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Public Submission

Tesla Response to Position Paper on Wholesale Energy Market Reforms

1.0 Introduction

Thank you for the opportunity to comment on the *Position Paper: Design Recommendations Wholesale Energy and Ancillary Service Market Reforms (Position Paper on Wholesale Energy Market Reforms)*.¹

Tesla Holdings Pty Ltd and its subsidiaries (Tesla) operates four fast start, 9.9 MW diesel generators in the South West Interconnected System (SWIS) that are mainly used to provide electricity to meet peak demands.

Tesla invested in these units on the basis of the current wholesale and network access arrangements, as well as encouragement by successive WA Governments for increased private sector participation in the SWIS. The proposed changes to the *Wholesale Electricity Market Rules (WEM Rules)*, in combination with changes to network access arrangements are substantive changes that can detrimentally impact the commercial viability of Tesla.

While we understand the importance of the proposed reforms to create the right incentives for future investment (and plant retirement) and market operations, we cannot support reforms that substantially reduce the value our investments in the SWIS, unless the WA Government also puts in place transitional or 'grandfathering' mechanisms. Tesla is happy to work with the WA Government on the appropriate mechanisms that recognise the value of current investments, while permitting needed reforms of the wholesale energy market.

The proposed reforms have created a '*sovereign risk*' event for Tesla. As outlined later in this submission, Tesla believes that the equitable solution is that market rule changes should not adversely impact the value of our investment in the SWIS. Furthermore, that proposed reforms should not reduce the amount of capacity credits that have been previously awarded to each Tesla unit (each unit certified at 9.9 MW for capacity credits).

¹ Department of Finance | Public Utilities Office, Position Paper: Design Recommendations for Wholesale Energy and Ancillary Service Market Reforms, 14 March 2016

2.0 Capability of the Tesla Units

The four diesel generators are connected to the SWIS at the following locations: Northam, Geraldton, Picton and Kemerton.

Despite each unit having a rated capacity of less than 10 MW, and therefore are not required to register as a market generator under the Wholesale Energy Market (WEM) Rules (*the WEM Rules*), Tesla is a full participant in the WEM. The units are certified by AEMO to provide Reserve Capacity and participate in the Short Term Energy Market (STEM) and Balancing Market (BM).

The units can commence operation within 10 minutes of receiving a notification from System Management (manual start up) and can ramp up to full production within 10 minutes (~ 1 minute per MW)² – implying full production within 20 minutes of notification by System Management.

Since 1 June 2014, the total running hours of the four generator units was 96.5 hours. The units have achieved a combined availability of 96% (achieved since late 2013), with the balance being devoted mainly to scheduled maintenance. The units can run 14-16 hours on stored diesel on site and fuel delivery contracts are in place to ensure that daily refill requirements are met.

Given Tesla's active participation in the WEM, Tesla clearly has an interest in the proposed energy market reforms.

3.0 Proposed Wholesale Energy Market Reforms

The proposed reforms outlined in the *Position Paper on Wholesale Energy Market Reforms* include:

- the adoption of a security-constrained market design;
- facility bidding for all market participants; and
- co-optimisation of energy and ancillary services.

Subject to satisfactory transitional arrangements or financial compensation, Tesla is broadly supportive of the above listed recommendations.

Tesla is concerned that the implementation of security-constrained market dispatch in combination with the adoption of a 'constrained' network access model that will result from the adoption of Chapter 5 of the National Electricity Rules (NER), has the potential to significantly disadvantage Tesla. The justification for our concerns are outlined in subsequent sections.

4.0 Constrained Network Access and Security Constrained Generation Dispatch

Currently, connection services for generators in the SWIS are provided on an 'unconstrained' basis whereby a generator has firm access at all times up to its maximum operating capacity (or DSOC)³.

² For each site, the diesel generators require 2 minutes to synchronize (e.g. there are 5 x 2 MW diesel generators at each site) and can ramp up at a rate of 2 MW per minute. We have quoted a conservative ramp rate of 1 minute per MW for each site.

³ Declared Sent Out Capacity

Tesla appreciates that the unconstrained network access is not clearly defined under the WEM Rules, nor is it codified in the Network Access Code (2004) and associated Technical Rules⁴. However, it has been regarded as a key design principle that the network is planned, designed and built to allow unconstrained access to users.

The Technical Rules stipulate the performance standards of various classes of network assets. For example, under 2.5.5.2 of the Technical Rules, any sub-network of the transmission system must be designed to the N-1 planning criteria⁵. Under this planning criteria, it can be inferred that unconstrained access should enable a generator to operate at its DSOC level without limitation even in the event of the failure of a network asset.

Tesla understands that the network has not been designed to provide unconstrained access for generators. As a result, many generators have had to compete for network access and constraints on network access have been the norm for all generators built since 2009. This has resulted in the application of runback schemes to generators operating in the SWIS, whereby a generator agrees with Western Power to curtail generation under defined contingency events (e.g. overloading of circuits, network outages, etc.) to ensure the safe and reliable operation of the network. This can include both pre-contingent and post-contingent events.

Tesla understands that most runback schemes implemented to date have been post-contingent (i.e. only takes effect if a network asset fails) and as a result, have not significantly impacted the ability of generators to dispatch their capacity into the market.

By adopting Chapter 5, the SWIS will now be planned, designed and built on the basis of constrained network access and the WEM would incorporate these constraints explicitly into the Reserve Capacity Mechanism (RCM) and energy market.

The Position Paper on Wholesale Energy Market Reforms has recommended the adoption of security-constrained dispatch. This implies that generation dispatch will be determined based on both market bids and the ability of a generator to access the network (i.e. due to a permanent network constraint).

5.0 Implications for Tesla's Existing Generation Fleet

The implications of constrained network access (and non-firm access rights) and security-constrained dispatch of plant in the energy market is that after July 2018 (proposed implementation date for network and wholesale energy market reforms), Tesla's fleet will no longer have firm network access and will compete with other generators to be dispatched when the network becomes congested.

Typically, plants behind a constraint will be dispatched on the basis of their bid price into the STEM/balancing market. Given that Tesla's fleet of diesel generators have high short run marginal costs (SRMC) and will likely bid at the market cap price, it is likely that when constraints in a region of the SWIS (such as North or South Country) are binding, Tesla's generation will be constrained more often than lower cost generation, such as coal, gas-fired or renewable energy generators.

Currently, the Tesla units at Northam and Geraldton are subject to post-contingent runback arrangements (only dispatched if there is a failure in a network asset). Provided that the incidence of constraint events remains modest, it is unlikely that the operations of the existing

⁴ The Technical Rules (Revised 2011) consist of the standards, procedures and planning criteria governing the construction and operation of an electricity network.

⁵ Under 2.5.5.2 of the Technical Rules, the N-1 criteria applies to any sub-network of the transmission system that is not identified within this clause 2.5.2 as being designed to another criterion must be designed to the N-1 planning criterion.

units, including certification for capacity credits, would be impacted by a move to a security-constrained market.

However, if a generator (including a windfarm) moved into the vicinity and increased constraints in a region, which then resulted in an increase in the frequency of constraint events, then under national network regulation, Tesla has no firm network access rights. If the new generator has lower costs, that plant will be run in preference to the Tesla units (which are fired on expensive diesel).

Given the constraints that already exist in the Kemerton Region, this is also likely to impact the level of future network access that the existing Kemerton 9.9 MW diesel generator has to the SWIS.

The level of these network constraints, especially during peak load hours, will be taken into account by the AEMO in re-certifying the Tesla units for capacity credits. In essence, there is no guarantee that the current Tesla units will be certified at their DSOC value going forward if network constraints increase in the future. As a result, the expected income stream from future capacity payments could be substantially reduced.

This situation would not have arisen under the current network access arrangements.

For example, under section 24.8 of the Application and Queuing Policy (AQP), it is stated that in *“determining whether there is spare capacity to provide covered services requested in a connection application or group of applications, Western Power must assume that any existing access contract will be renewed in accordance with the terms of that access contract.”* This implies that existing access contracts with firm access rights will be honoured in future arrangements.

Under section 20.3 of the AQP, a new user seeking to obtain an applicant specific solution from Western Power (WP) to connect to the network, may request WP to undertake studies to determine if existing users are impeded by the connection of that facility. An existing user may object to the applicant-specific solution on the grounds that it would impede WP’s ability to provide covered services (AQP 20.3(c)). Once again, WP is obligated to consider this and develop alternative solutions that does not impede existing user’s network access rights.

The business case for the Tesla generation units was predicated on the units having ‘unconstrained access’ rights, and the proposed changes to network access and implementation of security constrained dispatch will adversely impact Tesla.

6.0 Transitional/Compensation Arrangements

Although the proposed reforms will be detrimental to Tesla, the recommended reforms are consistent with the objective of minimising network augmentation (which would be required to provide unconstrained network access for all generators) and ensure the least cost dispatch of plant in the energy market.

The WA government must however address the impact of policy change on existing investments that have been made in good faith using the policies promoted by government and its agencies at the time of investment. If as a result of the proposed implementation of the above mentioned reforms, the value of Tesla’s generation fleet is substantially reduced, Tesla expects either financial compensation or transitional (‘grandfathering’) arrangements to be put into place.

Potential approaches that could be considered include the following:

- Preserving unconstrained network access (firm rights) for the life of the plant (25 years). This could require WP to augment the network or place network constraints on future generators (including runback arrangements).
- Moving to constrained network access and providing financial compensation to adversely impacted generators. These estimates could be difficult to calculate given they are dependent on assumptions about future generation plant investment and augmentation of the network.
- The AEMO to certify the plants at their current DSOC value for payment of capacity credits for the remaining life of the plants, but incorporate the proposed network constraints into the energy market dispatch engine.

In our view, the last approach is preferred given that it would not require network augmentation by WP and would not rely on forecasts of plant build and network augmentation, which could be highly uncertain.

7.0 Summary and Conclusion

In summary, subject to satisfactory transitional arrangements or financial compensation, Tesla is supportive of the proposed recommendations outlined in the *Position Paper on Energy Market Reforms*.

The implementation of security-constrained market dispatch in combination with the adoption of a 'constrained' network access model, has the potential to significantly reduce the value of the Tesla generation fleet.

If there is a forecast reduction in value, Tesla expects that the WA Government will implement transitional or compensation arrangements to preserve the value of Tesla's generation fleet. In Tesla's view, this is only fair since Tesla invested in peaking units on the basis of the current network access and wholesale market arrangements.

Yours Sincerely,

John Lillywhite
Tesla Chairman