hydroelectricity, gas-fired electricity and new entrants (e.g wind and co-generation), as well as competition from interstate generators via Basslink".

As it turned out, despite Basslink and NEM entry, the establishment of on-island competition in generation has not developed. The Tasmanian Government had decided to divest the Aurora electricity retail business and commenced a sale process in late 2013. However it discontinued this process prior to receiving bids. Prior to commencing this sale process it also transferred to Hydro Tasmania, the gas-fired Tamar Valley power station which the Government had previously directed Aurora to acquire partially completed after the station's private sector developer succumbed to financial woes.

Prior to Tasmania entering the NEM, disaggregation of the generation sector, elsewhere accepted as a necessary prerequisite to wholesale market competition, was resisted by the Tasmanian Government. Elsewhere, where dominant generation businesses have not been broken up, it was usual to restrict their market share growth by locking them out of new generation development. However Hydro Tasmania was allowed to add to its control of Tasmanian generation capacity through the development of wind farms namely Woolnorth and the lately commissioned Musselroe, and by taking control of the Tamar Valley power station.

The year 2000 information paper also stated that "The Government considers the development of Tasmania's renewable energy base as one of the key strategic opportunities and public benefits of Basslink and NEM participation. It is, therefore, keen to promote the development of the State's wind resources and will implement measures to ensure that all potential wind developers are equally able to do so."

It is widely recognised that Tasmania's excellent regime for wind energy is highly complementary to power generation based on storage hydro which provides the flexibility to "firm" the intermittent generation profile of wind farms. Non-discriminatory access to a "firming" product is of key importance to wind farm developers, lacking as they would in Tasmania, either the means of "firming" their own output, or the prospect of a counterparty interested in purchasing their generation without such "firming".

From the beginning of the reforms, there was always a case for Hydro Tasmania to have been required to offer wind energy firming as a service on a non-discriminatory basis to all potential wind farm developers. There was also a case for it to have been required to set up its own wind farm development business on an arms-length basis to give assurance that this business was not being competitively advantaged through favourable access to services provided by its ownership, control and operation of the hydro-electric system.

Without the imposition of such requirements, it is unclear whether the development of Tasmania's excellent wind energy regime has proceeded in the best way. The Tasmanian Government might also have considered setting up a private solicitation program whereby Hydro Tasmania would have been required to buy a specified quantity of wind energy from independent developers at least cost. Instead Hydro Tasmania has been allowed to dominate wind energy development in Tasmania through its own business development initiatives and joint ventures such as the now defunct Roaring Forties joint venture with China Light and Power, the TasWind concept, and its recently announced strategic relationship with Shenhua of China.

Reporting in March 2012, the Expert Panel which had been constituted to provide guidance to the Tasmanian Parliament on the current position and future development of Tasmania's electricity industry, recommended the separation of Hydro Tasmania's physical generation operations from its financial trading functions and the transfer of these trading functions to three specialised, independent state-owned trading entities. This particular recommendation was rejected by the Tasmanian Government, which instead opted to support full retail competition by regulation of Tasmanian wholesale electricity contracts provided by Hydro Tasmania. While this reform is genuinely facilitative of retail competition, any actual competition is likely to be on the basis of the relatively small "cost to serve" component of the retail price rather than any advantage retailers have in wholesale electricity procurement or supply. Further, the regulatory option presently being pursued by Government is one-sided in its concern with the provision of wholesale electricity products to retailers. It does nothing to address the considerable impediments to private development of generation.

Independent (i.e non Hydro Tasmania) wind energy development could be supported by requiring Hydro Tasmania to provide so called "firming" products at a regulated price. This would enable independent developers to compete on cost with Hydro Tasmania and its joint venturers. Hydro Tasmania effectively provides these products to the wind farms it develops by itself and with its joint venture partners. However, there is no transparency around the cost of providing these products. The regulation of products that can be offered by Hydro Tasmania in Tasmania could be extended to cover those effectively made available to its own component businesses or joint venture companies. Aided by non-discriminatory access to a fairly and transparently priced service which depends on the capability of Tasmania's hydro-electric system, a private developer potentially able to build a wind farm in Tasmania at a lower cost than Hydro Tasmania or one of its joint venture partners, would be encouraged to do so.