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**Ms Suzanne Falvi | Executive General Manager**
**Ms Victoria Mollard | Director**
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235
Submitted via info@esb.org.au and AEMC website

Sydney, 19 October 2018

Dear Ms Falvi and Ms Mollard,

**RE: Coordination of Generation and Transmission Investment Review – Options Paper**

Thank you for the opportunity to comment and provide our insights on the Coordination of Generation and Transmission Investment Review (COGATI) Options Paper.

Enel Green Power Australia supports the development of the Integrated System Plan and its approach to deliver a reliable NEM at least cost through new interconnectors and renewable energy generation.

It is now clear that renewables combined with storage and demand management can deliver firm and flexible power more-cost effectively than new thermal generation. In this context, the retirement of Australia's coal fired power stations is the biggest influence on the timing, scale and pace of Australia's energy transition and future investment in transmission and generation.

The ISP forecasts 15GW of thermal assets will retire by 2040, reducing generation output by around one-third of the current total NEM consumption (70 TWh). While this already forecasts significant investment in the NEM, we are concerned this may not adequately reflect the immediacy and scale of this retirement.

IDDRI[1] and Bloomberg New Energy Finance[2] have separately modelled the retirement of Australia's coal fleet using more granular and detailed assumptions than in the ISP. BNEF's modelling forecasts only 7GW of coal plant may remain in the NEM in 2035, while IDDRI forecasts that coal capacity may reduce by more than two thirds before 2030, with only one plant remaining in 2035.

Any proposed approach on how to best coordinate transmission and generation investment should be judged on whether it can deliver new supply and connections at least cost if almost all of the NEM's coal fleet could exit the market within just 16 years. Our feedback is based on this consideration.

[1] Jotzo F, Mazouz S, Wiseman J.(2018), *Coal transition in Australia. Preparing for the looming domestic coal phase-out and falling export demand*, accessed at: https://coaltransitions.files.wordpress.com/2018/09/coal_australia_final.pdf
[2] See the BNEF *New Energy Outlook 2018* at: https://about.bnef.com/new-energy-outlook/

**Role and function of the ISP**

Regulators and market participants need a clear understanding of what the NEM would look like under ideal conditions where the NEO is fully achieved – a reliable and secure energy system at least cost in line with consumer demands. Through cost-benefit analysis, the Integrated System Plan can help illustrate what this 'ideal' system might look like.

Economic models are excellent tools to guide regulation and investment, but they are inherently simplifications and do not take into account all transaction costs, externalities, and cognitive biases that affect investment in reality. AEMO's iterative consultation process will also help ensure it is well informed.

**Options to deliver the ISP**

The existing NEM framework has demonstrated that it can act to reduce congestion within regions through transmission investment. However, it's likely the NEM requires a new approach to plan and execute strategic national projects.

The AEMC should further consider ways to enhance the options proposed to deliver the ISP to provide more flexibility in the face of rapidly changing technology, reduce risks for overinvestment and help ensure cost-effectiveness. to reduce congestion between regions and facilitate least-cost development of strategic transmission projects.

Separating planning and ex-ante approval functions between AEMO and the AER could help improve objective assessment of proposed projects. Opening up project development to the market could help ensure projects are cost effective. This could help improve project cost-effectiveness and reduce risks of overinvestment and stranded assets.

The market could also have two options to implement the ISP: a contestable, market-led process, and then one closer to Option 5, which could be implemented to develop critical and urgent transmission projects or if the other option lagged behind the ISPs timeline.

**ISP Scenarios**

*Question 2*

> *A) The ISP will necessarily have to take into account government environmental and industry policies in modelling ISP scenarios. Do stakeholders consider it would be helpful for the COAG Energy Council to provide formal advice to AEMO as to what government policies or scenarios should be modelled in the ISP?*
>
> *B) Are there other ways in which government policies that impact on the NEM could be incorporated as modelled scenarios in the ISP?*

It would be helpful, but not sufficient, for the COAG Energy Council to provide formal advice to AEMO on what government policies or scenarios should be modelled in the ISP.

Separate to any direction from the Energy Council, the ISP needs to consider any currently implemented state and federal government policies related to industry, climate and energy as part of its baseline. It should also consider any further announced or developing policies in its sensitivity analysis.

The ISP is intended to illustrate a least-cost energy system that would be built by informed rational actors (in the strict economic sense). As such, the ISP should also include a price on carbon in line with the best

practice guidelines for cost-benefit analysis, such as those in the *NSW Government Guide to Cost-Benefit Analysis* developed by the NSW Treasury[3]:

- Market prices should be used as a basis for valuing the costs of carbon emissions, where reliable evidence can demonstrate that those market prices are not significantly biased as a direct consequence of scheme design.
- Where market prices are not deemed to reflect the true cost of carbon emissions, estimates of damage or damage mitigation costs may be used.
- Where adjustments are made to cost and benefit streams to reflect the costs of carbon emissions, the CBA should document clearly the carbon cost assumptions made in the base case and each of the options evaluated.
- Potential climate change impacts should be assessed like any other risk factors that affect the economic life cycle of assets, as part of an agency's ongoing risk management and decision making for both existing and new assets.

The Australian Government has confirmed it is committed to its Paris Agreement. The ISP base case should presume that the economy and the NEM transitions to meet the 2030 minimum commitment (26-28% on 2005 levels by 2030).

It should also model, as sensitivity scenarios, how the energy system would look if Australia simply replaced coal assets at least cost, and scenarios where Australia reduces emissions in line with a 2°C and 1.5°C scenario. Given renewables and storage are now the least-cost form of new generation, and given the scale and pace of coal asset retirement, the ISP needs to identify whether there is a major difference between deploying generation at least-cost and deploying generation to meet Australia's Paris commitments:

- **Scenario 1** coal assets are replaced using a least-cost combination of technologies
- **Scenario 2** generation and the economy transitions to meet its 2030 Paris target (ISP base case)
- **Scenario 3** generation and the economy transitions to deliver emissions consistent with a 2°C compatible economy at least cost
- **Scenario 4** generation and the economy transitions to deliver emissions consistent with a 1.5°C compatible economy at least cost

These scenarios should consider that other sectors, particularly transport and non-electricity industrial energy use, electrify to meet these commitments at least cost. It should consider how the transport and industrial sectors are expected to increasingly electrify to meet these commitments at least cost.

Demand forecasts for the base case should also consider how other sectors of the economy will increasingly electrify. AEMO should also conduct sensitivity analysis to identify how potential disruptive events (like higher than expected uptake of electric vehicles or the transition to a hydrogen economy) might shape grid extensions.

AEMO does not and should not require direction from the Energy Council to use these assumptions or model these scenarios.

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[3] Available at: http://nswtreasury.prod.acquia-sites.com/sites/default/files/2017-03/TPP17-03%20NSW%20Government%20Guide%20to%20Cost-Benefit%20Analysis%20-%20pdf.pdf

**Renewable Energy Zones, Congestion and Access**

Enel Green Power supports AEMOs initiative to help the market identify the best areas for new transmission and generation investment through REZs. While we do not have a firm position on the options proposed to realise REZ, we do not support options that move towards optional firm access arrangements for generators to deal with network congestion. This is because, while generators may bear the entrepreneurial risk of potential stranded assets under these arrangements, these higher risks would increase finance costs for all generation projects, which would ultimately be borne by consumers.

**Storage – TUOS charges**

Enel Green Power Australia does not agree with the Commission's initial framing of how TUOS charges should be applied to storage that both charges to and discharges from the grid.

Storage systems that discharge and charge from the grid would typically include technologies like pumped hydro, and hybrid renewable energy and battery systems. These systems provide FCAS, arbitrage and firm up the output of renewable generation.

These actions reduce use of the transmission network during peak times and provide system services, both of which reduce the cost of and need for transmission investment. These systems 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.

It is therefore unreasonable to charge these storage systems TUOS – which reflects the capital and finance costs of new network investment – given they reduce the cost of and need for new transmission investment and do not charge from the transmission network during peak times.

We are pleased the AEMC will consider TUOS charges for storage as part of future processes, and we look forward to further discussing this issue as part of future engagement.

**Storage – registration**

Enel Green Power welcomes the move to amend the NER to include a specific market participant category for storage technologies. But we also strongly encourage the AEMC to also introduce separate registration for hybrid systems as soon as possible.

The current regulations increase development and operating costs by:

- preventing generators from using storage to firm up the output of intermittent renewable plant to reduce unbalancing and avoid causer-pays fees
- requiring multiple unit registrations for plant that works as a combined system, which impose extra fees and administrative costs
- requiring multiple bidding and settlement processes.

Enel Green Power Australia and other developers are currently pursuing multiple hybrid storage and generation projects in the NEM. The current regulations are unnecessarily increasing costs of these projects and we would appreciate addressing this issue as soon as possible.

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** $m^3$ 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**.[4]

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

[4] 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.[5]

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.[6] 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 pillar 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.**

**EnerNOC**

Company Profile

In 2017 Enel Group completed the acquisition of EnerNOC, the leading provider of demand response and energy services for utility, commercial, institutional and industrial customers. EnerNOC operate in liberalised markets across the Americas, Europe and Asia Pacific. In Australia, EnerNOC is a market participant in the Wholesale Electricity Market (WEM) and the National Electricity Market (NEM).

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