50 Camberwell Road Hawthorn East VIC 3123

22 October 2024

Mr Daniel Westerman
CEO
Australian Energy Market Operator
Lodged via email: mlf_feedback@aemo.com.au

Dear Mr Westerman,

Response to AEMO's draft report on the Methodology for the Calculation of Forward-Looking Transmission Loss Factors

The Clean Energy Investor Group (CEIG) welcomes the opportunity to provide feedback on AEMO's consultation paper on the draft report on Methodology or the Calculation of Forward-Looking Transmission Loss Factors (Draft Report) published in September 2024.

CEIG represents domestic and global renewable energy developers and investors, with more than 16GW of installed renewable energy capacity across more than 76 power stations and a combined portfolio value of around $38 billion. CEIG members' project pipeline is estimated to be more than 46GW across Australia. CEIG strongly advocates for an efficient transition to a clean energy future on behalf of the investors who will provide the low-cost capital required for this transition.

Key Points

- **CEIG supports the proposed improvements to the FLLF methodology under the NER,** including updates to calculation processes, leveraging new software, and improving the transparency of MLF processes.
- **The unpredictability of MLFs presents significant challenges,** creating risks for investors and hindering the growth of renewable energy projects.
- **CEIG commends AEMO's consultation process**, noting that increased transparency helps stakeholders understand factors influencing MLFs, enhancing investment confidence.

- **CEIG recommends that AEMO formalise a regular review of the MLF calculation methodology** to adapt to the dynamic energy landscape.
- **CEIG strongly supports AEMO sharing their mathematical formulas for MLFs** with stakeholders and is pleased with AEMO's plan to host regular MLF sessions to educate the industry on the calculation process and prevent unexpected outcomes.
- **CEIG endorses exploring fundamental changes to the MLF calculation philosophy through separate workshops organised by AEMO.**
- CEIG supports AEMO's proposal to use a broader algorithm for balancing supply and demand but **suggests incorporating more historically reflective methods in future reviews that capture the bidding behaviours of thermal generators.**
- **CEIG emphasises the need for advanced methods to incorporate battery storage into MLF calculations,** given their evolving role in the energy market. However, we recognise that implementing these changes will require more time than is available within the 2025-26 cycle of this methodology review.
- CEIG urges AEMO to **prioritise the development of advanced algorithms for battery storage** and looks forward to engaging further on this issue through workshops and future methodology reviews.
- Regardless of which option is used to determine battery traces, **battery discharge must be prioritised for reduction before wind and solar output.**
- **CEIG is seeking clarification on whether AEMO has decided to include a realistic ramp-up period** in its generation profile that reflects historical ramp-up times.
- **CEIG requests that AEMO offer developers the opportunity to provide feedback on the assumed ramp-up schedule.**
- **CEIG proposes a "ramp-up adjustment factor" to better estimate the gradual increase in output during the initial years of operation for new generators** if AEMO is unable to include a ramp-up period in its generation profile in this methodology review.
- CEIG acknowledges the challenges in providing direct comparisons between actual and forecast MLFs and **supports AEMO's approach to offer a backcast-to-forward-looking comparison, but advocates for the inclusion of locational data in future analyses.**

GENERAL COMMENTS

CEIG supports the proposed improvements to the Forward-Looking Transmission Loss Factor (FLLF) methodology under the National Electricity Rules (NER), including updating the calculation processes to reflect the evolving nature of the National Electricity Market (NEM), leveraging new software capabilities, and enhancing the transparency of Marginal Loss Factor (MLF) processes for stakeholders.

The volatility of MLFs remains a significant challenge, introducing unnecessary risks for investors and undermining the growth of renewable energy projects. These unpredictable factors create uncertainty and weaken the investment confidence needed to decarbonise

the grid.

CEIG is committed to ensuring that the MLF methodology accurately reflects market behaviour and promotes efficient investment and operation within the NEM. We are pleased that many of our recommendations have been incorporated into the Draft Report[1].

CEIG commends the consultation process undertaken by Australian Energy Market Operator (AEMO). Such consultations lead to better outcomes for both the clean energy industry and stakeholders. The increased transparency resulting from this review will help stakeholders better understand the factors influencing MLFs, ultimately improving investment confidence.

CEIG has found this review highly beneficial and recommends that AEMO formalise a regular review of the MLF calculation methodology. Given the dynamic nature of the energy system and the integration of new technologies, regular reviews would address potential material changes and provide industry with greater clarity by ensuring visibility over the schedule of future MLF methodology updates.

MLF CALCULATIONS

CEIG strongly supports AEMO publishing its mathematical formulas, enabling consultants to build their own calculator engines to assist with long-term MLF forecasting. This transparency will provide significant value to stakeholders.

We are also pleased that AEMO will be hosting regularly scheduled MLF sessions throughout the year to educate the industry on the calculation process and help avoid any unexpected outcomes after each calculation.

Additionally, CEIG supports exploring fundamental changes to the calculation philosophy through a separate workshop convened by AEMO.

Updating the configuration of minimal extrapolation 'levels'

For this methodology review, CEIG supports AEMO's proposal to use a broader algorithm that balances supply and demand using forecast profiles and adjusts supply based on historical output levels. However, CEIG recommends that future methodology reviews consider incorporating more precise, historically reflective methods that capture the bidding behaviours of thermal generators.

Accounting for storage in MLF calculations

As batteries shift their focus from Frequency Control Ancillary Services (FCAS) to arbitrage, their dispatch patterns will change significantly from historical behaviour, with

[1] CEIG (Aug-2024) Response to AEMO's Issues Paper on Methodology for the Calculation of Forwardlooking Transmission Loss Factors

charging increasingly occurring during periods of excess renewable energy generation.

Given the growing importance of battery storage in the NEM, CEIG emphasises the need for more sophisticated methods of incorporating storage into MLF calculations, utilising more advanced algorithms, such as those based on bidding behaviour. This approach would better capture the evolving role of batteries in the energy market and their impact on supply-demand balance, ultimately enhancing the accuracy of MLFs and improving investment decisions for storage projects.

CEIG acknowledges that AEMO will retain its current process to account for storage (Option 1: assume battery output does not change compared to historical intervals in the supply-demand balancing process) for the next MLF calculation.

In the upcoming round using Option 1, it is essential that battery output is reduced as the first, second, or third priority in the minimal extrapolation levels. If a bespoke Option 3 is adopted in the future, it is essential that batteries do not discharge during periods of excess generation. Regardless of which option is used to determine battery traces, battery discharge must be prioritised for reduction before wind and solar output.

CEIG recognises that developing more complex MLF calculation processes for new generators like batteries will take time beyond what is feasible within the 2025-26 cycle of this methodology review. However, CEIG urges that addressing these changes be made a priority.

CEIG looks forward to engaging in discussions on more advanced options for future calculation cycles through the proposed workshops and upcoming methodology reviews. CEIG also appreciates AEMO's willingness to consider broader changes to the NER framework regarding MLF calculations.

Accounting for new generators in MLF calculations

Renewable projects, particularly large-scale wind and solar, often take longer to achieve full generation capacity. CEIG emphasises the importance of aligning MLF calculations with real-world project timelines to support more accurate and favourable outcomes for investors.

CEIG is seeking clarification on whether AEMO has decided to include a realistic ramp-up period in its generation profile that reflects historical ramp-up times. If AEMO continues to base MLF calculations on unrealistic generation profiles, it could create undue risks for investors. Inaccurate generation forecasting in the early stages may lead to inaccurate financial forecasts, making investment decisions riskier, and therefore increasing the risk premium that investors need to factor into their projects.

Furthermore, we request that AEMO offer developers the opportunity to provide

feedback on the assumed ramp-up schedule.

If AEMO is unable to include a ramp-up period in its generation profile in this methodology review, CEIG suggests AEMO consider implementing a "ramp-up adjustment factor" that would apply to projects during their initial years of operation. This factor could draw on historical data across various technologies (e.g., wind, solar) and apply an average correction to better estimate the gradual increase in output.

CEIG acknowledges that AEMO has some flexibility in including new generators in MLF calculations and can consider them if it is determined that a generator will be connected to the grid soon.

We encourage AEMO to monitor ramp-up times for new generators on an ongoing basis and to revisit this issue as needed.

Providing ex-post analysis of forward-looking MLFs to stakeholders

CEIG acknowledges AEMO's explanation of the challenges in providing a direct comparison between "actual" and "forecast" MLFs and the decision not to not publish comparisons by REZ.

While CEIG supports AEMO's alternative approach of offering a backcast-to-forward-looking comparison on a technology basis, we encourage exploring future opportunities to incorporate locational data, including REZs or other locational-based breakdowns.

CEIG thanks AEMO for the opportunity to provide feedback on its Draft Report and looks forward to continued engagement on those issues. Our Head of Policy & Advocacy can be contacted at marilyne.crestias@ceig.org.au if you would like to further discuss any elements of this submission.

Yours sincerely,

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