Mr John Pierce AO
Chair
Australian Energy Market Commission

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Melbourne, 8 November 2019

## Coordination of Generation and Transmission Investment – Access Reform (EPR0073): Discussion Papers on Proposed Access Model and Renewable Energy Zones

Dear Mr Pierce,

innogy Renewables Australia (**innogy**) welcomes the opportunity to provide a submission on the Australian Energy Market Commission (**AEMC**) discussion papers on the Coordination of Generation and Transmission Investment (**COGATI**) work program.

### Introduction to innogy

innogy is the Australian subsidiary of innogy SE, a company with 4 gigawatts of operating onshore wind, offshore wind, solar and hydro renewable power plants; as well as a 7.1 gigawatt global renewable and storage development pipeline. We are currently building the largest solar farm in Australia – the $480 million 349 MW Limondale project. If the right policy settings are in place in Australia, we intend to grow our Australian portfolio of renewable energy assets through further investments in solar, wind and storage in cooperation with communities, suppliers, vendors and locally-based developers.

### Overview of this submission

In this submission, innogy outlines its concern with the process being followed in this reform, which has now moved away from the work program's terms of reference. It then details the three main problems which the COGATI reform needs to address but currently is not.

We suggest that the proposed 2022 implementation timeline for COGATI is unwise to pursue, given the need to re-connect COGATI at a fundamental level with its original mandate of coordinating generation and transmission investment, and intensely scrutinising alternative models. Given the amount of work to do, placing the COGATI work stream into the post-2025 market review would be a sensible option. In the meantime, the AEMC has an immediate opportunity to reduce market volatility for generation investors by changing the current marginal loss factor (MLF) framework to one of average loss factors.

### The COGATI reform process

In our response to the directions paper in August, we noted our concerns with the COGATI reform process, which started with a proposed theoretical solution to the problem of misaligned transmission and generation investment, without any cost benefit analysis of alternatives. Those concerns are even more valid now that the third limb of the COGATI reform has been dropped, which would have seen transmission hedge purchases directly inform transmission investment. There is no longer an attempt through

**Innogy Renewables Australia Pty Ltd**
ACN 626 156 894 ABN 72 626 156 894
23 Milton Parade· Malvern·Victoria · 3144·Australia

COGATI to coordinate generation and transmission investment in accordance with the AEMC's terms of reference.

While the AEMC is now committing to conduct some quantitative analysis comparing COGATI with the status quo, in our view it needs to compare COGATI with a number of possible models. And all those models need to be assessed against the three primary problems identified in this submission. There may be additional second-order problems that reforms could also be assessed against, such as the dispatch efficiency issue that COGATI is currently focussing on, but the process must not lose sight of the primary issues facing the National Electricity Market (NEM).

In our view, if the reform process was revisited, the AEMC would have a much better opportunity to identify a holistic solution which addresses more of the significant problems impeding efficient investment in generation and transmission.

## The problems COGATI needs to address

1. Market rules need to incentivise new generation investment to ensure future reliability of supply

Australia's energy market is transforming rapidly, with much of the country's thermal fleet scheduled to retire in the next 20 years, starting with Liddell in 2023. To ensure reliability, affordability and security of supply in the NEM throughout this transformation, a significant volume of investment will be required. In the Integrated System Plan (ISP), the Australian Energy Market Operator (AEMO) has predicted that 54 GW of new generation capacity will be required in the NEM by 2040. AEMO's technology-neutral modelling predicts that solar, wind and storage capacity, supported by more interconnected transmission, will be the lowest cost pathway to ensure continued reliability and security of supply through the transformation. Importantly, AEMO has found that it will be preferable for consumers if new transmission is built to regional areas with good renewable resource availability rather than just concentrating new renewable generation in areas where governments have previously built transmission for other reasons.

We are pleased to see the AEMC raise the importance of the ISP in the discussion papers. However, the design of COGATI is at odds with the conclusions of the ISP. On current design, while purporting to be technology neutral, COGATI would de facto discriminate against incumbent and new renewable projects, by raising the weighting of grid strength in project dynamics. Many incumbent renewable generators tend to be in weaker parts of the grid where there is available land and quality resource, and that is where future projects would choose to locate if given some certainty around grid access. By contrast, thermal fleet has a pre-existing strong grid connection to its quality resource areas through historically benefitting from centralised planning of transmission investment.

By introducing a heavier weighting for grid strength in location-signalling which current investors could not control, COGATI would be further entrenching a bias for existing thermal projects over renewable projects. We say further entrenching, because it is clear that the current MLF regime has a similar discriminatory effect against generation projects that have been and will be developed without the benefit of centralised network planning to open up their strong resource areas. AEMO has proceeded with the ISP on the basis that it is ultimately preferable for consumers if the transmission is built to those prime renewable project locations, rather than locate renewable projects in sub-optimal sites adjacent to clos-

ing thermal fleet. If the AEMC disagrees with AEMO's conclusions on the lowest cost generation technology mix and optimal siting of that generation, then that is a fundamental issue that needs to be worked through and made clear. But if the AEMC and AEMO are aligned, then we need to move on to what is the optimal funding and risk-sharing model for building the transmission to those areas.

2. Transmission build takes too long

The Regulatory Investment Test for Transmission (**RIT-T**) process is slow and can only begin when there is a significant problem to be solved, rather than proactively building ahead of constraints. Given the present need to build more generation capacity to ensure reliability ahead of coal closures, a faster process for planning, approving and building transmission is needed to coordinate with generation build.

Now that the third limb of the COGATI reform has been removed, COGATI does not directly incentivise new transmission build. While that third limb would not have streamlined transmission investment on the design given in the directions paper, it was at least an attempt to meet the terms of reference of COGATI. To reconnect with COGATI's terms of reference, the AEMC needs to revisit the fundamental question of how to get long-term (7-8 years) transmission build aligned with shorter-term (1-3 years) generation build.

A recent return to government underwriting of key transmission investments is welcomed – that is the process which brought us the grid leading to the strong resource areas of yesterday, and there is no reason why it could not bring us the grid leading to the strong resource areas of today and tomorrow, especially if it closely linked with the work on actioning the ISP. And as a generator, we would welcome further discussions on how we could assist in seeing further transmission build in areas governments did not want to underwrite, if the process was streamlined, equitable and offered firm access in return. The AEMC's renewable energy zone (REZ) discussion paper has some merit on this point, although we have concerns that it will not streamline the transmission investment process enough, and instead slow down the generation investment process, as significant capital is tied up in "deposits" waiting to see which transmission investments proceed.

3. Locational signals for generation build need to be more credible i.e. predictable and transparent at the time of investment decision

The most accurate signal of where to build transmission today is of little use to an investor in a 30 year asset if the signal can fluctuate significantly after the investment is made. At that point the signal is too late. The reason why so many renewable projects have been built in the past couple of years in areas that are now facing low MLFs, is not that the signal was not strong enough, but that the signal was not predictable or transparent at the time of investment decision. Investors got MLF and curtailment forecasts from credible consultants (including the consultants that generate the MLFs for AEMO) based on publically available information about projects. Those forecasts fed into investment decisions and projects started to be built and operate. But in the meantime, new projects that were not included in forecasts became committed, MLFs dropped, and significant value was wiped from the earlier projects. The investors in the earlier projects have no control over the changing locational signal post-FID.

This issue is picked up by authors of the recent academic paper "Locational investment signals in electricity markets"[i]. They find that of 12 electricity markets worldwide, including the nodal pricing markets of PJM, CAISO and ERCOT which appear to have influenced COGATI design, Australia's NEM has the strongest locational signal with its combination of regional pricing and MLFs. Like the AEMC, we agree caution is required when comparing different jurisdictions, but the academic research shows that we are already an outlier in the strength of the locational signal we are sending. Making that signal more accurate or stronger again is like increasing the dose of the wrong drug, with significant side-effects.

The authors do not find a preferred locational signal from their research of 12 jurisdictions, but do note that those options that lack credibility, because of volatility and lack of transparency (including the current NEM and the PJM) suffer from reduced efficacy. In their words:

> "For an investment decision, the expected price signals foreseen by the investor matter, while the signals as they materialize do not. Hence, the more credible and predictable a price signal is, the more likely it will have an impact on an investment decision. Price signals tend to be more predictable if they occur only once with the investment (e.g., grid connection charges, support schemes), or if they are kept stable over long periods of time (e.g. grid usage fees adjusted once every 10 years). A transparent and rule-based determination of signals also improves credibility."

The locational signal which COGATI proposes would be more accurate than the current combination of regional pricing and MLFs. However, for a long-term investor in generation projects, COGATI suffers from the same problem as the status quo – the signal is volatile and cannot be predicted with accuracy. The signal COGATI would send at FID is the signal that matters for the investor, and not the signal that materialises in a year or two or more's time after more generation projects are built. At that point it is too late.

COGATI offers a hedging product which is not offered under the status quo, but if access to – and pricing of – those hedges cannot be forecast with accuracy at the time of FID, the investor is being asked to guess what interconnected generators will arise in the future and where, take a leap of faith that it can outcompete those (likely numerous) other generators at auctions, and do so at a price that keeps the project economic. The short term of the hedges and drip-feed of them through regular auctions, means an investor would have little certainty at FID. The investor will never be able to accurately predict which interconnected generators will come online in the future and where, what their economics will be, their market bidding behaviour, how much market power they will wield and what they would be prepared to pay for transmission hedges. Then even if a generator manages to access hedges at a price that keeps the project economic, the hedge is not fully firm, leaving further uncertainty.

All that uncertainty would leave generation investors imposing a higher hurdle rate on future projects, increasing the cost of capital and flowing through to higher electricity prices for consumers. And if projects cannot meet investors' hurdle rates in Australia, then the trend of capital moving overseas with continue.

## Suggested next steps

We commend the AEMC on consulting with a number of stakeholders on COGATI, however an opportunity has been missed by focussing the consultation on the finer details of only one possible solution. Opening up consultation on alternative solutions which address the three key problems discussed in this sub-

mission would provide an opportunity to find a better overall outcome with more buy-in from stakeholders.

Then, following feedback on a wider range of options, the AEMC could conduct rigorous cost benefit analysis on different reform proposals.

Better coordination of transmission and generation investment is too important, and the implications too far-reaching, to rush into reform without appropriate analysis. In our view, the 2022 implementation timeframe is unrealistic, and a revised COGATI process should feed into the post-2025 review.

In the interim, the AEMC could take an incremental but immediate step to help facilitate an orderly and efficient energy transition by changing the marginal loss factor methodology to average loss factors. That would retain a locational signal for future generation investment but remove much of the volatility current investors are facing (for further background on this point, we refer to the submission to the MLF review by John Laing, on behalf of 19 renewable energy investors, including innogy). And at the same time, the Energy Security Board could advance implementation of the ISP.

Thank you for the opportunity to comment on the discussion papers. If you would like to discuss any of the issues raised in this submission, please contact one of us on the details below.

Yours sincerely,

Alba Ruiz Leon
Managing Director
Alba.ruizleon@innogy.com

Matthew Dickie
Regulatory Manager
Matthew.dickie@innogy.com

[i] Eicke, Anselm; Khanna, Tarun; Hirth, Lion (2019): Locational signals in electricity markets – How to steer the siting of new generation capacity, ZBW – Leibniz Information Centre for Economics, Kiel, Hamburg. Available at https://www.econstor.eu/bitstream/10419/205237/1/Locational%20Investment%20Incentives%20for%20Power%20Generation.pdf