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PUBLIC SUBMISSION TO THE AEMO

Draft 2017 Benchmark Reserve Capacity Price for the 2019-20 Capacity Year

1.0 Introduction

Thank you for the opportunity to comment on the draft Benchmark Reserve Capacity Price (BRCP) for the 2019/20 Capacity Year that was released in November 2016.

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 unit capital costs when compared to base load plant, which make them an efficient method for providing peak energy and reserve margin.

Given the low capacity factor of the units and the price caps that exist in the STEM/Balancing Market, the ongoing financial viability of the units are highly dependent on the Reserve Capacity Price (RCP); which is in turn a function of the level of the BRCP.

Since 2016-17, the BRCP has been declining in nominal terms. The draft BRCP of $145,800 per MW per annum for 2019/20 has been set at the lowest level since 2009/10 ($142,200 per MW per annum). This price is not reflective of the cost of new plant entry in the WEM.

If we combine the draft BRCP of $145,800 per MW per annum for 2019/20 with a downward sloping demand curve for capacity (excess capacity of 9.41%)[1], the forecast RCP for 2019/20 will be $107,923 per MW per annum. That is a reduction of 11.5 per cent from the RCP applying in the 2016-17 Capacity Year ($121,889 per MW per annum). What is counter-intuitive is that the forecast RCP has reduced by 11.5 per cent despite excess capacity reducing from 25.41% in 2016-17 to only 9.4% in 2019/20.

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1 Takes into account the retirement of 380 MW of Synergy Plant and the withdrawal of 434 MW of DSM capacity from the Reserve Capacity Mechanism (RCM), as well as the entry of new renewable generation capacity.

The likely RCP for 2019/20 is at a level that is not viable for owners of existing peaking units in the Wholesale Electricity Market (WEM). Owners of generation capacity typically repay the original capacity investment over 15 years and the generators need to be re-financed every 3 to 5 years. Persistently low RCP's make re-financing difficult and can result in debt providers putting a risk premium on interest rates.

Our experience is that costs of operating and financing (and re-financing) peaking units are well above the draft BRCP. We don't believe that setting a benchmark price deliberately below the annualised cost of new plant entry, and then setting a RCP 26% below this level is consistent with the purpose of the Reserve Capacity Mechanism (RCM).

The purpose of the RCM is to reduce the need for high and volatile energy prices (that exist in the NEM) and to provide sufficient revenue for peaking facilities and trigger new investment when required. The RCM was established to fully fund the capital costs for peaking facilities, and make a contribution to the capital costs of mid-merit and base load units.

The RCM has failed to fund the capital costs of peaking units for several years and establishing a BRCP of $145,800 per MW per annum for 2019/20 will continue this trend.

Our arguments as to why the BRCP has been set too low for the 2019/20 Capacity Year include the following:

- Current choice of the reference generation unit of 160 MW OCGT;
- Scaling down of the costs of the reference generation unit from 178 MW to 160 MW;
- The methodology for calculating the WACC underestimates the capital costs of a new entrant generator, especially the use of a negative real rate of return.

Many of our concerns with the BRCP methodology has been raised in previous draft decisions to the Independent Market Operator (IMO). The AEMO has indicated in its draft BRCP determination[2] many of the same concerns, but argues that it must follow the Market Procedure – even if they are blatantly wrong. Tesla does not accept this logic and argues that the Market Procedures should be amended immediately to ensure that Market Generators are not further penalised, as has been the case in the wake of the Electricity Market Review (EMR) proposed rule changes (i.e. adoption of the Transitional RCP formula).

Market Procedures that are no longer consistent with the intent of the Market Rules (i.e. BRCP should reflect new entrant costs, including providing an adequate financial return to owners of generation) should not be adhered to. Tesla is deeply concerned that we have endured 2 years of policy debate and uncertainty concerning the future of the RCM, and 2 years where the mechanism that is still not right and will yet again penalise owners of peaking generation in this state.

2.0 Benchmark Generator

The BRCP is based on the capital cost of a 160 MW Open Cycle Gas Turbine (OCGT) power station with inlet cooling[3] located in the SWIS. The choice of the size of the unit is important because larger units typically have lower per MW capital costs compared to smaller peaking units that have been installed in the SWIS in the last 5 years. The units that been installed since 2010 include the following:

- Tesla's four 9.9 MW diesel generating units (installed in 2011 and 2012);

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2 AEMO, *Draft Report: 2017 Benchmark Reserve Capacity Price for the 2019-20 Capacity Year*, For the Wholesale Electricity Market, November 2016.

3 Evaporative air cooling technology.

- Merredin Energy's 82 MW OCGT installed in 2012, which consist of two gas generating units;
- Perth Energy's Kwinana Swift OCGT, which consists of four 30 MW units (120 MW nominal capacity in total) installed in 2010.

In fact, the last peaking units to be installed in the SWIS that were approximately 160 MW were the two 165 MW gas fired units installed at Neerabup in 2008.

The choice of 160 MW units for establishing the BRCP was based on anticipated load growth that was occurring at the time the RCM was designed (2004 to 2005). For example, anticipated growth in Maximum Demand (based on a 1-in-10 year Probability of Exceedance (POE)) over the period 2005/06 to 2014/15 was estimated to be 156 MW per year.[4] Actual growth in Maximum Demand (1-in-10 year POE) over the period 2010-11 to 2015-16 was negative 29 MW per annum.[5] Forecast growth for the period 2015-16 to 2020-21 is estimated to be 58 MW per annum.[6]

The AEMO indicated that the use of a 160 MW OCGT as the reference power station for setting the BRCP *"does not reflect future growth in the WEM. The average size of generators recently installed in the SWIS is approximately 20 MW. AEMO notes that an OCGT power station has not been installed in the SWIS in the past five years, and that a power station of this configuration is no longer available for purchase on the market."*[7]

On this basis, we argue that the benchmark generating unit should be reduced to reflect the size of units that have recently been installed in the SWIS (i.e. 30 to 40 MW). The installation of these units are more likely to reflect future growth of peak demand in the WEM.

3.0 Scaling costs to Benchmark Generator Size (160 MW)

In deriving the total Engineering, Procurement and Construction (EPC) costs of the benchmark generator, GHD have based the plant equipment costs on the cost buying and installing a 178 MW Siemens SGT5-2000E gas turbine. The benchmark generator under the WEM Rules is required to be 160 MW, which requires GHD to scale the costs of the 178 MW unit down to obtain 160 MW costs.[8] GHD's method assumes that it is possible to scale down the costs for plant equipment, civil works, mechanical and electrical works. While Tesla agree that some of these costs can be scaled down (e.g. size of turbine blades), many of these costs are fixed and not scalable. As a result, the capital costs for the benchmark generator are underestimated. Cost elements that are not scalable should be kept at the 178 MW cost levels.

4.0 WACC components

4.1 Equity Beta

The equity beta measures the riskiness of a business or sector relative to the overall market. The equity beta value used in the WACC calculation by the AEMO is 0.83

The risk profile for electricity generators in the WEM (and the NEM) have increased appreciably in the past 5 years. Electricity growth is no longer consistent due to a range of

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4 Independent Market Operator, Statement of Opportunities South West Interconnected System, July 2015.

5 Independent Market Operator, Electricity Statement of Opportunities, June 2015.

6 AEMO, Deferred 2015 WEM Electricity Statement of Opportunities, Data and Figures, June 2016.

7 AEMO (November 2016, p. 19)

8 GHD, *2017 Benchmark Reserve Capacity Price for the South West Interconnected System*, Prepared for AEMO, October 2016, p.12.

factors, such as: variability in economic growth; increased energy efficiency; and the increased penetration of distributed generation.

Political debate and policy reversals have also impacted the risk profile for power generators, such as the debate over the carbon tax (and eventual closure of the scheme in 2014) and the debate over the revised Large-scale Renewable Energy Target of 33,000 GWh.

The WA State Government has also increased the risk profile of generation by endorsing proposed reforms recommended by the Electricity Market Review (e.g. capacity auctions).

Given the volatility in the operating environment for electricity generation assets in Western Australia, Tesla considers that the current value for the equity beta is too low. An equity beta > 1 should be considered, which is consistent with WACC determinations by the Independent Pricing and Regulation Tribunal in NSW. IPART found that equity betas of 0.95 to 1.15 for should be used for electricity generators, with a mid-point of 1.05.[9]

If we use an equity beta of 1.05 instead of 0.83, the MRCP increases from $145,800/MW/annum to $154,342/MW/annum.

4.2 Real Risk Free Rate of Return

As pointed out in our submission on the draft 2018-19 BRCP, the current Market Procedure of using a risk free bond rate with a duration of 10-years is different to that used by the Economic Regulation Authority (ERA).

The ERA commonly uses a 5-year rate which aligns with the regulatory period for electricity network and gas distribution assets. This recognises that regulated firms should not be exposed to movements in debt markets which they are unable to adjust for or manage.

The AEMO's approach to use a 10-year rate and to recalculate this each year may be appropriate with conditions faced by new entrant generators; however, it is not appropriate with regards to compensating existing generation. Existing generation is 1) unlikely to have access to 10-year financing; and b) will have locked in financing in prior years at a different rate. The AEMO's methodology essentially exposes existing generation to ongoing exposure to debt markets.

Using a 20-day average of the annualised yield of Commonwealth Government bonds with maturity dates of 10 years, the AEMO has calculated a nominal risk free rate of 2.12%. This nominal rate is then adjusted for inflation to yield a real risk free rate of return on -0.26% (assuming inflation of 2.39%). A negative risk free rate of return makes no sense to Tesla given other sectors of the Australian economy are making significant real returns (as reflected by increases in the All Ordinaries stock index in recent times).

As highlighted by the AEMO, ERA calculated a negative real risk free rate in the Determination on the 2016 Weighted Average Cost of Capital for the Freight and Urban Railway Networks, and for Pilbara railways. The ERA took the view that this resulted from incorrect assumptions about future inflation (2.5%) and reduced the inflation rate (to 1.74%) to ensure the real risk free rate was >0.

IPART also calculates WACCs for regulated businesses in NSW (Water, Gas Retail and Transport).[10] It calculated a real risk free rate of return of -0.39% based on an average of 40 day data for Commonwealth Bond Yields. However, IPART also calculates risk free rates

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9 IPART, Review of WACC Methodology, Research – Final Report, December 2013

10 IPART, WACC Model, August 2016

based on longer term averages and has calculated the risk free real rate of return to be 1.95%. A mid-point between these bounds implies real risk free rate of 0.78%.

The AEMO noted in its draft determination of the BRCP for 2020-21 that if the expected rate of inflation is replaced with the current rate of inflation of 1%, the real risk free rate of return is 1.11%.

It is clear that the current methodology for calculating the real risk free rate of return is flawed. Claiming that the AEMO has no discretion to deviate from the methodology stipulated in the Market Procedure is *poor regulatory practice*. These problems should have been foreseen given the low interest rate environment that has been evident in Australia for several years. Other regulators have made changes to the setting of the real risk free rate of return to provide the right economic signals and ensure fairness to regulated businesses in Australia. This approach should be adopted in the setting of the BRCP.

Market Procedures that are no longer consistent with the intent of the Market Rules (i.e. BRCP should reflect new entrant costs, including providing an adequate financial return to owners of generation) should not be adhered to.

The AEMO should immediately propose a change to the current Market Procedure to allow it the discretion to vary the inflation rate when calculating the real risk free rate of return.

If the AEMO correctly applies the current inflation rate (1%), the BRCP from 2019/20 should be $158,266 per MW per annum.

5.0 Conclusion

We conclude that the BRCP is *'too low'* and not reflective of likely new entrant costs. At the very minimum, after adjusting inflation expectations to ensure a positive real risk free rate of return and using an equity beta of 1.05, the BRCP should be $167,442 per MW per annum.

However, the choice of the reference generation unit (160 MW OCGT) is not reflective of the likely unit size that will enter the market in the future given annual forecast growth in peak demand (58 MW). Adjusting for this, the BRCP should exceed $180,000 per MW per annum.

Yours sincerely,

John Lillywhite

Chairman