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Submitted via eges@aemo.com.au

Sydney, 4 December 2018

Dear Ms Maroney,

RE: Emerging Generation and Energy Storage in the NEM November 2018 Stakeholder Paper

Thank you for the opportunity to comment and provide our insights on the *Emerging Generation and Energy Storage (EGES) in the NEM* November 2018 Stakeholder Paper. We congratulate AEMO on the best practice stakeholder engagement process it has followed to develop and consult on this paper: the analysis in the paper is well informed as a result.

Enel Green Power Australia supports AEMO's intent to simplify and more clearly establish the regulatory requirements for energy storage systems (ESS) in the NEM. This will help simplify administrative and operational procedures, legitimise the role of ESS, and help support AEMO's registration decisions.

Definition of ESS

We support AEMO's proposed definition of ESS.

Proposed options for registration and categorisation

It is becoming clear that a successful business model for renewable energy developers is to combine renewable generation with ESS. ESS not only provides FCAS to help support grid stability, it can also firm the output of renewable generation, reducing unbalancing and related causer-pays fees.

There are multiple ways to combine ESS with renewable generation, each of which have specific commercial implications in both the proposed scenarios (2a and 2b). We therefore encourage AEMO to further consider and consult on both options, as well as possibly allow applicants to register under either Option 2a or 2b.

We also encourage AEMO to further test how proposed options create incentives to deploy technologies, unintentionally affect business operations, and affect outcomes for consumers in line with the NEO:

- We recommend that any option AEMO puts forward in a rule change should allow hybrid generators to the option to use their own forecasts for dispatch, not only the AWEFS or ASEFS. There are strong financial incentives for generators to provide accurate forecasts. They also have the ability to consider their systems and local climate conditions in fine detail. As such, Market Participants could potentially provide more accurate forecasts than AWEFS/ASEFS. We encourage AEMO to further

consider the benefits of forecasts provided by Market Participants in the context of these hybrid system classifications, as well as consider the results of its own trial with ARENA.¹

- Many renewable energy generation systems have been established through PPAs that require operators to maximise export of energy to the grid. It is possible to satisfy this requirement if installing an ESS in a hybrid situation under the current interim arrangements. Any option AEMO implements through a rule change also needs to allow this, otherwise it may unnecessarily prevent deployment of ESS across most existing generation systems.
- The final options chosen should accommodate plants deployed under the interim arrangements for ESS.
 - For example, if a developer successfully registers a hybrid system as an aggregated scheduled market generator, would implementing Option 2b prevent it from operating its units as an aggregated system?
 - A rule change for hybrid systems should also consider how hybrid systems registered under the interim arrangements can transition to the eventual hybrid classification.
- Better and more detailed information on the energy reserves for each ESS could benefit AEMO as a market operator. However, further information requests would increase administrative and capital costs for both AEMO and market participants. It is not clear that all this information is necessary to operate the system, particularly if stand-alone ESS or hybrid systems register as scheduled generators and provide dispatch forecasts in advance. AEMO should confirm whether all information requested is necessary to operate the system. In particular, it should clarify why it would need to place additional requirements on hybrid and stand-alone ESS that are not placed on 'traditional' scheduled generators.

Separation of responsibilities at the connection point

We agree that this is an emerging issue and is something that is currently being addressed through contractual arrangements. If AEMO move to separate out responsibilities, it could make this process clearer and more transparent. We look forward to exploring these options further with AEMO.

TUOS

We support AEMO's position on TUOS charges for battery systems over 5MW.

As we pointed out in our submission to the AEMC's *Coordinating Generation and Transmission Investment* consultation paper, ESS reduce use of the transmission network during peak times and provide system services that reduce the cost of and need for transmission investment. ESS would not charge when network use is at its peak (when spot prices are highest), because this is exactly when they would want to sell energy and provide system services. As such, it is unreasonable to charge ESS TUOS – which reflects the capital and finance costs of new network investment.

Given storage systems below 5MW would also act this way and provide these services, we would encourage AEMO to consider whether it is appropriate to charge these smaller ESS TUOS.²

¹ <https://www.aemo.com.au/Stakeholder-Consultation/Industry-forums-and-working-groups/Other-meetings/Market-Participant-5-Minute-Self-Forecast>

² <https://www.aemc.gov.au/sites/default/files/2018-10/Enel%20Green%20Power.pdf>

If you would like to further discuss anything we have raised, please kindly contact Tyson Vaughan, Regulatory Affairs Manager for Enel Green Power Australia at tyson.vaughan@enel.com.

Yours faithfully,



Javier Blanco
Country Manager
Enel Green Power Australia

Enel

Company Profile

Enel is a multinational energy company and one of the world's leading integrated electricity and gas operators. It works in **34 countries across 5 continents**, generating energy with a managed capacity of **more than 86 GW**, selling gas and distributing electricity across a network spanning approximately **2.2 million km**.

In 2017, Enel **generated a total of about 249 TWh of electricity, distributing 445 TWh** over its own grids and **selling 284 TWh**. Company revenue totalled **74.6 billion euros**, with an ordinary EBITDA of **15.7 billion euros**. Enel also sold **11.7 billion m³** of gas.

With almost **71 million end users** around the world, we have the biggest customer base among our European competitors, and we are one of Europe's leading energy companies by installed capacity and reported EBITDA.

The Enel Group is made up of **nearly 70,000 people** from around the world whose brilliant work is based on our values of Responsibility, Innovation, Trust and Proactivity. Together we are working on the same goal. We are Open Power and our aim is to overcome some of the greatest challenges facing the world. This is to be achieved through a new approach which combines attention to sustainability with the best in innovation.

Enel Green Power

Company Profile

Founded in December 2008, part of Enel Group, **Enel Green Power** produces and manages worldwide energy from renewable sources.

With a presence in Europe, the Americas, Asia, Africa and Oceania, EGP is a global leader in the sector, generating around **86 TWh** of energy each year, enough to meet the energy needs of **almost 200 million households** while **avoiding more than 54 million tons of CO2 emissions** every year.

Enel Green Power has a managed capacity of **42 GW**, with more than **1,200 plants** in **30 countries**, and a mixture of generation types including the main renewable sources: **wind, solar, hydroelectric, geothermal and biomass**. An additional 7.8 GW of extra capacity (including about 40% of BSO projects) is scheduled to be built by 2020.

Enel Green Power has recently completed construction of the first stage of the Bungala Solar PV Project located near Port Augusta, South Australia. Once it is fully operational in early 2019, the project will be **the largest solar farm in Australia** with a total capacity of **275 MW**.³

Generating around **570 GWh** per year, the full facility will consist of about **800,000 PV modules** covering an area of approximately **600 hectares**. These modules are mounted on single-axis tracker structures that will follow the Sun's path from east to west, increasing the amount of energy produced by the plant compared to PV modules with fixed structures.

In September 2018, Enel Green Power Australia was awarded a 15-year support agreement as part of the Victorian Renewable Energy Target auction for its Cohuna Solar Farm. Comprising around **87,000 bifacial modules**, the Cohuna facility is expected to generate up to 77 GWh/year, equivalent to avoiding

³ See: <https://www.enelgreenpower.com/media/press/d/2018/05/enel-starts-production-at-australias-largest-solar-pv-project>

the emission of around 70,200 tonnes of CO2 into the atmosphere each year. Enel is expected to invest around 42 million US dollars in the construction of the facility, which is due to begin in 1H2019.⁴

Enel Green Power Australia has signed an agreement to invest around one million euros (\$1.6 million AUD) to collaborate on research and development of the CETO 6 wave energy generator with Carnegie Clean Energy Limited.⁵ The new 1.5 MW CETO 6 unit will generate electricity from the kinetic energy of waves, leveraging on multiple moorings and power take-off modules potentially ensuring higher power output and competitiveness with other renewable technologies.

Enel Green Power has integrated **sustainability** as one of the main pillars of its strategic vision, with the objective of increasing the benefits for the local communities in which it operates. Switching from a reactive approach to criticism, to a more proactive, aimed at identifying opportunities to Create Shared Value (CSV) within local communities.

Not least, Enel Green Power welcomes partnerships offering the best solutions when it comes to supply of energy from renewable sources. Clean energy and sustainable projects, competitive costs and tailor-made solutions are the main benefits of the **Power Purchase Agreement (PPA)**, tools capable of building **long-lasting partnerships with commercial and industrial customers**.

Enel X

Company Profile

Enel X (formerly EnerNOC) works with commercial and industrial energy users to develop demand-side flexibility and offer it into wholesale capacity, energy and ancillary services markets worldwide, as well as to network businesses. Enel X has over 50 demand response programs in 12 countries, which involve altering customers' consumption patterns and controlling onsite generation. In the NEM, Enel X participates in the energy and FCAS markets, and has developed reserves for AEMO under the RERT framework.

⁴ See: <https://www.enelgreenpower.com/media/press/d/2018/09/enel-green-power-awarded-support-agreement-for-34-mw-of-new-solar-capacity-in-australian-state-renewable-auction>

⁵ See: <https://www.enelgreenpower.com/media/press/d/2018/07/enel-green-power-cooperates-on-wave-energy-with-australian-cce->