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Submitted via email to planning@aemo.com.au

CEFC SUBMISSION ON 2017 NATIONAL TRANSMISSION NETWORK DEVELOPMENT PLAN (NTNDP)

The Clean Energy Finance Corporation (CEFC) welcomes the opportunity to provide feedback on the proposed inputs and material issues for the 2017 NTNDP.

The Clean Energy Finance Corporation (CEFC) was set up as an independent Commonwealth statutory authority by the Clean Energy Finance Corporation Act 2012 (Act). The \$10 billion entity operates with a sustainable, commercial focus to invest directly and indirectly (via both debt and equity), in clean energy technologies as set out in the Act.

In our recent [submission \[link\]](#) to the Independent Review into the Future Security of the National Electricity Market, we outlined three themes that we think are relevant to the 2017 NDNTP; (i) Market design to support security and reliability; (ii) technology to transform the electricity sector and (iii) addressing barriers to investment.

Meeting Australia's emissions goals under the Paris Agreement will require a transformation of the electricity system. Australia's national target to reduce emissions by 26-28% by 2030 implies a significant increase in renewable energy generation in coming decades. The current national target is a minimum pledge under the Paris Agreement and is subject to a five-yearly review, from which the national commitment is only likely to deepen towards a long-term net zero carbon target before 2050.

[Jacobs Group modelling \[link\]](#) for the Climate Change Authority suggests that meeting Australia's emissions target under the Paris Agreement will require a rapid transformation of the electricity system. Depending on the policy chosen, that modelling contemplates the share of generation from renewables to reach nearly 50 per cent by 2030 and as high as 81 per cent by 2050. The CEFC is aware of [other modelling \[link\]](#) suggesting a 100 per cent renewable energy grid is possible and may be a long-run least cost option.

The increased role for renewables at the grid and behind the meter scale, and the need for accompanying technologies and market design to accommodate this should be a central focus of the NTNDP.

For the 2017 NTNDP, the CEFC encourages AEMO to explore the following areas in detail: synergistic benefits of multiple interconnectors; opportunities for transmission investment that unlock least-cost renewable energy resources; addressing institutional impediments to improved coordination of multiple interconnector investments; a 'statement of opportunities' for demand management; limitations of modelling tools and capabilities to assess investment in new technologies; and the choice of discount rates for the purpose of economic analysis undertaken for the NTNDP.

1. The 2017 NTNDP should have a greater focus on the synergistic benefits of multiple interconnectors

The synergistic benefits of multiple interconnectors was highlighted in the 2016 NTNDP which stated:

Modelling shows greater total net benefits when these developments are combined, creating a more interconnected NEM. These benefits are projected to increase as the energy transformation accelerates

The 2017 NTNDP would benefit from a more in depth analysis and explanation of this opportunity and we support AEMO's stated intention to focus on methodology improvements in this area.

2. The 2017 NTNDP should consider a longer time horizon and opportunities for transmission investment that unlock least-cost renewable energy resources

Opportunities for transmission investments that unlock least-cost renewable energy resources will be increasingly important as the proportion of renewable energy increases. Least cost should take into account economic, social and environmental costs and benefits. Opportunities to unlock new renewable energy regions have been explored in the [2013 AEMO 100 Per Cent Renewables Study \[link\]](#) and the University of New South Wales' [Research Summary of 100% Renewables in Australia \[link\]](#) published in 2016.

Stakeholders would benefit from increased awareness of where such opportunities are located across Australia and potential timing for developing these resources.

We believe that the current 20-year time horizon is insufficient, particularly as network assets can take at least 5 years to plan and build. A 30-year timeframe may be more appropriate to individual asset decisions, allowing for development and construction time frames. Beyond this, a long-term net, or near net, zero emissions milestone for 2050 would also be a useful long-term modelling scenario for the NTNDP to consider. This longer term, and more ambitious scenario planning, may have implications for shorter term planning decisions and investment opportunities.

3. The 2017 NTNDP should address the institutional impediments to improved coordination of transmission investments

Under current institutional arrangements for network planning in Australia, investment in synergistic multiple interconnections to unlock high-quality renewable resources would require a high degree of coordination between stakeholders.

The 2017 NTNDP should explore institutional impediments to improved coordination of transmission investments between regions, or to unlock low-cost renewable energy resources. For example, Transmission Network Service Providers undertake assessments of individual interconnection opportunities in isolation from one another. This may be a sub-optimal outcome from a network perspective, where a more coordinated approach to interconnector investments could be advantageous.

4. Demand management and behind-the-meter opportunities should be considered in the Electricity Statement of Opportunities, to contribute to improved network planning decisions in the NTNDP

In accordance with clause 3.13.3(q) of the National Electricity Rules ("NER"), the Statement of Opportunities (ESOO) is currently focused on grid demand and projections and generation capacity. AEMO should also consider demand management, 'smart grid' and behind the meter opportunities in future versions of the ESOO. This would make it easier for investors to understand the capital opportunity for investment in demand management and improve decisions regarding network planning in the NTNDP.

AEMO may need to work with the Australian Energy Regulator in order to update the NER and broaden the requirements of the statement of opportunities.

In the event that a change to the rules is not possible in 2017, AEMO should still undertake analysis in 2017 to improve operational and economic information about the market. AEMO could for example issue a discussion paper or insights report on the scale of demand management and behind-the-meter generation opportunities, how this could be unlocked and how the analysis could be incorporated into the ESOO and NTNDP.

5. Investment decisions are being held back due to a lack of adequate modelling tools and capacity. Modelling capabilities will need to be improved to properly incorporate new technologies and demand side management alongside supply side planning

Models that enable investors to form a view of technology and market opportunities are required to inform investment decisions. Inadequate modelling capabilities could lead to underinvestment.

New technology is transforming the electricity sector and new approaches to market design will be needed to support security and reliability. Modelling capabilities will need to be improved to provide better operational and economic information about the market for participants and investors.

We would encourage AEMO to issue a discussion paper or insights report on the current state of modelling and which identifies technical or other limitations to the incorporation of new technologies and optimisation of supply and demand-side management capabilities including behind the meter generation and storage.

This would help to address barriers to investment arising from current approaches to modelling the electricity sector.

6. The choice of, and rationale for, the social discount rate and weighted average cost of capital (“WACC”) should be explained in more detail in the 2017 NTNDP.

The choice of an appropriate social discount rate and weighted average cost of capital should be discussed in more detail in the 2017 NTNDP, and open to stakeholder consultation. The results of modelling using a range of discount rates should then be presented in the 2017 NTNDP.

The [2016 NTNDP Methodology and Input Assumptions Paper](#) states that:

AEMO used a 7% discount rate to estimate the time value of money, based on the latest economic indicators. (p.21)

The social discount rate used in the 2016 NTNDP of 7 per cent seems overly high.

The [2016 NTNDP Market Methodology and Input Assumptions Paper](#) specifies that AEMO uses real pre-tax WACCs that may “differ by scenario or technology, reflecting the difficulty in obtaining credit under different economic conditions or climate policy futures ” (p.53).

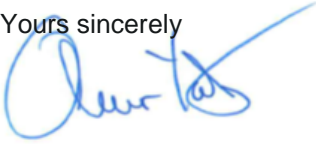
More discussion and explanation of the ranges used and justification for these choices should be included in the 2017 NTNDP.

I also draw your attention to recent CEFC submissions and reports that are relevant to interconnection:

- CEFC reports on the benefits of interconnection focused on South Australia and [Tasmania \[link\]](#).
- the [CEFC submission to the COAG RIT-T review \[link\]](#).

For enquiries about this submission, please contact Tristan Knowles (tristan.knowles@cefc.com.au) or Tim Jordan (tim.jordan@cefc.com.au).

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Oliver Yates', with a long, sweeping flourish extending from the end of the signature.

Oliver Yates

Chief Executive Officer

Clean Energy Finance Corporation