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## PUBLIC SUBMISSION TO THE ERA

### 2015 Wholesale Electricity Report to the Minister for Energy

#### 1.0 Introduction

Thank you for the opportunity to provide a submission on issues impacting the effectiveness of Western Australia's Wholesale Electricity Market (WEM) in meeting the Wholesale Market Objectives (*Market Objectives*).

The Tesla Corporation (Tesla) operates four 9.9 MW diesel generators in the South West Interconnected System (SWIS) that are mainly used to provide energy to meet peak demand. The generators operate at low capacity factors due to the relatively high cost of the fuel, but have relatively low capital costs, which make them an efficient method for providing peak energy and reserve margin. The current value of the existing four Tesla units is around \$55M.

The four units were part of Tesla's overall plan to develop other generation sites in remote areas of the SWIS, such as in Albany and Kalgoorlie. Larger units have been considered (60 MW) in some regions, such as at Kemerton and Albany. It was anticipated that the location of these units would enable Tesla to provide network support services to Western Power, reduce line losses and provide ancillary services to the market.

The Tesla Corporation is 72% owned by Koon Holdings Pty Ltd (listed on both the ASX and SGX) and is one of Singapore's leading infrastructure and civil engineering providers. Koon Holdings has both the scale and capitalisation to invest further in Western Australia if the electricity market requires further investment in conventional and renewable generation, and/or new technologies, such as battery storage.

#### 2.0 Barriers to efficient investment in the SWIS

The past three years have been extremely challenging for Tesla on a number fronts.

Tesla undertook investments in the SWIS on the basis of established WEM Rules (enacted in 2006) and the Applications and Queuing Policy (AQP) that was approved by the ERA in 2013.

Since Tesla invested in the existing four generation assets (2011 to 2012) and has undertaken feasibility studies for other projects, the investment environment in Western Australia has deteriorated markedly.

It was anticipated that the State Government's Electricity Market Review (EMR) – launched in March 2014, would address the fundamental problems of high industry concentration (which increased appreciably following the merger of Synergy and Verve Energy) and excess generation capacity, as well as provide incentives for the private sector to invest in electricity assets – thereby reducing the impact of future generation and network investment on the State's finances.

In reality, the EMR appears to be focused on protecting the value of the state's energy assets and preventing further investment by private sector investors in WA. To a large extent this reflects the composition of the Electricity Market Review Steering Committee, who are all government representatives, or representatives of government business enterprises that have significantly contributed to problems with the electricity market in Western Australia (i.e. Synergy).

What is the evidence to support such a view?

Minister for Energy specifically ruled out the separation of Synergy into 2 to 3 competing gentailers, despite this being a key recommendation of the EMR. As a result, Synergy has a retail and wholesale market share of 61% and 74% respectively (Synergy Annual Report 2014/15).

The Minister for Energy, who is also the State Treasurer, is in effect the shareholder representative of the State owned energy utility. The Minister for Energy is clearly conflicted by implementing policies that would benefit private sector participants, such as the introduction of Full Retail Contestability, at the expense of Synergy. Synergy representatives sits on both the Electricity Market Review Steering Committee (Synergy Chairman) and the Energy Reference Group, and has a disproportionate say in the formulation of policies that impact Synergy's competitors.

Proposed reforms of the Reserve Capacity Mechanism (RCM) will significantly disadvantage private sector investors in peaking generation capacity in the WEM. Given the low capacity factor of peaking generation units and the current price caps that exist in the STEM/Balancing Market, the ongoing financial viability of these units are highly dependent on the Reserve Capacity Price (RCP). The reform proposals outlined in the RCM Position Paper (released 3 December 2015) are a fundamental change in approach from the current RCM; the latter formed the basis for decisions by Tesla in the period 2011-2012 to invest in merchant peaking plant in the WEM.

It is extremely doubtful that the proposed RCM reforms would enable merchant plant to enter the WEM in the future. The potential price volatility that could result from auctions with steep demand curves for capacity, combined with a vast array of market power mitigations to compensate for the fact that the current industry structure is not conducive to competitive outcomes, and a government predilection for changing market rules to suit its own commercial position, highlights to us that private sector investment in power generation is not welcome in Western Australia.

## **2.1 Network Connection Policies**

The policy uncertainty created by the Electricity Market Review has also impacted Tesla's ability to obtain network access for future generation plant. In order to anticipate potential changes to network regulation in Western Australia, Western Power has had to develop connection policies and procedures that were not contemplated by the Network Access

Code (NAC), the AQP or the Technical Rules. As a result, Western Power is offering constrained network access solutions that do not appear consistent with the current regulatory framework or would enable a generation proponent to obtain a level of access which would allow the project to be economic.

In particular, Western Power has offered CAG 81 members constrained network access with a 'least cost' runback methodology. That is, the access that a generator has to the network would be determined by the balancing price of a particular generator. This implies that if a windfarm and a diesel generator are located behind a common network constraint, the windfarm (close to zero dispatch price) will always be dispatched ahead of the diesel generator (\$400/MWh).

While such an approach is consistent with a move to a constrained network access model (EMR recommendation), this approach is not consistent with the intent of the current network access regime in Western Australia. Under the current regulatory framework, competing network applications are meant to be assessed on the basis of the date that applications were received by Western Power. This principle has been conveniently overlooked in the assessment of connection for CAG 81 member applications.

In addition, Western Power should be obligated to provide network connections that are reasonable and assist that proponent to make the project bankable. If Western Power cannot offer a level of access that is reasonable, then Western Power should not make an offer and refund all moneys associated with the connection works.

Tesla suggests that the ERA should review the NAC, AQP and Technical Rules to ensure that Western Power provides 'reasonable' connection offers. If not, WP should be under no obligation to make an offer, and should repay fees levied on generation proponents for Western Power to undertake connection works.

#### **4.0 Proposed Reforms of the RCM**

Electricity supply shortages in the early 2000's provided impetus for the State Government to include a capacity market in the original electricity market design. The intent was to provide a financial incentive for peaking plant to enter the market to achieve the mandated reliability standard. However, the design and application of the RCM has contributed to creating excess capacity in the WEM due to the following causes:

- Incorrect demand forecasts resulted in the Independent Market Operator (IMO) setting Reserve Capacity Requirements (RCR) in the period 2005/06 to 2013/14 that were consistently higher than warranted;
- Allowing Demand Side Management (DSM) to participate in the RCM, and being rewarded on the same basis as long lived generation assets, despite not providing the same level of availability as generation; and
- A capacity refunds regime that did not sufficiently penalise old, unreliable plant for being unavailable for considerable periods, therefore not providing an incentive for this type of plant to retire.

While the RCM has contributed to creating excess of capacity in the WEM, the policy settings implemented by the Commonwealth Government and successive State Governments in Western Australia, and decisions by the state owned energy utilities (i.e. Verve Energy and Synergy Retail), have been the major contributors to creating excess capacity in the WEM.

The significant factors that have resulted in a persistent surplus of capacity in the WEM include the following:

- Unanticipated uptake of solar PV by residential and commercial customers that significantly reduced peak demand for electricity in the WEM. This was driven by both Commonwealth (Small Scale Renewable Energy Scheme or SRES) and State policies (i.e. feed-in tariffs), and the State Government's failure to rebalance electricity tariffs to reflect the fixed costs of network services.
- Establishing a Vesting Displacement Process that resulted in new entrant plant competing with Verve Energy's existing portfolio. When Bluewaters II was successful in winning the displacement tender for providing generation capacity in 2009/10, Verve Energy did not retire plant, even though there was a significant surplus of baseload generation in the WEM that would result in lower wholesale energy prices and reduce returns to its plant portfolio.
- The Commonwealth Government's Large-scale Renewable Energy Target (LRET) drove investment in renewable energy projects in Western Australia. For example, the Collgar Windfarm (200 MW) commenced production in 2011-12 and significantly reduced the output of Synergy's coal-fired generators overnight.

Much of the RCM Position Paper is focused on providing price signals to ensure that excess capacity is minimised in the WEM in the future. Yet it is clear that the current RCP formula is not responsible for the persistent surplus of capacity in the WEM. The RCP is simply being used as a smokescreen for poor commercial decision-making and policy settings from Government and its agencies.

We contend that the RCP is only responsible for a small amount of generation to enter the WEM. The following table shows accredited capacity that has entered the market since 2006 and the key driver for that capacity entering the market. The analysis summarised in Table 1 suggests that the RCP Formula is only responsible for 561 MW of new generation capacity being accredited since 2005/06 out of total increase in capacity of 3,162 MW. This only represents 18% of capacity credit additions, and is essentially the proportion of installed generation that is required for reserve generation purposes.

In addition, DSM has been incentivised by both high and low RCP's to enter the market, since the upfront capital costs of these facilities are significantly below \$100,000/MW. Since 2011-12, accredited DSM capacity increased by 300 MW and has not been responsive to low RCP's.

**Table 1: Key Drivers of Additional Capacity Credits since 2005/06**

Key Drivers	Capacity Credits (MW)	% of Total Capacity Credits
DSM	561	18%
RCP Formula	561	18%
Energy	1,276	40%
LRET	62	2%
Fuel Security	220	7%
Ancillary Services	196	6%
Other	287	9%
<b>Total</b>	<b>3,162</b>	<b>100%</b>

The last peaking units to enter the WEM were the three Tesla Units (9.9 MW each) and the Merredin Energy Diesel Generator (70 MW initially, then 82 MW) in 2012-13. The business case for these units was based on RCP's of \$186,000 and \$178,500 per MW that prevailed in the 2012-13 and 2013-14 capacity years. No other peaking units have been incentivised to

enter the market at prices of ~\$120,000 per MW that have prevailed since 2014-15. Hence, the current RCP formula has done its job and stopped further investment in peaking plant.

In all capacity years 2009/10 to 2014/15, the public sector (Synergy and/or Verve and Government policy, such as generous solar feed-in prices) has been responsible for the majority of new capacity additions. In total over this period, the Government and its energy utilities has been responsible for 84% of new generation capacity additions. The private sector has only added generation in the three years 2010/11 to 2012/13 (225 MW in aggregate).

So despite the excess of capacity in the market being caused by incorrect demand forecasts by the IMO, investment and procurement decisions by Verve Energy and Synergy, and poor energy policies by State and Federal Governments, the WA Government has focused reforms of the RCM on making capacity prices more responsive to the level of excess capacity.

The proposed transitional and auction arrangements proposed in the RCM Position Paper will place an unfair burden on merchant peaking plant in the WEM. Despite the fact that the current RCP (~\$122,000/MW/annum) is already 26% below the annualised cost of new entrant peaking plant (MRCP for 2017-18 was set at \$164,800/MW/annum), the WA Government wants to introduce transitional arrangements that could see prices move to \$85,000/MW/annum or 50% of the MRCP for 2017-18.<sup>1</sup> At this level, merchant peaking plant in the WEM will not be able to survive. Even portfolio generators will most likely have to write down the value of their peaking generation (i.e. Alinta and Synergy).

It appears that the Government wants to provide incentives for Synergy and private sector players to retire plant by collapsing Reserve Capacity Prices. This is not necessary! Synergy, in particular, already has incentives to close plant.

Retailers provide capacity to contestable customers at the IMO capacity price ('mark to market' approach) and provide energy to these customers at a premium above balancing market prices. Given the excess of baseload generation in the WEM, balancing prices are at historically low levels, as is the current capacity price (\$120,000/MW) because of excess Reserve Capacity.

As a result, contestable customers are receiving capacity and energy at prices that are well below the costs incurred by a vertically integrated or hedged retailer (e.g. Alinta Energy, Perth Energy and Synergy) in providing energy and capacity.

For example, Synergy's likely capacity costs are in the order of \$210,000 per MW, reflecting the fact that it has a portfolio of baseload and mid-merit plant (including PPA's) that have more expensive fixed costs than peaking plant (\$160,000 per MW). Currently, Synergy can only recover \$120,000 per MW from contestable customers (estimated IRCR for Synergy's contestable customers is around 1600 MW), which implies that Synergy is making a loss of \$144 M in supplying contestable customers at prevailing capacity prices.

If 330 MW of DSM was removed from the RCM and Synergy retired Muja C, capacity prices under the current RCP formula would increase to \$131,382/MW, which if passed through to contestable customers would reduce Synergy's capacity portfolio losses to \$125 M; an improvement for Synergy of \$18 M per annum in the recovery of its portfolio capacity costs.

In addition, retiring energy producing plant (i.e. baseload coal or gas) would have the added benefit of increasing balancing prices, which would also benefit Synergy. Marsden Jacob Associates (economic consultants) have estimated that net balancing prices (i.e. balancing

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<sup>1</sup> Based on the differential treatment of DSM, the PUO assumes that 220 MW of DSM is removed, which results in a 17.5% level of excess capacity, assuming no plant retirements.

prices minus SRMC of plant) would increase by at least \$7 per MWh (delivered to Muja) overall if Muja C retired; which implies that Synergy would obtain an extra \$32 M in energy revenue per annum (i.e. \$7.40 per MWh multiplied by 4329 GWh – the latter the estimated annual sent out sales for Synergy’s current contestable customers).

**Table 4: Benefits to Synergy of Plant Retirement and DSM reduction (\$/annum, nominal)**

<b>Contestable Customers</b>	<b>2015-16</b>
- IRCR (MW)	1,600
- Energy Sent Out (GWh)	4,329
Synergy Average Portfolio Capacity Cost (\$/MW)	\$ 210,000
Current RCP (\$/MW)	\$ 120,000
Portfolio Capacity Cost Losses \$M	\$ 144
<b>Plant Retirement Impacts</b>	
Revised RCP (\$/MW)	\$ 131,382
Increase in Balancing Prices (\$/MWh)	\$ 7.40
<b>Synergy Revenue Benefits / Costs \$M</b>	
- reduction in capacity costs to meet loads	\$ 13.00
- reduction in capacity costs for retired plant	\$ 22.00
- loss of capacity revenue from retired plant	\$ (46.20)
- Increase in capacity revenue (\$M)	\$ 18.21
- Increase in energy revenue (\$M)	\$ 32.05
- Overall Benefit to Synergy	\$ 50.26

*Notes: Assumes retirement of Muja C (385 MW) and reduction in DSM of 330 MW.*

In summary, Synergy would gain extra revenue from contestable customers of \$50.3 M per annum in energy and capacity revenue if DSM is reduced (330 MW) and Muja C is retired. In addition, Synergy would also benefit from reduction in Fixed O&M costs for retired plant and a reduction in shared reserve capacity costs. These benefits offset the loss of capacity revenue for the retired plant. In addition, the extra revenue gained every year will more than offset any costs incurred by Synergy in retiring plant (e.g. remediation costs) or renegotiating fuel contracts (i.e. reduced annual coal volumes).

The sensible commercial response is for Synergy to retire plant immediately under the current RCP formula. Competition in the current contestable market already provides an incentive for Synergy to retire energy producing plant and does not require the introduction of steep demand curves for capacity or auctions.

Introducing Full Retail Contestability (FRC) would also provide an added incentive for Synergy to retire excess baseload plant, since Synergy can obtain the capacity and energy revenue benefits across both franchise (another 6800 GWh/annum of sales) and current contestable customers.

## 5.0 Conclusions

Tesla (and its majority owner Koon Holdings) is very concerned with the electricity reform process in Western Australia and how it may impact the evolution of a competitive market.

What we have evidenced to date is increased market concentration that resulted from the merger of Verve Energy and Synergy; establishment of an Electricity Market Review Steering Committee that only includes Government representatives, including representatives from both Western Power and Synergy (the latter a competing market participant); and RCM reform proposals that will disproportionately harm private sector investors in peaking plant in the WEM.

The way forward for an efficient market is less regulation, less prescription and less government ownership in the electricity market. The problems in the WEM will not be solved by changing administrative capacity pricing mechanisms or introducing capacity auctions, but by opening up the market to increased competition.

The optimal solutions involves the following:

- The Government permitting Synergy to retire baseload plant as this will help increase capacity and energy prices and increase cost recovery for both Synergy and other market participants.
- Introducing Full Retail Contestability to provide further incentives for the right mix of plant in the WEM.
- Government divesting both retail and generation assets in the medium term (3 to 5 years) to create a 'truly' competitive market, and eliminating perceived conflicts of interest that currently exist, with the State Government currently formulating energy policy and owning competitive energy utilities.