Mat Corro 35

Government of Western Australia
Department of Treasury

Your ref : A672643
Our ref : 00458307
Enquiries : Aden Barker
Telephone : 6551 4692

Ms Jessica Shaw MLA
Chair
Economics and Industry Standing Committee
Parliament House
4 Harvest Terrace
WEST PERTH WA 6005

Dear Ms Shaw

QUESTIONS ON NOTICE FROM BRIEFING HELD 14 FEBRUARY 2018

In an Economics and Industry Standing Committee briefing on microgrids and electric vehicles held 14 February 2018, Mr Aden Barker, then Acting Director Retail and Consumer Policy, agreed to take on notice to provide answers to six questions.

Please refer to **Attachment 1** for the questions and responses.

Yours sincerely

Michael Barnes
UNDER TREASURER
27 MAR 2018

Enc.

Level 23, David Malcolm Justice Centre, 28 Barrack Street, Perth, Western Australia 6000
Locked Bag 11, Cloisters Square, Western Australia 6850
Telephone (08) 6551 2777
www.treasury.wa.gov.au

QUESTIONS ON NOTICE FROM COMMITTEE BRIEF – 14 FEBRUARY 2018

1. **(p4)– are the Western Power charges to connect people near the edge of the grid a standard headworks charge or a commercial headworks charge?**

   In its latest Access Arrangement submission[1] to the Economic Regulation Authority (AA4) Western Power proposes that customers seeking network extensions will pay the full cost of the proposed extension, based on a standard 'building block' rate to determine the charge (i.e. per km of network), which is calculated specific to their requirements. The fee for new connections varies depending on the customer type – residential, small-medium business or large business and Government.[2]

   Western Power has also proposed providing customers with a revenue offset on their capital contribution requirement, effectively discounting the contribution payable by an appropriate revenue forecast over 15 years.

   Additionally, customers who extend the network in rural areas may be eligible for the Supply Extension Scheme, which would rebate a portion of their extension costs if another customer connects to the extension within 10 years.

2. **(p6)– what input did the PUO have into discussions about amending legislation in regard to community title?**

   The Public Utilities Office was not consulted or involved in discussions about amending legislation regarding community title.

3. **(p10)– what proportion of householders in Carnarvon have now installed solar PV panels on their rooves? (Please provide any additional information the PUO may be able to provide with respect to penetration on other regional systems as that would be very helpful)**

   Horizon Power has provided advice on the level of penetration of roof-top PV (solar) systems in their main regional towns – Broome, Carnarvon, Esperance, Kununurra and the North West Interconnected System (NWIS).

   Horizon Power has two categories of distributed energy resources within the total 'hosting capacity' for each grid:

   - 'unmanaged' – with no additional requirements placed on customers installing rooftop solar systems, generally comprising residential customers; and
   - 'managed' – with 'feed-in management' (output-smoothing) devices or a direct link to the power station required to ensure distributed solar does not impact overall system operation, generally comprising commercial and industrial customers.

   Below is a table showing current unmanaged and managed hosting capacity available and utilised in each town, plus the size of the grid in terms of installed generation capacity and peak load.

---

[1] https://www.erawa.com.au/electricity/electricity-access/western-power-network/access-arrangement/access-arrangement-period-2017-2022

[2] https://westernpower.com.au/connections/new-connections/

Horizon Power is conducting a series of trials over three years in Carnarvon to test a variety of behind-the-meter distributed energy technologies and control systems, with the aim of increasing PV system penetration throughout its remote networks.[3]

4. **(p13)– what are the 'Supplier of Last Resort' arrangements with respect to existing Microgrid customers sitting behind the meter?**

   The *Electricity Industry Act 2004* empowers the Economic Regulation Authority to appoint suppliers of last resort (SOLRs) for electricity. The current SOLR for electricity in the South West Interconnected System (SWIS) is Synergy. There is currently no SOLR appointed for Horizon Power's service area.

   SOLR arrangements only cover the failure of licenced electricity retailers. There is no SOLR arrangement in place for Horizon Power's service area as there are currently no alternative licenced retailers providing electricity to residential customers in that region. Outside of the SWIS, residential customers not served by Horizon Power are typically served by an entity with an electricity retail licence exemption, such as mining companies.

   In instances where a microgrid operator is subject to a licence exemption they will not be subject to SOLR arrangements. In these instances, the failure of a microgrid operator will be covered by existing contract and corporate law, as opposed to industry-specific consumer protections.

   In situations where a microgrid operator which is exempted from holding a retail licence had contractual arrangements with a licenced retailer for the supply of electricity to the microgrid from the SWIS, it is assumed that this supply arrangement would remain in place (and potentially be re-negotiated) with the entity assuming legal and financial responsibility for the failed microgrid operator (such as a voluntary administrator).

   Where the microgrid operator was connected to the SWIS and was a licenced retailer, then existing SOLR arrangements would apply and customers (in this case the legal successor of the microgrid operator) would be supplied with electricity by Synergy under negotiated terms.

5. **(p15)– please outline advances made in other jurisdictions in regard to amendments to their legislation and regulations to allow for the development of microgrids and leadership is being demonstrated in this regard with new technology being utilised; and**

   The PUO has conducted limited investigations to-date examining the development of microgrids in other jurisdictions. In its initial investigation, the Public Utilities Office noted that there is limited regulatory precedent for micro-grids which are part of a larger grid and then later become disconnected and fully autonomous on a permanent basis. This is likely due to the cost-effectiveness of renewable generation and storage technologies only recently emerging as a comparable or – in some cases – more efficient option when compared to centralised generation and network-based supply.

---

[3] https://horizonpower.com.au/our-community/news-events/news/horizon-power-partnering-with-leading-academic-institution-to-trial-distributed-energy-systems-in-regional-western-australia/

Australia

Work regarding microgrids conducted to-date through the COAG Energy Council's Energy Market Transformation Project Team[4], and the Australian Energy Market Commission (AEMC) Rule Change Process[5] has only considered microgrid matters as they pertain to the National Electricity Market's (NEM) regulatory framework.

The Final Report of the *Independent Review into the Future Security of the National Electricity Market* (often referred to as the Finkel Review) also included a recommendation[6] (6.9) for the COAG Energy Council to task the AEMC with undertaking a review of the regulation of individual power systems and microgrids to allow for their use where it is efficient to do so. However, this work is yet to commence and will focus on the regulatory framework in the NEM.

New Zealand

New Zealand has updated its regulations through its *Electricity Industry Act 2010*[7] to allow distribution utilities to meet their supply obligations from alternative sources to the overhead line network (s. 107) as long as acceptable quality and service criteria are met. This has enabled individual properties to be supplied by stand-alone power systems, rather than a larger network.

Europe

Germany and Denmark have a long history of 'community-owned' distributed generation projects supplying a local area while still remaining connected to a larger network. For further information from the perspective of the media and private companies, please find the following links:

http://www.dw.com/en/northern-germany-spearheads-energy-transition/a-17144616

http://reneweconomy.com.au/two-german-states-already-100-percent-renewable-net-for-electricity-72047/

https://storify.com/EsaveCorp/germany-moves-towards-microgrid

https://www.siemens.com/innovation/en/home/pictures-of-the-future/energy-and-efficiency/smart-grids-and-energy-storage-iren2.html

United States of America

There are some good examples of experimentation with new technologies in the United States, including community-owned electricity supply. Many areas of the United States have similarities with Western Australia in terms of geographic and relatively dispersed populations. However, the regulatory frameworks across the United States differ by jurisdiction and in many cases are very different from that present in Western Australia or the NEM.

---

[4] http://www.coagenergycouncil.gov.au/publications/energy-market-transformation-%E2%80%93-consultation-processes
[5] https://www.aemc.gov.au/rule-changes/alternatives-to-grid-supplied-network-services
[6] https://www.energy.gov.au/publications/independent-review-future-security-national-electricity-market-blueprint-future
[7] http://www.legislation.govt.nz/act/public/2010/0116/latest/DLM2634514.html?search=ts_act_electricity_resel&p=1

Recent interest in investigating and facilitating 'micro-grids' in the United Stated has partially resulted from the effects of natural disasters on electricity supply and desire to prepare for future disasters. An example of this includes investigation into the potential for microgrids and peer-to-peer trading in New York City following supply disruptions caused by Hurricane Sandy.

Initial investigation by the PUO suggests that the greater New York City area has made changes to its regulatory frameworks to allow for the development of microgrids as a method of minimising power system vulnerability at the same time as encouraging renewable energy use and reducing electricity supply costs. This specific project is called *Reforming the Energy Vision*. Further information can be found on the New York Government website at rev.ny.gov.

The Brooklyn Microgrid Project in the Brooklyn borough of New York City includes smart metering, control technologies and peer-to-peer trading using 'blockchain' technology. Further information as reported by the media and private companies on this project can be found at:

www.siemens.com/innovation/en/home/pictures-of-the-future/energy-and-efficiency/smart-grids-and-energy-storage-microgrid-in-brooklyn.html

www.power-technology.com/features/featurethe-brooklyn-microgrid-blockchain-enabled-community-power-5783564/

www.scientificamerican.com/article/a-microgrid-grows-in-brooklyn/

The United States Department of Energy has a 'Grid Modernization Initiative' including work streams on integrating renewable energy, electric vehicles and smart grid technologies. Further information on this initiative can be found on the Department of Energy's website at www.energy.gov/under-secretary-science-and-energy/grid-modernization-initiative.

Also in the United States, the *Gridwise Alliance* (a non-government group lobbying for reform to United States' state and federal regulation to incentivise renewable and 'smart' energy technologies) published a report in November 2017 which ranks the work being undertaken in different United States jurisdictions on 'moving toward a modernized electric grid' – including 'state policies and regulations, customer engagement and utility investments'. Further information regarding the *Gridwise Alliance* and a link to its report can be located at http://www.gridwise.org/index.asp

California is ranked 1st in the *Gridwise Alliance* report, chiefly because of work underway on a 'microgrid roadmap' which was due to be finalised by the end of 2017 (but has not yet been published). Further information regarding the roadmap can be found at: http://energy.ca.gov/research/microgrid/

6. **(p19)– what other jurisdictions the Committee might consider undertaking a site visit as part of an inquiry into microgrids where there exist similar drivers for change to the regulatory environment and policy environment and the adoption of new associated technologies?**

This would depend on the type of microgrid the committee is most interested in – see above for examples of work being undertaken in Australian and international jurisdictions.