THE HON CHRIS BOWEN MP
MINISTER FOR CLIMATE CHANGE AND ENERGY

MS24-000566

Ms Anna Collyer
Chair
Australian Energy Market Commission
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SYDNEY NSW 2000

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Dear Ms Collyer Anna

I write in regard to proposed changes to the National Electricity Rules and National Gas Rules stemming from the recently completed Review of the Australian Energy Market Operator's (AEMO's) Integrated System Plan (ISP).

At its meeting on 1 March 2024, the Energy and Climate Change Ministerial Council agreed to the recommendations of the ISP Review, which considered whether the scope and function of the ISP remains fit-for-purpose to support the energy transformation given the rapidly evolving landscape. At the highest level, the review concluded that while AEMO was meeting the role established for it under the current ISP frameworks, there were opportunities for the ISP to provide more detailed advice on several matters of critical importance to the energy transformation.

Attached are a set of rule change requests that seek to give effect to key recommendations of the ISP Review. I endorse these rule change requests and ask the AEMC progress with their initiation.

Yours sincerely

CHRIS BOWEN

Enc

Australian Government

Department of Climate Change, Energy, the Environment and Water

Rule Change Request

Improving consideration of demand-side factors in the Integrated System Plan

May 2024

1. Request to make a rule

1.1 Name and address of the person making the request

The Hon Chris Bowen MP
Minister for Climate Change and Energy
Parliament House
Canberra ACT 2600

2. Statement of issue

The Australian Energy Market Operator (AEMO) is required to prepare the Integrated System Plan (ISP) in accordance with rule 5.22 of the National Electricity Rules (NER). The legislated purpose of the ISP, as provided by NER clause 5.22.2, is to establish a **whole of system** plan for the efficient development of the power system that achieves power system needs for a planning horizon of at least 20 years for the long-term interests of consumers of electricity.

In October 2022, the Energy and Climate Change Ministerial Council (ECMC) agreed to review the ISP to consider whether its scope and function remains fit-for-purpose to support the energy transformation given the rapidly evolving landscape[1]. At its meeting in March 2024, the ECMC considered the findings of the review of the ISP and agreed that there was a clear need for the ISP to expand its consideration of factors relevant to the demand side of the energy market and to distribution networks.

This rule change request reflects Ministers' intentions for the ISP to include sufficient consideration of distribution networks and the actions of energy users. This is critical given that multiple ISPs have identified that a rapid, consumer-led transformation of the energy sector forms part of the most efficient pathway to decarbonise the energy system. This rule change seeks to require additional analysis regarding the development of distributed resources and orchestrated CER in the ISP and to unlock data relevant to AEMO's ability to deliver this. For clarity, it does not seek to create an obligation for AEMO to consider and include distribution investments in its optimisation modelling or to insert a new regulatory function with regard to distribution investments.

This rule change request seeks to address the way the ISP deals with the inherent uncertainties and contingencies around demand-side factors by giving effect to the following actions, agreed to by the ECMC:

- That assumptions about electrification, and the uptake and orchestration of CER and distributed resources should be improved.
- That the ISP should include a statement on how CER and distributed resources uptake and orchestration are anticipated to develop, linking to assumed policies and market structures.
- That AEMO should develop a framework, methodology and guidance material to support DNSPs and jurisdictions to develop projections and undertake analysis in a consistent manner to support the ISP's development.

[1] See Terms of Reference for the ISP Review online at https://www.energy.gov.au/energy-and-climate-change-ministerial-council/energy-ministers-publications/review-integrated-system-plan.

The following definitions are used throughout this request:

- Consumer Energy Resources (CER): resources installed by consumers that generate or store electricity or that can alter demand in response to external signals including rooftop solar, batteries, electric vehicles and chargers, and controlled loads such as water heaters and air conditioners.
- Distributed resources: generation and storage assets that are installed within the distribution network (i.e. in front of the meter), such as community batteries.

The Draft 2024 ISP identifies that coordinated CER storage is anticipated to grow from today's 0.2 GW to 3.7 GW in 2029-30, and then 37 GW in 2049-50, playing an integral role in providing system reliability to support greater variable renewable energy penetration. Given their increasing importance in providing system flexibility and reliability, a critical consideration is the way in which the ISP considers the availability of CER and distributed resources to fulfil this role. The ECMC agreed that there would be benefit in AEMO undertaking a more thorough assessment of the availability of orchestrated CER and distributed resources and in providing greater detail regarding the technical (e.g. distribution network constraints) and non-technical assumptions (e.g. government policy, tariff arrangements and consumer behaviour) that underpin them. In particular, the ISP is based on assumptions that distribution networks will be appropriately augmented to facilitate the forecast level of CER penetration and orchestration in any given planning scenario and that policy and market structures will be appropriate to encourage energy users to allow their assets to be used in such a manner.

At present, there is no specific requirement for AEMO to identify and describe the assumed development of critical demand-side actions (policy levers, resolving network constraints) that are integral to ensuring energy reliability, meaning these contingencies are not clearly identified in the ISP. For example**,** at clause 5.22.6**,** where the rules specify the content that AEMO is required to produce for inclusion as part of the ISP, the rules do not impose any obligation on AEMO to clearly explain the sensitivities around CER and distributed resources projections, and the assumptions around which they are based, which are increasingly critical.

Requiring AEMO to give greater consideration to network and non-network factors needed to enable the levels of orchestrated CER would make its forecasts and analysis more robust. As opposed to the current approach, it would allow AEMO to go further in considering factors like the risks of lower CER uptake or inadequate CER orchestration in the grid in the evaluation of operational demand. The anticipated outcome is to allow a more holistic assessment of demand uncertainty, which is another action agreed to by ECMC.

In addition, including a statement in the ISP aimed at informing market participants, regulators, and policy makers about the expected development of orchestrated CER and distributed resources, and contingent factors underpinning this development, would improve transparency and aid decision making by a range of interested parties. This rule change request does not suggest that the ODP should be expanded or 'co-optimised' to incorporate investments in CER or distributed resources capacity but does seek to require that AEMO publish specific information on the expected development of CER and distributed resources and contingent factors underpinning its development. This is consistent with the objective for the ISP to be a true whole of system plan.

Relevantly, the data environment across the energy system is evolving, particularly in regard to the ability to understand CER uptake and network constraints. This is critical information that can be used to inform development of a more robust assessment of the contributions of orchestrated CER and distributed resources to the development path identified in the ISP. To establish more accurate

assumptions around CER and distributed resources, AEMO requires more information on distribution network service providers' (DNSP) views of current hosting capacity and how the baseline capacity might evolve over time, given committed and anticipated distribution investments, as well as other relevant CER forecasting data across the suite of CER asset types (traditional PV, batteries, EVs). It is expected that data from DNSPs should at least have a short- or medium-term currency, given their own distribution planning cycle and should have reasonable regard to the influence of CER. Better utilising emerging data and analysis at the distribution level about user behaviour with regard to CER uptake and electrification patterns is also anticipated to support a more robust forecasting framework and to assist with addressing the uncertainty inherent in these forecasts.

AEMO's ability to procure this information on network constraints from DNSPs is hampered by the ambiguities of the rules, which creates confusion and misalignment on both sides in terms of what information is available from DNSPs, and what information is needed from AEMO to conduct its ISP analysis. AEMO's information-gathering powers are typically tied to a specific function. Given that AEMO does not have an identified role in distribution planning or regulation, its ability to gather information on distribution networks is not clearly defined in the NER. This rule change request does not suggest giving AEMO a regulatory role with regard to distribution network investments, but aims to provide AEMO with greater visibility over anticipated network constraints and improve the coordination and collaboration between AEMO and DNSP counterparts.

With regard to ensuring that appropriate information is available on network constraints to inform this analysis the rules include some requirements on demand data-sharing, particularly around Distribution Annual Planning Reports (DAPR), but they are mostly limited to providing information on infrastructure projects the network is planning at a zone substation level, an example being clause 5.13.1:

> (d) Each Distribution Network Service Provider must, in respect of its network:
>
> > (1) prepare forecasts covering the *forward planning period* of *maximum demand*s for:
> >
> > > (i) *sub-transmission lines*;
> > > (ii) *zone substations*; and
> > > (iii) to the extent practicable, *primary distribution feeders*, having regard to:
> > > (iv) the number of customer *connections*;
> > > (v) *energy* consumption; and
> > > (vi) estimated total output of known *embedded generating units*.

This does not extend to the information that AEMO would require to effectively assess network constraints that may limit the availability of orchestrated CER or distributed resources to support the energy system. Similarly, while Rule 3.7D of the NER requires AEMO to develop and publish 'demand-side participation information guidelines', these guidelines differ in their objective and do not cover critical information in regards to network constraints.

To give effect to the intended approach proposed by this rule change request, consideration will need to be given to expanding current information disclosure requirements for DNSPs, potentially through requiring additional information that is relevant for ISP planning purposes being included in Distribution Annual Planning Report (DAPR)(or alternatively, provided to AEMO through another suitable mechanism).

3. Description of the proposed rule change

This rule change request seeks to amend the NER to implement the ECMC's agreed response to the ISP Review on making actual demand-side data more readily available to AEMO and supporting a clear articulation of the expected development of CER and distributed resources in the ISP. This will be achieved by:

- Amending clause 5.22.6 to explicitly require AEMO to include a statement within the ISP on the expected development and operational behaviour of CER and distributed resources and contingent factors underpinning its development. This statement would go further in identifying how CER and distributed resources are anticipated to develop, identifying the assumed government policies, market structures and consumer behaviour (non-technical assumptions) and distribution and transmission network constraints and CER capability improvements (technical assumptions) that are required to support the CER uptake and orchestration.
    - It is expected that AEMO would get information on network constraints from DNSPs through a new clause introduced as part of this rule change (below) and use this new information within their demand forecasting while also clearly articulating these constraints within the ISP itself.

- Inserting a new clause in the NER to require AEMO (in close consultation with AER) to:
    - Release guidelines that set out a consistent process to collect information from DNSPs on anticipated network constraints and electrification pathways for the following purposes:
        - To support better analysis of system constraints related to demand-side factors in the ISP;
        - To better inform and integrate demand-side factors with supply-side planning the development of the ODP in the ISP; or
        - To support other decision making that will address issues around the available capacity of the network and other system constraints.
    - Expand consideration of operational demand in the ISP by undertaking improved analysis of CER based on the additional information collected on anticipated network constraints and electrification pathways.

- Creating a new mandatory information disclosure requirement for DNSPs. Consideration should be given as to whether this would best be introduced by amending rule 5.13 (Distribution annual planning process) to require DNSPs to include information in accordance with the proposed new guidelines in their DAPRs, or elsewhere (if more appropriate).

The intent of these rule changes is for them to take effect in time for the 2026 ISP, or in the earliest possible ISP. Noting timing constraints, DCCEEW encourages the AEMC to consider what transitionary arrangements might be appropriate to allow for this proposal to best be taken up for the 2026 ISP.

4. How the proposed rule change will address the issue

These rule changes will increase the robustness of outcomes to demand-side and distribution level changes, enabling the ISP to fulfil its role as a whole of system plan. The changes are aimed at addressing current ambiguities in the rules and place a clear requirement on AEMO to undertake expanded data collection and analysis. Specifically, it will allow for a more fulsome and accurate analysis regarding demand side factors and the availability of orchestrated CER and distributed resources to support the energy transition. Such improved analysis and data collection shift the ISP

closer to being a true whole-of-system plan. To achieve this, the current rule change proposal will do the following:

a) Introduce an effective trigger for AEMO to develop a process for the collection of demand-side information needed to enhance consideration and forecasting of demand in the ISP.
b) Require the ISP to incorporate detailed content on the expected development and operational behaviour of CER and distributed resources and contingent factors underpinning its development based on the best available network information.

Specifically, the individual rule changes will have the effects listed below.

4.1 Amendment to clause 5.22.6

This will establish a new requirement for AEMO to produce a statement on the expected development of CER and distributed resources and contingent factors underpinning its development. This will differ to AEMO's approach to the ISP, which involves forecasting of CER and distributed resources uptake from projected consumer behaviours across various scenarios, and then relying on assumptions about the level of orchestration that will follow the projected CER/distributed resources uptake to modify the demand projections. The addition of this statement will go further than what is currently described in the ISP, and will provide a transparent and consolidated explanation about:

- the necessary technical (e.g. network constraints) and non-technical (e.g. assumed policy settings, tariff structures and consumer behaviour) conditions that are required to support the forecasted levels of orchestrated CER and distributed resource uptake;
- what uncertainties there are surrounding these elements;
- ways in which greater certainty could be provided on technical and/or non-technical conditions; and
- the need for alternative investments to meet operational demand should forecast CER and distributed resources conditions not eventuate.

This new analysis in the statement would be useful for a range of stakeholders, including market participants, regulators and governments at all levels, and would allow these stakeholders to identify opportunities to manage risks to the uptake of CER and distributed resources and to make better decisions that are in the interests of energy consumers. Although the inclusion of this new statement would increase the analysis of CER and distributed resources in the ISP, this rule change is not intended to impact on the economic regulation of distribution planning or broaden AEMO's current regulatory role beyond that of national transmission planner. Rather, it seeks to strengthen AEMO's planning role by providing a more robust assessment of demand side factors, as well as providing information on investment opportunities for market participants and better identifying risks to the energy transition.

4.2 AEMO network limitations data guidelines

Insertion of a new clause requiring AEMO to release guidelines outlining a process for DNSPs to share relevant network and CER information will develop a pathway to gather the data needed to enhance the assessment of network limits in the ISP. This will allow AEMO, in consultation with the AER and DNSPs, to set out how data will be collected from DNSPs and used for the development of the ISP.

The purpose of the new guidelines described in this rule change proposal is to enable AEMO to drive a consistent approach to gather the additional network, CER and distributed resources data needed to inform its analysis in the ISP, particularly information on distribution network constraints. It is important for AEMO and the AER to work together, to ensure consistency and avoid duplication of

effort. As outlined above, this request seeks to introduce a new information disclosure requirement on DNSPs, and consideration should be given as to whether an amendment to rule 5.13 will also be necessary to require DNSPs to include the relevant information in their DAPRs (in accordance with the new guidelines).

It is expected that the guidelines will be developed in close consultation with DNSPs and other stakeholders in order to maximise benefits and address any stakeholder concerns. The information gathering proposed by this rule change is not expected to impact arrangements that give protections to commercial or sensitive consumer data and will focus on relying to the maximum extent possible on data that is already being generated, for example through the increasing deployment of smart meters and CER. Recognising that even incomplete datasets are still valuable, the sharing of data where 100 percent coverage is not available should be encouraged where possible. This request does not suggest that the ODP should be expanded or 'co-optimised' to incorporate investments in CER or distributed resources capacity but does seek to require that AEMO publish specific information on the expected development of CER and distributed resources and the contingent factors underpinning its development.

5. How the proposed rule change will or is likely to contribute to the achievement of the National Electricity Objective

The National Electricity Objective (NEO), set out in section 7 of the National Electricity Law, is:

> "to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:
>
> (a) price, quality, safety, reliability and security of supply of electricity; and
> (b) the reliability, safety and security of the national electricity system; and
> (c) the achievement of targets set by a participating jurisdiction—
> i. for reducing Australia's greenhouse gas emissions; or
> ii. that are likely to contribute to reducing Australia's greenhouse gas emissions."

The relevant aspect of the NEO for present purposes is the promotion of efficient investment in electricity services for the long-term interests of consumers of electricity with respect to price, quality, safety, reliability, and security of supply of electricity.

The articulation of the expected development of CER and distributed resources and the contingent factors underpinning its development will enable AEMO to better account for the uncertainties of demand-side factors and assess how these factors impact efficient investment in the supply side. This will improve the accuracy of demand projections and enhance understanding of the variabilities that impacts these assumptions, which are critical to forming the ODP in the ISP. It is expected that AEMO's demand forecasting will become more strategic in guiding more effective and efficient investment and operation decisions in the NEM. Ultimately, this more detailed identification of the lowest cost pathway is expected to deliver optimised electricity prices, which are in the long-term interests of consumers of electricity.

The provision of better and more granular information on network constraints relevant to the use of CER and distributed resources from DNSPs will also improve decision-making. AEMO's analysis of these constraints and the necessary market structures and policy considerations relevant to orchestration of CER, published through the ISP, is intended to equip market, policy and regulatory stakeholders with the critical information needed to make informed decisions in the best interest of

consumers about investments and mechanisms to support the uptake and use of CER. In particular, this level of granular network information would be of particular value to potential investors in distributed resources like Virtual Power Plants, identifying where there are opportunities for such assets to be delivered in the best interests of energy users and the grid.

These proposed changes aim to better coordinate the growing diversity of supply and demand to ensure that the network buildout is at the lowest cost to electricity consumers. Enhanced assessments of demand modifiers, in a landscape of increasing demand uncertainty, can prevent overinvestment, underinvestment or overdue investments in electricity supply. In short, these rule changes will make the ISP a more integrated and robust, whole of system plan, whose outputs have more confidence and whose development creates broader understanding of the opportunities and challenges inherent in the energy transition.

6. Expected costs, benefits and impacts

6.1 Expected benefits

Enhanced consideration of demand-side factors within the ISP, along with the proposed changes to improve the sharing of relevant CER/distributed resources data, would have several benefits to stakeholders across the whole energy value chain, this includes:

For market participants and decision makers:

- following the implementation of the new guidelines developed by AEMO, improved use of data in the ISP will be useful for decision makers seeking to optimise energy industry investment in enabling CER .
- the new data would also be essential in informing the new CER/distributed resources statement in the ISP, and would result in a more robust ODP which is informed by improved demand data and analysis and accompanied by a more transparent articulation of demand uncertainty. This would lead to increased confidence and better outcomes where decision makers rely on the ISP's demand forecasts.

For consumers:

- optimised costs in electricity prices due to a more precise identification of the lowest cost pathway for electricity guided by the most accurate information on demand forecasting in the ISP;
- enhanced reliability of electricity supply due to adequate and timely transmission investments being made across the NEM (supported by both improvements to the ISP, and network visibility across a broad range of market participants); and
- improved certainty on the development of demand-side and distribution system developments required to enable their CER to realise its full value.

For AEMO:

- a timely and consistent approach to CER/distributed resources analysis driven by improved alignment and coordination between AEMO, jurisdictions, DNSPs and other relevant stakeholders in the sharing and alignment of demand-side information.

6.2 Expected costs

The proposed amendments will impose an additional cost on AEMO in preparing the ISP, including an additional cost for uplift in implementing the changes for the 2026 ISP, and an ongoing annual cost thereafter. These costs would result from necessary improvements to data collection and modelling, as mandated by the proposed rule changes. These costs are recovered from transmission network service providers through National Transmission Plan charges.

Additional costs will also arise from the implementation of the proposed new guidelines to be developed by AEMO (in consultation with the AER) for the purposes of improving data sharing. These costs will be borne by DNSPs in meeting the additional obligations placed on them by the guidelines. The quantum of these costs will depend on the extent to which the necessary information is already gathered, which is expected to vary across DNSPs. As part of the consultation process for the rule change, DNSPs may provide further clarification on the likely costs for implementation. In its development of the guidelines, it is expected that AEMO will apply an approach to minimise unnecessary costs, such as that outlined by the Energy Security Board's 'Network Visibility' approach[2], which highlighted the importance of:

- relying to the maximum extent possible on data/information that is already being generated;
- maximising efficiency in handling data by collecting and storing data in structured, machine-readable form at the most granular and shortest interval data available;
- providing data even where 100% coverage is not available (in recognition that this is still valuable); and
- considering where existing data reporting can be expanded or improved to meet new needs.

It is expected that AEMO will apply similar principles in developing the new guidelines to ensure there is a focus on the use of existing data, minimising the reliance on the collection of new data where possible, and therefore minimising the costs to DNSPs involved in the implementation of the guidelines.

Ultimately, it is anticipated that any additional costs borne by TNSPs or DNSPs to support the additional data gathering or analysis required by the proposed rule change would be passed through to energy users through revenue determinations that inform use of service charges. These costs would need to be weighed against the significant anticipated benefits of a more comprehensive and robust system plan.

6.3 Expected impacts

This proposed rule change seeks to impose additional requirements on AEMO during its ISP development process with respect to demand-side factors. AEMO will be impacted by these rule changes as it effectively broadens what it must consider when preparing the ISP (e.g. how variations to CER and distributed resources projections affect forecast demand) and what it must include in the content of the ISP (a statement of expected development of CER and distributed resources).

This proposed rule change is the first step in an incremental approach to improvement that is being applied to AEMO's consideration of demand-side factors in the ISP. It is expected this rule change will pave the way for AEMO to implement other recommended actions, which sit outside of this rule change request, such as improving AEMO's sensitivity analysis on the forecasting of operational

[2] Energy Security Board Consultation Paper-Network Visibility-Benefits of increased visibility of networks-July 2023

demand. This rule change will provide the necessary data for AEMO to better consider the impact of electrification and CER and distributed resources sensitivities in this regard. While co-optimisation sits outside of the scope of this rule change, the outcomes of this current rule change proposal is also intended to help inform future work by AEMO to better consider, and ultimately, integrate demand side factors with supply side factors in energy system planning within the ISP.

For stakeholders that engage with the ISP more generally, there may be further complexities introduced from this rule change proposal, particularly in regard to the requirement for the ISP to provide additional information on network constraints arising from the influx of CER and distributed resources. However, this new information is expected to be more generally useful in supporting better planning activities by regulators, investors, energy users and network service providers. It is also aimed at providing more clarity and transparency to the ISP process, which should improve the ability for stakeholders to engage meaningfully with AEMO's analysis on CER/distributed resources and better understand its implications for NEM system planning.

Lastly the new requirement for AEMO to develop guidelines in consultation with the AER to support DNSPs to collect and share demand data in a consistent manner has the potential to not only strengthen the ISP, but is likely to have the added impact of strengthening the consistency of planning approaches (relevant for both the ISP and a broader range of network planners) and support non-network stakeholders to make investment decisions that will optimise the benefits of CER and distributed resources for consumers.