



Thursday, 18 July 2024

Ms Anna Collyer
Chair
Australian Energy Market Commission
Level 15, 60 Castlereagh Street
Sydney NSW 2000

Dear Ms Collyer,

The Clean Energy Council (CEC) is the peak body for the clean energy industry in Australia, representing nearly 1,000 of the leading businesses operating in renewable energy, energy storage, and renewable hydrogen. The CEC is committed to accelerating the decarbonisation of Australia's energy system as rapidly as possible while maintaining a secure and reliable supply of electricity for customers.

The CEC welcomes the opportunity to comment on the concurrent rule changes on Better integrating gas into the ISP (Electricity and Gas), Improving consideration of demand-side factors in the ISP, and Better integrating community sentiment into the ISP.

OVERALL POSITION

The CEC supports the proponent's proposed changes to the NER to

- Expand the Australian Energy Market Operator's (AEMO) authority and requirement that it give more complete and detailed consideration of gas infrastructure in its Integrated System Plan (ISP) analysis;
- Improve AEMO's ability to analyse the uptake, availability and value of consumer energy resources to allow for better integration of demand-side factors in the grid; and
- Ensure the ISP gives regard to known community concerns or sensitive locations in setting the parameters for projects.

Enabling and obligating AEMO to update its ISP methodology and analysis to more fully undertake and incorporate gas market analysis, including the cost of gas infrastructure investments, would support meeting the National Energy Objectives (NEO) in several ways compared to the current ISP approach.

These include, for example:

- Providing more certainty for how AEMO should consider gas, which will allow the ISP to better inform investment decisions so they are more efficient;
- Enabling more accurate inputs into modelled scenarios, leading to more reliable assessments of costs and benefits for candidate development pathways; and
- Clearer understanding of how candidate development pathways may contribute to greenhouse gas emissions reductions.

The expanded consideration of consumer energy resources (CER) and distributed resources within the ISP analysis will further support meeting the NEO. The proposed rules will create more robust and detailed information surrounding the uptake and availability of orchestrated CER, including its influence on the price, reliability and security of supply of electricity. The inclusion of a statement outlining anticipated behaviour of CER, including assumptions, contingent factors and uncertainties, within the ISP modelling is expected to better demonstrate the true value of CER to the electricity grid and better inform decision-making on uptake and participation.

The CEC also considers that enabling and requiring AEMO to incorporate consideration of community sentiment in a clear and consistent manner will meet the NEO. The potential impacts of community sentiment on projects can and does affect direct and indirect costs. Principles of good planning require these be taken into account in the cost-benefit analysis within the ISP. Doing so will support the NEO, particularly regarding promoting efficient investment as project delays result in monetary, system security, and emissions costs.

The remainder of this submission provides more detailed responses and suggestions regarding how AEMO should incorporate these analyses and considerations into the ISP, and responses to questions raised in the consultation paper.

BETTER INTEGRATING GAS INTO THE ISP

This section largely follows the questions posed in the consultation paper, and also provides additional considerations for the AEMC as it develops a draft guideline.

Question 1: Should greater gas market analysis be required under the ISP?

(a) Would requiring AEMO to include greater analysis of gas in the ISP provide benefits to electricity

consumers? This includes information to inform the following:

- further analysis of future gas demand and pricing
- developing projections about the future utilisation of gas infrastructure
- collating pipeline closures or conversion dates
- reflecting updated gas generator fuel costs

Should the rules be amended to explicitly require this?

The CEC supports amending the NER as described in the rule change request and agrees with the Energy and Climate Change Ministerial Council's (ECMC) rationale. The CEC considers that overall gas market outcomes, as well as availability of gas supply and transmission infrastructure, will increasingly affect electricity markets. The proposed rule change will close a critical gap in the ISP's development by directing AEMO to give consideration to gas market developments.

(b) Should the rules be amended to enable AEMO to utilise gas information provided to it under other functions?

Yes. As the rule change request notes, for AEMO to undertake analyses of the gas markets and system to support a more robust ISP, AEMO needs express, specific authority in the rules to utilise this information.

As the ECMC observes in its rule change request, the inconsistency between the National Gas Law (NGL) and the NER risks creating confusion and uncertainty regarding AEMO's ability to use information it already has regarding gas when creating the ISP. Providing express direction to use the information it gathers for the purpose of developing the ISP will avoid confusion or doubt.

Question 2: Will the proposed solution support a more robust ISP by better integrating gas and electricity infrastructure developments?

a) Will requiring AEMO to carry out further analysis of gas in the ISP improve the ISP analysis? Why or why not?

Yes. As stated above, gas markets and systems increasingly affect electricity markets and systems, and thus good planning must account for gas markets. Better integrating gas and electricity infrastructure developments would incorporate consideration and analysis of, for example:

- Costs and risks associated with gas infrastructure investments needed to support gas powered generation;
- Projected gas supply, demand, and prices, including more accurate analysis of the risks posed to the electricity system transition flowing from issues in the gas system and markets;
- The impact of gas markets and gas infrastructure on investments on the National Electricity Market (NEM);
- The global nature of Australia's gas market; and
- Emissions impact of gas infrastructure and markets, including upstream fugitive emissions of methane and other greenhouse gases.

While each item on this list is critical and AEMO should include them, it is also not meant to be exhaustive, but rather a minimum, non-comprehensive list of what will support a robust ISP with higher quality and more reliable information for market participants. An ISP that accounts for these factors will better support the NEO's aims of more efficient investment in the electricity services.

(b) Is it appropriate for AEMO to use gas information available to it under the NGR for the purpose of the ISP? Are there any risks that we should be aware of in extending the use of or publication of specific information?

As noted in the response to Question 1(b), above, yes, the CEC agrees with the ECMC that it is appropriate for AEMO to use gas information available to it under the NGR for the purpose of the ISP.

Some of that information is commercial in confidence. Thus, the CEC that AEMO will need to manage the risk of that information becoming compromised. For example, some information may be difficult to anonymise. In such cases, the CEC considers that AEMO will need to utilise, and possibly develop, specific procedures for handling this information in order to safeguard it. The CEC considers that since AEMO already receives commercial in confidence information necessary for its functions as the market operator, it has the necessary capabilities.

Question 3: What are your views on the costs and benefits of requiring AEMO to undertake additional gas analysis in the ISP?

(a) What do you consider to be the benefits of the proposed solution? Is there anything that might erode the benefits of [sic] reduce the likelihood of the benefits being achieved?

The most important benefits will be more efficient investments in the NEM, including lower costs for consumers. As already stated, the additional gas analysis in the ISP will improve the ISP. A more robust ISP will support formulating more efficient and effective policies and market participants making more efficient investments.

Several things could erode these benefits, for example:

- Incomplete accounting of emissions or emissions reduction and the costs or avoided costs associated with those emissions as obligated by the updated National Energy Objectives;
 - This would mean including all full scope emissions of projects modelled, such as upstream emissions from gas developments, especially fugitive methane, for example;
- Incomplete accounting for the dynamics of global gas markets as Australia's gas markets are tightly integrated with them, including setting domestic fuel prices (bearing in mind that Australia's exports account for roughly 20% of global liquified natural gas exports);
- Not taking into account the unregulated status of gas infrastructure – this would lead to errors in the modelling as investors in gas assets need not consider the ISP when making investment decisions.

It will be important for the AEMC to expressly account for factors such as these when drafting rules that guide AEMO's consideration of gas in the ISP.

(b) What do you consider to be the costs of the proposed solution?

Under the National Gas Law and National Gas Rules, AEMO already obtains much, if not all, of the information it requires to undertake this additional analysis. Given AEMO's efforts to improve the ISP with each iteration, the additional analysis and refinement of modelling may require very little additional personnel time. While the CEC would expect that additional stakeholder consultation will come with costs, AEMO is best positioned to estimate them.

Question 4: What implementation considerations need to be considered?

(a) Do you have any concerns about sharing gas information received under the NGR for the purposes of developing the ISP? Is there sufficient clarity on what information should and should not be publicly disclosed?

As mentioned above in the response to Question 2(b), some of that information is commercial in confidence and thus will require an appropriate management procedure to ensure its confidentiality. The CEC considers that since AEMO already receives commercial in confidence information necessary for its functions as the market operator, it has the necessary capabilities.

(b) Are there any other implementation issues that should be considered?

Yes. As mentioned above, gas infrastructure remains unregulated. Regarding that, the CEC endorses the proponents request that gas information and analysis serve the “sole aim of optimising electricity infrastructure investments in the ODP in the ISP.”

Additionally, this means that among scenarios that AEMO develops should be some that explore the impacts should gas market investors not make further investments in gas infrastructure to serve the NEM. Given that Australia exports about 80% of all gas produced, and the forecast continued high prices in export markets, firms may to continue and even increase exports rather than building the infrastructure needed for expanded gas-powered generation (GPG) in the NEM.

Such scenarios appear likely given current market conditions and forecasts. This means that scenarios expecting significant increases of domestic gas supply and gas pipeline capacity to support increased GPG in the NEM may simply be infeasible.

Question 5: Are there alternative ways in which further analysis can be included within the ISP instead of the proposed rule change?

(a) Would the development of a procedure or policy enable the same outcome?

No. As mentioned above, the CEC considers that AEMO will require information that it obtains under the NGL. Given the plausible uncertainty or confusion about the current NGL and NER permitting use of that information for developing the ISP, a rule amendment should be undertaken.

(b) What level of prescription vs principle is appropriate when setting out the requirements for the ISP?

As a general rule, the CEC endorses setting a “floor” that requires specific inclusions – for example, consideration of the impact of gas markets and infrastructure development on the NEM, and ensuring that it include scenarios that account for the investment outcomes that may result from the unregulated status of gas assets – while also ensuring AEMO has leeway to exercise its own judgment regarding additional analyses or considerations it sees fit to develop an ISP that will support the NEO.

IMPROVING CONSIDERATION OF DEMAND-SIDE FACTORS IN THE ISP

Question 6: Should AEMO be required to expand consideration of CER and distributed resources in the ISP?

a) Should the ISP’s analysis include greater consideration of the assumptions and contingent factors underpinning the expected development of CER and distributed resources? Why or why not?

The CEC is supportive of expanding the ISP’s analysis to include a greater consideration of the assumptions and factors driving the expected development of CER. In 2023, rooftop solar was the fourth-biggest generator in the National Electricity Market (NEM), comprising of 11.2 per cent

of the total electricity generation mix.¹ Battery attachments to rooftop solar are also growing, passing 150,000 since 2020, with a third of those installations occurring in 2023 alone.² This indicates the critical current and future role CER will play within Australia's energy matrix.

Battery attachments to rooftop PV are steadily growing, passing 150,000 since 2020. Over a third of these recorded battery installations occurred in 2023 alone, with Q4 holding the highest count of quarterly installations at 18,427

As outlined in the ECMC's response to the ISP, effective energy demand forecasting, that considers electrification and consumer participation is essential for energy system planning.³ Hence, AEMO's consideration of assumptions and contingent factors underpinning the uptake of CER will ensure that significant benefits to consumers and the wider system are well-understood and integrated within decision-making.

- b) Do you agree that AEMO is currently constrained in its ability to access relevant information about distribution network hosting capacity and relevant CER forecasts from DNSPs?

The ability for AEMO to access relevant information regarding distribution network hosting capacity is not necessarily constrained. However, this information is not readily available consistently across distribution networks as they are all at different stages of building the knowledge capability, as part of introducing flexible export arrangements. It is also important to note, distribution businesses are already undertaking analysis and building capacity to collect this information as part of preparing their upcoming for revenue regulatory control period submissions.

In early 2024, SA Power Networks released their Electricity Distribution Determination 2025-30, outlining five business cases to support their CER Integration Strategy.⁴ The modelling undertaken in the determination has the potential to support AEMO in analysing demand-side factors in the ISP such as network capacity and costs to the distribution network at different levels of CER deployment. This highlights the opportunity for AEMO to utilise existing information and models to enhance CER forecasting.

Question 7: Will the proposed solution address the issues raised by the proponent and improve the robustness of the ODP?

- (a) Will the proposed rules enable more in-depth analysis of CER and distributed energy and its impact on operational demand forecasts in the ISP? Why or why not?

The CEC is supportive of the proposed rules outlined in the consultation paper and has confidence that additional information and the establishment of guidelines will enable more consistent and in-depth forecasting in the ISP.

¹ [Clean-Energy-Australia-2024.pdf \(cleanenergycouncil.org.au\)](#)

² [Rooftop-solar-and-storage-report-H2-2023.pdf \(cleanenergycouncil.org.au\)](#)

³ [ecmc-response-to-isp-review.pdf \(energy.gov.au\)](#)

⁴ [SA Power Networks - Determination 2020-25 | Australian Energy Regulator \(AER\)](#)

The CEC recently published *Powering Homes, Empowering People: A National CER Roadmap* that utilised the SA Power Networks (SAPN) network planning model to assess the impacts of different CER forecasts on the electricity value chain.⁵ This model allowed us to differ from the ISP's assumption of a fully unconstrained distribution network and instead consider a scenario with a 95% export service level for 95% of customers.⁶ As the SAPN model identifies the investments needed to deliver this level of service from 2025 to 2030 and maintain the desired service level as rooftop solar adoption grows and adds to constraints, the CEC was able to understand the value of CER to the SAPN distribution network under different demand forecast scenarios.

This provides an example of how the proposed rules may grant AEMO the ability to perform more in-depth analysis of CER and including least cost integration through existing or upcoming distribution network modelling being developed to support revenue reset proposals. The CEC is happy to provide more information on the process and methodology on our Roadmap with the AEMC in further consultation.

(b) What type of demand-side information should be provided by DNSPs that would be useful for the ISP analysis?

The CEC believes that distribution businesses could provide a range of data relating to network constraints, voltage management and power quality to ensure transparency for AEMO when conducting the ISP analysis. The information disclosed by the distribution businesses to AEMO should also become publicly available once analysis is completed. Importantly, this information can also be used as part of the Australian Energy Regulator's (AER's) improved network service level regulatory obligations as well as support industry to understand opportunities for CER penetration to support the network. Hence, the collection of this information can provide a variety of system wide benefits.

Access to this data will provide the best opportunity for AEMO to understand how best to integrate CER into the energy system. An example of this can be taken from the Victorian Department of Energy, Environment and Climate Action's (DEECA) work on voltage management in distribution networks.⁷ The reporting requirements improved visibility of customer voltages in Victoria allowing DEECA to continually meet with distribution businesses to discuss data benchmarking and areas of concern. This resulted in better management and support for the integration of CER and enablement of solar exports into the grid.

Additionally, the CEC encourages AEMO to consider several approaches to their sensitivity analysis and modelling. This should include consideration of lower cost modelling options that may still provide a similar level of benefits and information. An example of this was undertaken by Oakley Greenwood for the CEC to understand the value of CER if the ISP Step Change CER forecast is achieved.⁸ While this modelling includes several assumptions, it is low cost and able to inform AEMO on the importance of CER deployment in the system.

⁵ [Powering-Homes-Empowering-People-CER-Roadmap.pdf \(cleanenergycouncil.org.au\)](#)

⁶ [SAPN - 5.7.9 - CER Integration Modelling Methodology - January 2024 | Australian Energy Regulator \(AER\)](#)

⁷ [Voltage Management in Distribution Networks Consultation | Engage Victoria](#)

⁸ [Modelling the Value of CER to Energy Consumers \(cleanenergycouncil.org.au\)](#)

There should also be further clarification on if the proposed rule changes will impact the current forecasting (such as the CSIRO and Green Energy Markets) undertaken. These models use different assumptions relating to current and future policy settings and their impact on CER uptake and active participation. This successfully illustrates the influence of different policy outcomes, such as financial incentives or increased consumer protection, on customer perception and participation in battery orchestration. The commissioning of independent work considering different policy settings is integral to understanding CER integration within the electricity system and the CEC recommends that AEMO continue this practise.

AEMO could also consider the integration of additional demand-side information from sources other than distribution businesses such as the Clean Energy Regulator, Solar Victoria and state-based energy efficiency, productivity and peak reduction programs across Victoria, NSW and South Australia.

Question 8: What are your views on the costs and benefits of the proposed solution?

(a) What do you consider will be the benefits of the proposed solution? Is there anything that might erode the benefits or reduce the likelihood of achieving the benefits? Are there any additional amendments that could be made to improve the benefits?

The CEC recommends that the AEMC provide further clarification and evidence surrounding the customer benefits for this rule-change. This could include the consideration of several policy assumptions, modelling the outcomes and benefits of each option for consumers. Additionally, the proposed statement by AEMO on anticipated development and behaviour of CER could be closely linked to forecasted consumer benefits. The provision of this information would ensure decision-makers will have robust analysis surrounding CER to make informed decisions that best reflect consumer needs.

An example of this can be found within the CEC's *Powering Homes, Empowering People* modelling, considering the impact of CER uptake on customer bills in the NEM. Oakley Greenwood's modelling demonstrated that achieving AEMO's ISP Step Change would result in average annual energy bill savings of \$35-\$71 for all residential and small-business NEM customers until 2050.⁹ This was based on savings of \$8.25 per MWh.¹⁰ The CEC encourages AEMO to consider the inclusion of similar information and expected customer benefits within the proposed statement to better evidence the advantages of the proposed solution.

⁹ [Powering-Homes-Empowering-People-CER-Roadmap.pdf \(cleanenergycouncil.org.au\)](#)

¹⁰ \$7.50 per MWh is derived from the \$20 bn savings from the Oakley-Greenwood analysis of the extra large-scale generation and transmission required to fund the shortfall in CER uptake between CSIRO and AEMO Step Change. An additional \$0.75 is for the \$2.4 b required in additional distribution network investment due to the shortfall between CSIRO and AEMO Step Change CER forecast.

(b) What are the costs DNSPs might incur in complying with requirements to provide further information? Do the benefits outweigh the costs? Should DNSPs be required to provide further information in their DAPRs or elsewhere?

The information required by AEMO in this rule change is already being developed by distribution businesses in their regulatory control reset submissions. Therefore, the CEC does not believe there will necessarily be additional costs to the distribution businesses to provide such information to AEMO as part of the ISP process. Hence, the collection of this data or development of modelling can be considered as operational expenditure for distribution businesses that can be recovered through their regulatory reset operational allowances.

Further, operational expenditure for this kind of information is already occurring, as distribution networks partner with service providers such as Neara for the implementation of 'digital twins' and network digital modelling to assist with the development of capacity allocation.¹¹

The 'digital twin' currently focuses on the visualisation of distribution network structures (e.g. poles & wires) and the implementation of shared 'digital twins' between DNSPs would allow a greater understanding of regions and provide a holistic overview of hosting capacity in difficult to assess areas. This service provider is already an investment by distribution businesses such as SAPN, Essential Energy and Endeavour Energy, hence there would be no additional associated costs in sharing the existing data with AEMO.

Finally, the CEC recommends that distribution businesses provide further information in both the Distribution Annual Planning Reports (DAPR) and their reset submissions. As the information and modelling is often developed at the reset of regulatory control periods, the initial data could be published in these submissions and updated information would be provided (as needed) in subsequent DAPRs.

(c) Would the proposed solution impose costs on any other stakeholders? If so, how might these costs be minimised?

The CEC has not identified any additional costs on stakeholders.

Question 9: Are there important implementation considerations for the Demand-side rule change request?

(a) What implementation issues should be considered? For example, are DNSPs likely to face any challenges in complying with new information obligations?

As outlined in Question 8 (b) the CEC considers that if AEMO look to leverage the distribution businesses CER integration components of their regulatory resets, it is unlikely that distribution businesses will face significant challenges in providing information to AEMO. However, to ease the risk of implementation issues, the CEC recommends the guidelines should aim for consistency in terminology. This approach will allow information-sharing between distribution business and reduce the need for independent and original approaches for modelling and information.

¹¹ [Electric Utility Software | Neara](#)

(b) Are there any transitional measures that should be considered to support the implementation of the rule in time to inform the 2026 ISP?

As several distribution businesses are currently undertaking or have recently undertaken a reset, it is critical to begin the information collection process for the 2026 ISP. The CEC recommends that AEMO begins drafting the guideline while this consultation is underway, ensuring a consistent process is outlined for distribution businesses as soon as possible. This would allow the guideline to go to market in early 2025, after the publishing of the final determination and finalised by the end of Q1 2025.

(c) If adopted, should the development of guidelines be subject to the Rules Consultation Procedures under NER Rule 8.9?

The CEC is supportive of the development of the guidelines to be subject to the Rules Consultation Procedures, however it is recommended this follow an expedited rules consultation procedure to inform the 2026 ISP.

Question 10: Are there alternative solutions to those proposed in the Demand-side factors rule change request?

(a) Do you consider alternative, more preferable solutions exist to address the identified issue?

The CEC supports the solutions proposed within the rule change request and their accompanying rationale. However, it is encouraged that AEMO also expand the optimal development path (ODP) to incorporate investments in CER capacity.

The current scope of the ODP defers only to large-scale generation and transmission when considering distribution network constraints. Distributed generation capacity is a feasible alternative to centralised transmission connected generation capacity and likely incurs reduced expenditure when addressing network constraints. The CEC proposes the rule change request be modified to include a recommendation of investments in distribution network capacity within the ODP, enabling the ISP to truly consider a whole-of-system least cost transition pathway. The introduction of recommendations surrounding distribution network capacity investment would more significantly support meeting the NEO, outlining the most efficient investment and operation of electricity services.

In addition to these solutions, the CEC also encourages AEMO to ensure that the 2026 ISP Consumer Panel has appropriate demand-side and CER representation to best understand the plans and behaviour of consumers with these assets. This could include the already existing consumer representatives, along with supply-side participants that design and provide CER services and products.

(b) Should guidance on information required to be provided by DNSPs be set out in an AER or AEMO guideline, or in the NER

The CEC recommends that AEMO develop and publish guidance on information required by distribution businesses. AEMO has the subject matter experts in the development of the ISP and CER forecasting and are best placed to understand the requirements. Additionally, the Federal Department of Climate Change, Energy, Environment and Water could contribute to the development of the guideline to provide oversight and independence to this process.

BETTER INTEGRATING COMMUNITY SENTIMENT INTO THE ISP

The CEC supports AEMO integrating the impacts of community sentiment as a regular part of developing the ISP.

TNSPs already provide certain information to AEMO through joint planning arrangements. A sole exception appears to be when a TNSP has a claim of confidentiality on the information, however, the CEC remains unsure if this has ever happened. Given they already engage in information sharing, and in light of the proponent's concerns regarding inconsistency stemming from the rules not expressly requiring this practice, the CEC encourages AEMO to continue engaging with AEMO and TNSPs to understand what information and what practices should be codified to better integrate community sentiment into the ISP in support of achieving the NEO.

In considering whether and how to amend the rules with regard to community sentiment information, the CEC encourages the AEMO to bear in mind the likely cost-cost and risk-risk trade offs that often occur when altering a project's route or moving it altogether. For example, if community sentiment towards a project is negative on account of its route through populated areas and the TNSP proposes modifying the route to traverse areas with low population but high biodiversity values – such as from cleared farmland with low biodiversity values to biodiversity rich areas – then community sentiment may remain low despite the response, and the project may remain at risk of negative outcomes. AEMO should consider how it will respond to scenarios like this when developing the ISP.

As always, the CEC will work with the AEMO throughout the development of this rule change to support achieving the National Energy Objectives and accelerating Australia's transition to net zero. The CEC appreciates the opportunity to provide input on this important rule change and looks forward to further engagement in next steps.

Further queries can be directed to Paul Beaton at the CEC on pbeaton@cleanenergycouncil.org.au.

Kind regards

Christiaan Zuur
Director, Energy Transformation