

AEMC Review of the Integrated System Plan – Discussion paper

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About the Justice and Equity Centre

The Justice and Equity Centre stands for a society that is fair and free from discrimination and disadvantage. Established in 1982 as the Public Interest Advocacy Centre (PIAC), we use the law and policy advocacy to challenge injustice and inequality. We do this through:

- legal advice and representation, specialising in test cases and strategic casework;
- research, analysis and policy development; and
- advocacy for systems change to deliver social justice.

Energy and Water Justice

Our Energy and Water Justice work improves regulation and policy so all people can access the sustainable, dependable and affordable energy and water they need. We ensure consumer protections improve equity and limit disadvantage and support communities to play a meaningful role in decision-making. We help to accelerate a transition away from fossil fuels that also improves outcomes for people. We work collaboratively with community and consumer groups across the country, and our work receives input from a community-based reference group whose members include:

- Affiliated Residential Park Residents Association NSW;
- Anglicare;
- Combined Pensioners and Superannuants Association of NSW;
- Energy and Water Ombudsman NSW;
- Ethnic Communities Council NSW;
- Financial Counsellors Association of NSW;
- NSW Council of Social Service;
- Physical Disability Council of NSW;
- St Vincent de Paul Society of NSW;
- Salvation Army;
- Tenants Union NSW; and
- The Sydney Alliance.

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Recommendations

Recommendation 1 – planning in the long-term interest of consumers

That the ISP Review recommends changing the definition of the purpose of ISP planning from planning in the interests of the power system to planning in the long-term interest of consumers.

Recommendation 2 – co-optimisation of all resources

That the ISP Review recommends:

- *Expanding co-optimisation to all resources in the electricity system – generation, storage, transmission, distribution, CER and demand side resources.*
- *That modelling of demand side developments is added to the capacity outlook model, and recommendations on demand side developments are provided as ISP outputs.*

Recommendation 3 – more granular outputs on non-transmission assets

That the Review recommends ISPs outputs include more robust or granular recommendations on non-transmission assets. Specifically:

- *More granular outputs are provided for all resources in the electricity system – generation, storage, transmission, distribution, CER and demand side resources.*
- *Recommendations are made regarding the volume and timing of unregulated assets in each jurisdiction.*

Recommendation 4 – actionability mechanisms for all resources

That the Review recommends that the ISP include improved actionability mechanisms for all resources. This includes:

- *An actionability mechanism for distribution projects similar to that for transmission projects.*
- *A distinct actionability mechanism for unregulated/non-network resources – generation, storage, CER and demand side resources – with jurisdictional governments providing update reports to the ECMC on response to recommendations on the deployment of unregulated resources, to inform the next iteration of the ISP.*

Recommendation 5 – no joint planning of gas and electricity markets and systems

That the Review recommends against expanding the ISP to become a joint planning instrument for AEMO operated gas and electricity markets and systems.

Recommendation 6 – Planning framework

That irrespective of any recommended changes on co-optimisation or actionability, the ISP Review makes the following ISP modelling improvements:

- *Adopts ‘normative’ planning using a central scenario which is emissions target aligned.*
- *Provides greater transparency and rigor in the capacity outlook model.*
- *Improves modelling of long-term storage and generation needs for renewable droughts and the scope of options considered, removing any unreasonable bias for gas generation solutions.*
- *More carefully analyse the emissions implications of recommending gas generation.*
- *Provide greater granularity in the modelling outputs recommending generation and storage.*

Recommendation 7 – Delivery framework

That irrespective of any recommended changes on co-optimisation or actionability the Review recommends the ISP process enables continued reassessment of ISP projects, including those previously declared actionable, and that this process occurs up to the point where final investment approval has been given.

Recommendation 8 – Governance framework

That irrespective of any recommended changes on co-optimisation or accountability the Review recommends allowing for flexibility in ISPs. This should include enabling consideration of updated input information that will materially impact ISP outputs as late as is practical, including after publication of the draft ISP.

Recommendation 9 – Updates to the AER and AEMO guidelines

That the Review recommends the AER and AEMO guidelines are updated to better align the ISP with the full intent of existing rules as well any changes resulting from the review itself.

1. Introduction

The Justice and Equity Centre (JEC) welcomes the opportunity to respond to the Australian Energy Market Commission (AEMC), Review of the Integrated System Plan (ISP Review),¹ and the Discussion paper (Discussion paper).²

The JEC supports the importance of the Integrated System Plan (ISP) but contends it must evolve. Partly as a result of the progress made to date on transmission, it is likely that from 2030 onwards the majority of investment in the electricity system will need to be in assets other than transmission.

Accordingly, we support the AEMC's initial position - as provided in straw person 3 - on evolving the ISP to plan in the long-term interest of consumers. In particular we support expanding planning to co-optimize all resources – generation, storage, transmission, distribution, consumer energy resources (CER) and demand side resources. Our submission details why the scope of planning inputs and analysis should be expanded - including on the demand side - and why the plan should produce outputs with recommendations for all resources.

We disagree with the AEMC's initial position not to expand mechanisms for actionability. Actionability mechanisms need to expand to include recommendations for all resources. As set out in our rule change proposal, we envisage an actionability mechanism for non-network assets, where jurisdictional governments provide regular update reports to the Energy and Climate Change Ministerial Council (ECCMC) on progress against deployment of recommended interventions.

Key additional improvements include –

- 'Normative' planning using a central scenario which is emissions target aligned.
- Improved modelling of long-term storage and generation needs for renewable droughts which are more source agnostic.

As summarised in the table in section 2, in many instances a rule change is not strictly required to deliver the required evolution of the ISP. Though they remain desirable in many cases, in order to provide certainty and consistency. Where a rule change is required or desirable we refer to our prior rule change proposal - Co-optimisation of all energy resources in the ISP - for detailed recommendations on form.³

Many improvements can be enabled by revising Australian Energy Regulator (AER) and Australian Energy Market Operator (AEMO) guidelines, and corresponding evolutions in AEMO practices. Importantly, this enables consideration of measures which could be implemented in time for the 2028 ISP.

¹ See <https://www.aemc.gov.au/market-reviews-advice/review-integrated-system-plan-framework>.

² See https://www.aemc.gov.au/sites/default/files/2026-07/isp_review_discussion_paper_epr0092.pdf

³ See <https://www.aemc.gov.au/rule-changes/co-optimisation-energy-resources-integrated-system-plan>, attached as Annex B.

2. Summary of required rule change or guidelines updates

Please see the JEC Rule Change Proposal for details on the rule changes we recommend.⁴

	Short Description	Rule change required / desirable	Guideline update required / describable
1	Planning explicitly in the long-term interest of consumers	Not required but desirable	Required
2	Expanding co-optimisation to include all resources	Not required but desirable	Required
2	Adding modelling of demand side developments to the capacity outlook	Not required	Required
3	Providing as outputs recommendations for all resources	Not required	Required
3	Providing recommendations for each jurisdiction regarding the volume and timing of non-network assets	Not required but desirable	Required
4	Enabling actionability for distribution projects similar to that for transmission.	Required	Required
4	Providing an actionability mechanism for 'non-network' resources – generation, storage, CER and demand side resources	Required	Required
5	Continuing to not jointly plan gas and electricity markets and systems	Not required	Not required
6	Improving ISP modelling in the planning framework: - Adopting normative planning using a central scenario. - Providing greater transparency and rigor in the capacity outlook model.	Not required but desirable the rules prescribe form of modeling and that AER/AEMO guidelines are updated to be consistent with this direction	Required AER/AEMO guidelines updated and consistent with AEMC directions (in review recommendations or rules updates)

⁴ See <https://www.aemc.gov.au/rule-changes/co-optimisation-energy-resources-integrated-system-plan>

	- Improving modelling of long-term storage and generation needs for renewable droughts. - More robust analyses of the emissions implications of recommending gas generation. - Greater granularity in the modelling outputs recommending generation and storage.		
7	Delivery framework – continual reassessment in the ISP iterations of the actionability of ISP projects	Not required	Not required
8	Governance framework – allowing for flexibility and consideration of updated key input information	Not required	Not required
9	Updating the AER and AEMO guidelines	Not required but desirable the rule prescribe the required updates	Required AER/AEMO guidelines updated to better align with the original intent of whole of system planning, and any recommendations of the ISP Review, and any consequential rule changes.

3. The ISP must evolve

This section answers Q1 and Q2

3.1 The ISP has an ongoing important role

The JEC agrees there is a continuing need for the ISP. We also agree the ISP must evolve in response to the changed planning environment.⁵

The ISP remains important as it:

- provides consistent inputs for energy planning both in the ISP and other processes through the Inputs, Assumption and Scenarios Report (IASR),
- provides a consistent platform for appropriately resourced, independent expert consideration of these inputs at a national level by AEMO, and
- provides independent expert recommendations and direction every two years for the developments and actions required for the transition of the electricity system. This allows for a broadly consistent transition narrative, while still providing a platform for identifying any changes of direction required, and gaps in the build out.

The key question is how the evolution of the ISP should be shaped by changes in the planning environment and progress made to date in the transition. Answering this requires consideration of the purpose of ISP planning, the scope of inputs needed, the way the transition has progressed to date - and will have progressed by 2030 - and what role optimised planning and recommendations, and actionability should play to best promote consumers interests.

3.2 A rapid and fair energy transition

The JEC's vision is of an energy system transition that is:

- rapid – because working quickly is required to avoid the worst climate impacts.
- fairly costed – because the transition comes with significant costs, and we must ensure they are shared fairly, and people experiencing disadvantage don't pay an unfair share.
- for everyone – because the significant change involved in the transition offers opportunity for everyone to benefit from clean, affordable energy regardless of their capacity to invest in technology.

Informed by this vision of the transition, we contend the evolution of the ISP should aim to ensure long term electricity system planning that enables a rapid transition, and considers use of all possible resources to ensure that transition is lowest cost, serving the long-term interests of all consumers including those who can and cannot adopt CER.

⁵ See boxes 2 and 3 of the Discussion Paper, pp. 8, 14.

3.3 Changes in the planning environment

We have reached the point where a planning regime and outputs focused on transmission has largely become redundant or will do by 2030. Transmission is already no longer the low hanging, no regrets resource investment which can move the transition forward.

It is critical to ensure the ISP can plan to ensure the electricity system can -

- supply consumers electricity to meet demand whether by generation and storage from the grid or behind the meter CER,
- ensure supply availability in a system more heavily based on variable renewable supply, and
- allow for dual directional network use as more and more CER is added.

Any significant reforms following this review are only likely to take effect in the 2030 ISP. By 2030 the most significant transmission projects will be completed, or well under way, with others committed. The number of further actionable transmission projects in the 2030 ISP and beyond is likely to be small. It is very likely that required developments will increasingly be non-transmission and non-network (unregulated) resources on the supply and demand side.

The 2026 ISP describes how the transition will require \$106 billion of investment, and of this \$100 billion investment is needed in unregulated assets, and \$6 billion⁶ in regulated transmission assets which are actionable or future projects in the 2026 ISP. Some of this \$6 billion transmission will be built by 2030.⁷

The ISP has consistently projected that in the future we will have a system with large amounts of new –

- rooftop and small scale solar,
- utility renewable generation including solar and wind,
- utility scale storage for firming, and
- utility scale gas generation as backup supply for extended renewable droughts
- new transmission lines and upgrades⁸

When, where and how this occurs has a material impact on the final shape and cost of the transition. Failing to make informed recommendations, and provide improved actionability for all resources, and continuing to focus only on transmission risks over-reliance on transmission and an inefficient transition more broadly.

Optimising recommendations for assets will allow for a material improvement in efficiency and promotion of consumers' interests.

⁶ This figure is already likely to obsolete with transmission cost escalations likely to mean the actual figure is much larger.

⁷ AEMO, 2026 Integrated System Plan, June 2026, <https://www.aemo.com.au/energy-systems/major-publications/integrated-system-plan-isp/2026-integrated-system-plan-isp>, (2026ISP), p.23.

⁸ See AEMO 2026ISP, Figures 1 and 2, and prior ISPs.

3.4 Joint planning

The ISP can and should continue to exist as a consistent national planning instrument complied by an expert national planner. It should be informed by comprehensive inputs, analyse efficient resource allocation, and provides expert recommendations to jurisdictional governments.

The ISP should exist alongside jurisdictional planning exercises, both drawing on the analysis of these plans, and informing them in an iterative manner. This enables improved consistency and linkages between all aspects of planning and improves scope to realise potential efficiencies.

The JEC position on joint planning is that:

- The ISP should sit alongside jurisdictional planning, as a consistent national platform developed by an expert planner looking at the National Electricity Market (NEM) and efficient development of the whole system.
- The ISP should take commitments in jurisdictional plans and policies as a starting point. This includes emissions targets, policy settings energy policy, and project commitments on renewables, CER, and transmission projects.
- AEMO's role should be that of an expert national planner providing analysis and advice, and concrete recommendations to jurisdictions on how to transition the electricity system in line with the jurisdictional emissions targets.
- AEMO should take other government commitments as starting points – this includes projected network interconnector or REZ commitments, or commitments to coal closure timelines, or renewables build out commitments. It should be assumed in the first instance that these will be met and are constraints.
- Nonetheless, during the IASR process - in line with the existing rules - to the extent that government commitments represent inputs which are implausible these should be questioned as risks to be addressed, as already occurs.
- AEMO should look forward as to what is required to address demand projections and where gaps are identified, they should make recommendations regarding the most efficient way to address them.
- AEMO has a focus on NEM wide efficiency of electricity system planning, while jurisdictional planners are focused on efficient allocation of state resources and addressing a wider range of state priorities. Consequently, it is not problematic that these processes reach differing conclusions - indeed it is to be expected – but it is important that any differences are transparent.

The role of AEMO is expert planner whose advice should be able to inform jurisdictions. The ISP cannot and should not seek to make decisions for jurisdictions. Advice from AEMO does not amount to policy when the recommendations or advice they give is - as it is now - based on taking detailed inputs, analysing these inputs using mathematical models and overlaying this with expert knowledge of the electricity system to provide a consistent basis of detailed expert

recommendations and advice on efficient resource allocations in the electricity system. Governments remain the decision makers on how to action or respond to this advice balancing other interests.

3.5 The purpose of ISP planning

The ISP's current stated purpose is to be a whole of system plan. As such it is intended to plan transition of the electricity system to net zero while meeting consumer demand, not merely to plan the location of new transmission projects.

To date the ISP has not fulfilled this role. This is in part due to the restrictions on planning and modelling found in AER and AEMO guidelines.

The ISP purpose should be to provide:

- an updated, independent long term national plan for development of the electricity system, created by AEMO as an expert independent planner.
- planning in the long-term interest of consumers in alignment with the national electricity objective, and
- whole of system planning for the national electricity system, that identifies efficient resource allocation that can best meet projected electricity demand.

Many interventions can contribute to meeting consumer demand. Transmission is only a small – if very costly - part of the story of the transformation of the electricity system. Continuing to narrowly focus on deployment of transmission assets is contrary to the intent of the ISP be a whole of system plan.

Accordingly, evolution of the ISP should enable:

- a genuine whole of system plan,
- better demand side inputs through the IASR process,
- a greater scope of planning and analysis that:
 - makes more transparently and thorough recommendations for utility scale generation and storage assets by jurisdiction, and
 - co-optimises all resources – considering supply, demand and network resources on equal footing – to determine the most efficient resource allocation to meet demand, and transition to a net zero system, and
- a more consistent platform for recommending and actioning all potential interventions.

See further the JEC rule change proposal on our detailed views on why and how the ISP should evolve.⁹

⁹ See <https://www.aemc.gov.au/rule-changes/co-optimisation-energy-resources-integrated-system-plan>

4. Expanded planning and actionability

This section answers Q3 to Q6

4.1 Framing and straw people

The JEC broadly agree with the AEMC framing of planning and actionability.

We support the AEMC's initial position - as provided in straw person 3 - of evolving planning to include planning for the long-term interest of consumers and co-optimisation of all resources. We agree with the AEMC's conception of the purpose of the plan as found in the first part of straw person 3. Namely,

The ISP is the independent, long term national plan for the efficient development of the whole electricity system in the NEM, including grid-scale generation, storage and transmission, distribution, CER and demand side resources in the long-term interest of consumers.

We provide more detailed perspectives on co-optimisation in section 4.3.

We do not support the AEMC's initial position - as provided in straw person 3 - of not addressing gaps in actionability. Mechanisms for more consistent recommendations and actionability across all resources should be progressed as an important part of an evolved ISP. We do not consider any straw-person sufficiently addresses issues we raise in detail in our rule change proposal.¹⁰

4.2 Whole of system planning in the long-term consumer interest

Requiring planning in the long-term interests of consumers - as provided in straw person 3 - is preferable to planning for the 'power system needs.'

The current rule 5.22.2 describes the purpose of the ISP and includes a requirement that the ISP 'contributes to achieving the national electricity objective' and by extension the long-term interests of consumers. While a rule change is not required to allow for consideration of long-term consumer needs, it is required to explicitly shift the focus away from planning for power system needs.

The long-term consumer interest in ISP planning of the electricity system goes beyond ensuring an efficient transition at low cost, but also extends to ensuring:

- There is a rapid transition
- Costs and risks are not unfairly borne by consumers
- The end point encompasses different consumer types

The power system focuses on the supply of grid electricity, but there is a need to look at both meeting electricity needs using the grid or CER, while also recognising many consumers will not have access to CER.

¹⁰ <https://www.aemc.gov.au/rule-changes/co-optimisation-energy-resources-integrated-system-plan>

Further, details can be found in our rule change proposal.¹¹

Recommendation 1 – planning in the long-term interest of consumers

That the ISP Review recommends changing the definition of the purpose of ISP planning from planning in the interests of the power system to planning in the long-term interest of consumers.

4.3 Co-optimisation of all resources

4.3.1 Overview

The AEMC states that the ISP already co-optimises generation, storage and transmission.¹² The JEC contend that evolution of the ISP must involve measures to ensure more effective co-optimisation of all resources. This is critical to enabling more efficient resource allocation and transition.

A more efficient transition means a lower cost transition. It means:

- consumers face lower bills as:
 - they avoid funding sub-optimal long-term transmission investments;
 - there is a shorter period in which consumers must pay for both the exiting fossil-based generation and renewable generation; and
 - they realise the benefits of a cheaper, less emission-intensive, flexible and modern renewable system sooner;
- private investors face less uncertainty and consequently reduced transaction costs;
- taxpayers face lower taxes as less tax revenue is required to underwrite the transition;
- governments are provided robust planning advice at the jurisdictional level, optimised with respect to all developments in the NEM. This advice will assist them to develop and evolve optimal jurisdictional policies – for example on distributed energy resources (DER) and electrification – and achieve their emission targets more quickly and efficiently, with lower consumer electricity bills and taxes in their jurisdiction; and
- a faster transition, with less emissions during the period to net zero by 2050 (or by 2045 in some states), both in the electricity sector and wider economy.

4.3.2 Considering each of the different resource types

Transmission

This has been the focus of the ISP to date. This may have made sense at the beginning of the transition when expanding transmission - including to connect renewables and connect NEM regions - was a relatively no regrets strategy. Over time transmission build times and costs have

¹¹ <https://www.aemc.gov.au/rule-changes/co-optimisation-energy-resources-integrated-system-plan>

¹² See Discussion Paper, p.24, referencing the 2026ISP, p.52.

risen, and there have been technological and cost developments in other areas, particularly in large scale battery storage. It no longer makes sense to only focus on transmission resources as being the only or even preferable way to meet identified needs. Moreover, as discussed above the transition build out will – hopefully - be nearing completion by 2030.

Distribution

At present Distribution Network Service Providers (DNSPs) are putting forward distribution network projects in the sub-transmission network space, alongside projects augmenting distributions to create local REZs, and distribution ownership of renewable storage assets.

There is a need for a consistent basis on which to compare the efficiency of these project proposals against investment in both transmission and other resources. This provides a strong argument in favour of co-optimisation which includes distribution level interventions.

Utility generation and storage

Planning for the efficient deployment of storage assets should arguably become one of the key roles of the national planner from 2030 onwards, if not sooner. These resources can offer an alternative to transmission investments with much more rapid and predictable build times, and a series of potential additional benefits. As transmission costs and project delays rise - with now no guarantee regulated transmission assets will be built on time or budget - recommending the most efficient deployment of these resources - as an alternative to transmission projects – is an important enabler of a more efficient transition.

While AEMO provides some modelling of utility scale generation and storage this modelling would benefit from increased transparency as a minimum. Recommendations on the deployment of these resources should also be more granular including the volume of each resource and timing for its deployment within each jurisdiction. In the case of storage, it may also include location. This consistent base of recommendations can then assist governments in their own planning processes and allocation of financial support to the transition.

Demand side

With transmission costs and project delays, and DNSPs proposing spending on distribution augmentations, there is significant value in modelling – and making appropriate recommendations on - the deployment of CER resources, including coordinated CER, as an alternative to network investments. This is an important contributor to the most efficient transition.

To ensure more effective co-optimisation of CER and demand side resources there needs to be more detailed modelling of CER and demand side resource - in particular in the capacity outlook model. Recommendations on CER and demand side resource deployment as an output on a jurisdictional level should also be incorporated into an evolved ISP.

4.3.3 Computational requirements

The review asks for views on the computational requirements of co-optimisation. The JEC view is that increased computational requirements should not be a bar to co-optimisation, but should merely be a consideration for how co-optimisation is implemented in practice.

The decision as to whether any increased costs are worth incurring must be made on the basis of consumers' interests and the potential savings for consumers. Given the potential benefit is billions in reduced network investment recovered over decades, it is very likely in consumers interest to incur an incremental increase in the computational cost of generating the ISP.

The additional tasks for AEMO in co-optimisation may also be able to replace existing elements of the ISP and other jurisdictional processes, offsetting any potential cost escalation.

4.3.4 The current rules and co-optimisation

The current rules provide AEMO with the discretion to include ISP Development Opportunities in the Optimal Development Path (ODP). ISP Development Opportunities include generation, storage, distribution and demand side developments. Accordingly, the rules already enable AEMO to co-optimize all resources.¹³ The AER and AEMO guidelines currently constrain the analysis unnecessarily. We provide further detail on this and recommended changes in our rule change proposal.¹⁴

Recommendation 2 – co-optimisation of all resources

That the ISP Review recommends:

- *Expanding co-optimisation to all resources in the electricity system – generation, storage, transmission, distribution, CER and demand side resources.*
- *That modelling of demand side developments is added to the capacity outlook model, and recommendations on demand side developments are provided as ISP outputs.*

4.3.5 More granular recommendations for non-transmission resources

The benefits of greater co-optimisation - and ultimately a more efficient transition - can be better realised if the ISPs outputs include more robust recommendations on non-transmission assets. Specifically, that robust outputs are provided for all resources in the electricity system – generation, storage, transmission, distribution, CER and demand side resources. This potentially includes recommendations for each jurisdiction on the volume and timing of non-network or unregulated assets.

At present NEM wide recommendations are provided in the ISP of:

- a total volumes of utility generation and storage, (including gas generation)
- general recommendations on distribution augmentations that can assist demand side augmentations, alongside consideration of sub-transmission distribution projects, and
- a total nominal value of the forecast volume of roof top and other small scale solar generation.

¹³ See Annex A which discusses the relevant definitions.

¹⁴ See <https://www.aemc.gov.au/rule-changes/co-optimisation-energy-resources-integrated-system-plan>

In the Electricity Statement of Opportunities (ESOO) and Gas Statement of Opportunities (GSOO) there is more granular presentation of the market opportunities to provide the required volumes of utility generation and storage by jurisdiction.

Once the ISP co-optimises for all resources - including CER and demand side resources - the ISP should make recommendations as to the volume and timing of resources required, with these recommendations either added to the ESOO analysis, or forming the basis of a separate Demand Statement of Opportunities (DSOO).

It is important that the ISP provides more granular recommendations in each ISP as these can inform jurisdictional planning, states investment plans. These detailed recommendations have an influence on the efficiency of the transition, even in the absence of any a direct actionability mechanism equivalent to that for transmission.

We refer to our rule change proposal for detailed views on how co-optimisation is possible under the current rules, but what changes are required to ensure the intent is delivered.¹⁵

Recommendation 3 – more granular outputs on non-transmission assets

That the Review recommends ISPs outputs include more robust or granular recommendations on non-transmission assets. Specifically:

- *More granular outputs are provided for all resources in the electricity system – generation, storage, transmission, distribution, CER and demand side resources.*
- *Recommendations are made regarding the volume and timing of unregulated assets in each jurisdiction.*

4.4 Actionability of all resources

Meaningful co-optimisation of the ISP is best supported by enhancing the scope for the ISP to progress action on solutions beyond transmission. This will help ensure a more efficient transition and lower overall costs for consumers.

Mechanisms for improved ‘actionability’ for all interventions need not necessarily be as extensive as those for transmission to be useful. Actionability for distribution projects could mirror that of the transmission actionability framework. But for other resources – the unregulated resources of utility generation and storage, and demand side developments – simpler mechanisms can make substantive improvements. In our recent rule change request we proposed a reporting mechanism, whereby jurisdictions simply report to the ECMC on progress using AEMO recommendations as a consistent central basis, while retaining full control to determine the form of action they take to respond to identified needs and opportunities in their jurisdiction.

¹⁵ See <https://www.aemc.gov.au/rule-changes/co-optimisation-energy-resources-integrated-system-plan>

4.4.1 Regulated distribution resources

The existing actionability mechanism for transmission projects can be extended to distribution projects.

Regulated distribution network projects are being proposed by DNSPs at the jurisdictional level. Co-optimisation enables a consistent basis on which to assess these proposals and test them against the efficiency of deploying other types of resources.

Like transmission actionable ISP projects, there is no guarantee of the form of a distribution project, or that it will be delivered on time or on budget. Nonetheless, the actionability mechanism provides some basis to assure the investment addresses the needs identified, progresses and is efficient.

4.4.2 Unregulated generation, storage, CER and demand side resources

With respect to other non-network or 'unregulated' interventions, an entirely different form of actionability can be used reflecting that what is required is a volume of generation, storage and demand side resources within each jurisdiction by a certain date.

In our rule change proposal, we proposed an actionability mechanism to help enable this role. Specifically, that jurisdictions report every two years to ECMC on their response to ISP recommendations, and progress made in their jurisdiction. This report could then be published and would provide an updated input to the next iteration of the ISP, allowing for more consistent, transparent and efficient iterative development of co-operative planning.

We disagree with the contention that only regulated assets can be made actionable, and it is not desirable or possible to ensure the delivery of unregulated assets. This argument is problematic because:

- It sets up an inaccurate binary between the existing mechanisms, and our proposed improvements. It presupposes that transmission actionability consistently and successfully results in the predictable, guaranteed and timely deployment of transmission assets. Transmission projects change over time, including being delivered over budget and time.
- It does not recognise that meaningfully co-optimising all resources benefits from some level of actionability for all solutions. For non-network recommendations the mechanism we have proposed provides this through a consistent platform for jurisdictions to consider, action and report back on progress. Reporting helps integrate planning and enable governments to monitor market developments in their jurisdiction, and whether policy support - including market interventions - is having the intended impact. AEMO's independent expert advice can help inform the choices states make.
- It does not recognise that ISPs have consistently reported that transformation of the electricity system will require large amounts of new utility renewable generation (including solar and onshore wind), large amounts of utility storage, transmission and distribution upgrades, large amounts of demand side generation – including rooftop solar and other

small scale solar, CER integration, and gas generation.¹⁶ Despite this the build out is not proceeding as required and unregulated assets in particular are falling behind. The market is failing to build these assets, and governments are intervening in the market to provide investment support. A consistent platform for shaping and assessing these interventions should be an important role for the ISP.

- It does not recognise the benefit to jurisdictional governments from the expert advice of AEMO in shaping the substantial support they are already providing enable to the transition, including to transmission projects. An actionability mechanism, albeit light touch in the form we recommend, will improve the practicality of this advice and provide a consistent basis to inform policy.

Recommendations on unregulated assets can be provided both in the ISP, and repeated with gaps in deployment identified in ESOOs, GSOOs and DSOOs (should a DSOO be adopted). However, experience has shown investment signals alone are not enough and improved actionability - which directs recommendations to jurisdictions and requires a regular response – would be of a material benefit, even at the level of ‘information’ we propose.

Further, details of our proposal on actionability, including why no law change is required can be found in our rule change proposal.¹⁷

Recommendation 4 – actionability mechanisms for all resources

That the Review recommends that the ISP include improved actionability mechanisms for all resources. This includes:

- *An actionability mechanism for distribution projects similar to that for transmission projects.*
- *A distinct actionability mechanism for unregulated/non-network resources – generation, storage, CER and demand side resources – with jurisdictional governments providing update reports to the ECMC on response to recommendations on the deployment of unregulated resources, to inform the next iteration of the ISP.*

4.5 Joint planning electricity and gas

We are not in favour of joint electricity and gas planning.

Integration of gas generation planning within the ISP is desirable, but this is a distinct and narrower issue which we address in relation to consideration of generation and long-duration storage issues.

¹⁶ See AEMO 2026ISP, Figures 1 and 2.

¹⁷ See <https://www.aemc.gov.au/rule-changes/co-optimisation-energy-resources-integrated-system-plan>

Recommendation 5 – no joint planning of gas and electricity markets and systems

That the Review recommends against expanding the ISP to become a joint planning instrument for AEMO operated gas and electricity markets and systems.

5. Material issues

5.1 The planning framework

This section answers Q7

5.1.1 Enhanced scenario modelling

The ISP represents the plan for the investments in the electricity system over the next 20 years.

The current ISP scenario selection and planning is not optimal as it attempts to plan to meet a likely future, as opposed to seeking to actively and unambiguously create conditions which allow for and drive a specific future.

As it stands, at various points in the ISP process the modelling uses the most likely scenario for planning. For example, it projects the required generation capacity augmentation to meet the most likely scenario.

The ISP should explicitly seek to be normative and drive efficient deployment of all forms of resources in the electricity system – generation, storage, transmission, distribution, CER and demand side resources – which can best align with the government policy of widespread electrification and corresponding driving down of emissions. Taking this approach and developing a normative scenario would be aligned with government policy – rather than represent the creation of policy. This approach would also align more closely with the widespread - if inaccurate - perception of the role of the ISP.

Such an approach does not negate the value of continued sensitivity testing against multiple possible future scenarios.

5.1.2 Modelling overly focused on transmission

The current ISP cost benefit analysis and its conclusions are both short sighted and skewed, overly focusing on detailed transmission project investment recommendations.

This cost benefit analysis is shaped by the AER Guidelines and the AEMO ISP Methodology. These focus only on analysis of deployment of different transmission projects at different times. This is likely driven in part by the historical development of the ISP from a transmission plan, the focus on meeting power system needs, the definition of the term development path, a belief that only network investments can be delivered, and the actionability mechanism only concerning transmission projects.

The cost benefit analysis centres on what transmission projects meet the power system needs while providing the greatest net benefit. Meeting consumer demand using a set of transmission

augmentation with the greatest net benefit, is a very different proposition to meeting consumer demand using a truly co-optimised analysis of supply side, demand side and network resources.¹⁸

At the start of the transition transmission investments could have been viewed as low hanging fruit no regrets investments – with it being reasonable for the focus to be on optimising the benefit from that investment. However, the planning environment has evolved and transmission is no longer automatically the low hanging fruit and hence the need for consideration of a greater set of resources.

The conclusions of the current cost benefit analysis set out the preferred development path for transmission projects from a selection of candidate paths. The difference between the net benefits of different transmission build out plans differs by tens of millions of dollars and yet a single transmission project may be over budget by many hundreds of millions of dollars – or billions - and delayed by many months. This undermines the materiality and credibility of the selection made and indicates a wider range of options need to be modelled.

5.1.3 Modelling resources that can compete with transmission services

Non-network options can currently be put forward. But this process takes place at the end of the ISP and is limited to new actionable projects. It does not put options - including network and other resources - on an equal footing at the beginning of the analysis, or properly consider that single assets can provide multiple services.

The current comparison only considers whether an individual network identified need can be met by a non-network option, not whether there is a more efficient transition if there is greater adoption of other resources. Arguably the ISP modelling fails to deal adequately with this issue, in large part as it continues to put transmission network build out at the centre of the transition.

Therefore, while the ISP and RIT-T processes provide the opportunities for non-network proponents to propose alternatives to traditional network solutions to meet identified needs, these processes are not fit for purpose. This is especially the case where the key role of assessing the non-network option is given to the Transmission Network Service Provider (TNSP), who has a vested interest in deploying traditional poles and wires solutions.

5.1.4 Improvements to the Demand Side Factors Statement

The Demand Side Factors Statement can be improved. This currently relies too heavily on information provided by distribution network service providers. Using a greater variety of sources would improve the inputs on the demand side to the IASR.¹⁹

¹⁸ This still fails to include the consumer interest in also considering the use of CER and demand side developments.

¹⁹ See <https://jec.org.au/publication/submission-to-aemos-demand-side-factors-information-guidelines-consultation-paper/> and <https://jec.org.au/publication/submission-to-aemc-rule-change-proposal-improving-consideration-of-demand-side-factors-in-the-isp/>

5.1.5 The Capacity Outlook Model

There should be greater transparency and rigor in the capacity outlook model.

The capacity outlook model is inadequately described in the ISP. This includes how it co-optimises the generation and storage mix, what precisely its outputs represent and whether these are constrained by or built upon by the scenarios, or represent a modelled efficient set of resources.

The capacity outlook model outputs will need to be updated to include CER as an output, including with sufficient granularity.

5.1.6 Long duration storage and gas generation

The ISP modelling should evolve with respect to generation and storage capacity required to meet long duration but infrequent generation droughts.

At present modeling fails to properly consider competing technologies to gas generation. In effect only one technology is proposed and considered. This is particularly problematic as that technology is emissions intensive, with implications for meeting the emissions reduction dimension of the NEO.

Successive ISPs have projected the continued - and indeed growing - capacity of gas generation in the NEM, albeit with a different use profile to today. Gas generation is said to be required for periods of prolonged renewable droughts.

Gas generation - generation costs, build time, supply availability, associated infrastructure costs, and emissions impacts - should remain key inputs to the ISP. However, any recommendation in the ISP for the use of gas generation should be carefully considered against the alternatives and fully justified as the most efficient alternative. It is also important that they truly have an emissions benefit given they are an emissions intensive form of generation.

Investing in gas infrastructure and assets risks embedding greater gas use. Once gas infrastructure is built - even if only as back up for long duration renewable droughts - there is a danger it will be used when other emissions free generation technology could have been dispatched. Further, the life of a gas generation asset once built is likely to be in excess of 20 years. This is significant as any gas generation built in 2030 or later, will be still possibly be in use beyond 2050. In 2050 either (1) the generation will need to offset 100% of its emissions, or it will need to be converted to run on renewable gas, or (2) the asset will need to be decommissioned and could be economically stranded.

The Review should, recommend the ISP identify a volume of capacity of long-term storage required, and present assessment of the most efficient, least-emissions-intensive technology to provide this capacity. This assessment should include the full range of potential solutions.

5.1.7 More granular outputs

The review should give greater consideration to the granularity of outputs from the ISP with respect to unregulated resources.

Recommendation 6 – Planning framework

That irrespective of any recommended changes on co-optimisation or actionability, the ISP Review makes the following ISP modelling improvements:

- *Adopts ‘normative’ planning using a central scenario which is emissions target aligned.*
- *Provides greater transparency and rigor in the capacity outlook model.*
- *Improves modelling of long-term storage and generation needs for renewable droughts and the scope of options considered, removing any unreasonable bias for gas generation solutions.*
- *More carefully analyse the emissions implications of recommending gas generation.*
- *Provide greater granularity in the modelling outputs recommending generation and storage.*

5.2 The delivery framework

This section answers Q8

5.2.1 Reassessment of actionability of transmission projects

The JEC is in favour of reassessing the actionability of actionable ISP projects in later ISPs. Reassessing actionability in future ISPs where a project has not been built, ensures potential system efficiencies are optimised. This is particularly critical where technology and costs are rapidly changing.

The key question is when a declared actionable project should be ‘locked in’ for subsequent ISPs.

The Glossary of the National Electricity Rules (NER) provide the following definition of an actionable ISP project –

A project:

- (a) that relates to a transmission asset or non-network option the purpose of which is to address an identified need specified in an Integrated System Plan and which forms part of an optimal development path; and
- (b) for which a project assessment draft report is required to be published in the Integrated System Plan that identifies that project.

The 2026ISP Glossary explains -

Actionable ISP projects optimise benefits for consumers if progressed before the next ISP. A transmission project (or non-network option) identified as part of the ODP and having a delivery date within an actionable window.

For newly actionable ISP projects, the actionable window is two years, meaning it is within the window if the project is needed within two years of its earliest in-service date. The window is longer for projects that have previously been actionable.

Project proponents are required to begin newly actionable ISP projects with the release of a final ISP, including commencing a RIT-T.

The fact that a TNSP has commenced a RIT-T should not be considered a block on consideration of actionability in future ISPs. The RIT-T is a multi-year, multi-stage process.²⁰ Even where the most credible option has been identified, and AER has approved this option it is still reasonable to halt further progress where the investment has been assessed as no longer being the most efficient. Reassessment by AEMO in an ISP, and during the feedback loop, should occur up to the point where final investment approval has been given and material investment commitments made.

Recommendation 7 – Delivery framework

That irrespective of any recommended changes on co-optimisation or actionability the Review recommends the ISP process enables continued reassessment of ISP projects, including those previously declared actionable, and that this process occurs up to the point where final investment approval has been given.

5.3 The governance framework

This section answers Q9

5.3.1 The value of flexibility

There is value in the ISP incorporating accurate and updated information up to the point of final publication. The value of certainty in outputs and recommendations diminishes rapidly where there has been a material change in inputs since the time of the publication of a draft or final IASR, or the draft ISP. These changes will be likely widely known and the credibility of related ISP conclusions questioned. This undermines the specific conclusions regarding individual inputs as well as the ISP conclusions more generally.

Therefore, flexibility is warranted. This includes potentially recalculating ISP conclusions when there are material changes in key inputs. The development of energy resources is dynamic, as shown by changes to battery technology in recent years. Flexibility and updating to incorporate new information to the greatest degree practicable is demonstrably in the consumer interest.

5.3.2 Accessibility of engagement

The ISP development process is increasingly transparent with multiple opportunities for engagement. This should be maintained and evolved wherever possible.

²⁰ See <https://www.aer.gov.au/industry/networks/system-planning/guidelines-system-planning/regulatory-investment-test#regulatory-investment-test-transmission>.

The latest 2026 ISP does well to explain its role, the analysis undertaken, the conclusions drawn, and clearly seeks to provide sufficient explanations to lay readers. This is a critical improvement to transparency which should continue to be built upon.

We note that the ISP Consumer Panel made recommendations on engagement improvements in its prior submission and highlight these for further consideration.²¹

5.3.3 The role of the ISP Consumer Panel

We note the ISP Consumer Panel recommendations it should respond to the draft IASR instead of the final IASR, along with other recommendations in its prior submission.²² We support these recommendations.

5.3.4 Joint planning

The JEC main concern with TNSPs current involvement in planning is that it often results in TNSPs identifying needs, assessing options and proposing solutions. TNSPs are not disinterested parties, and their incentives do not always align with consumers interests in the most efficient solutions. Caution must be exercised in relying on TNSPs to determine solutions.

Joint planning of the transition of the electricity system by both the ISP and jurisdictions is to be welcome as they can complement each other where the ISP provides a consistent basis of advice AEMOs planning advice, taking a national planning perspective, with jurisdictional planning taking into account economy wide considerations particular to the jurisdiction.

In line with the NEO, achievement of emissions targets provided by jurisdictions should be given full and detailed consideration in the ISP. These targets, unlike other more detailed inputs from jurisdictional planning provide a fixed input. They determine the pace and depth of the transition required, with key intermediate steps defined in interim targets. Failure to meet interim targets means meeting the next interim target is yet harder.

Recommendation 8 – Governance framework

That irrespective of any recommended changes on co-optimisation or accountability the Review recommends allowing for flexibility in ISPs. This should include enabling consideration of updated input information that will materially impact ISP outputs as late as is practical, including after publication of the draft ISP.

²¹ See ISP Consumer Panel Submission, 3 March 2026, <https://www.aemc.gov.au/sites/default/files/2026-03/ISP%20Consumer%20Panel%20-%20ERP0092%20AEMC%20Review%20of%20the%20Integrated%20System%20Plan%205%20March%202026%20%281%29.pdf>, p.7.

²² Ibid., p.7.

6. Other issues

This section answers Q10

6.1 Non-network options

We disagree with the AEMC's decision not to consider non-network options in the review.

6.2 Updated AER and AEMO guidelines

As we have detailed throughout – including in our summary table in the introduction - many identified issues with the ISP can be addressed without a rule change. Many of the recommendations we have made in relation to planning, delivery and governance can be achieved through updated AER and AEMO guidance. Notwithstanding this, we have indicated where we consider rule changes are preferable.

Irrespective of whether the ISP Review recommends prescribe co-optimisation or greater actionability, it is important that it does recommend updating the guidelines.

Further, given the way in which the guidelines have restricted the broader application of the rules to date - the ISP has not been a whole of system plan, or fully integrated optimisation of the demand side - regardless of what final recommendations the ISP Review makes prescribing changes to these guidelines is arguably required.

Recommendation 9 – Updates to the AER and AEMO guidelines

That the Review recommends the AER and AEMO guidelines are updated to better align the ISP with the full intent of existing rules as well any changes resulting from the review itself.

Annex A – Key ISP definitions

The relevant definitions in the NER allow for cooptimisation of all resources.

The ISP seeks to model the Optimal Development Path (ODP). The ODP has a specific meaning in the National Electricity Rules (NER). The NER Glossary definition is -

A development path identified by AEMO as the optimal development path in the most recent Integrated System Plan in accordance with rule 5.22.

Rule 5.22.6(a) describes the required contents of the ISP.

Contents of an Integrated System Plan

(a) An Integrated System Plan must:

- (1) identify a range of development paths;
- (2) for each development path, identify the group of projects that form part of the development path;
- (3) describe how each development path performs under any sensitivities AEMO considers reasonable;
- (4) identify the optimal development path which must be based on a quantitative assessment of the costs and benefits of various options across a range of scenarios, in accordance with Cost Benefit Analysis Guidelines;
- (5) for the optimal development path, identify the actionable ISP projects, future ISP projects and ISP development opportunities;**

[...]

The Glossary of the 2026 ISP describes the optimal development path as follow –

The development path identified in the ISP as optimal and robust to future states of the world. The ODP contains actionable projects, future ISP projects and ISP development opportunities, and optimises costs and benefits of various options across a range of future ISP scenarios.

ISP Development Opportunities are defined in the NER in Rule 5.10.2 as –

ISP development opportunity means a development identified in an Integrated System Plan that does not relate to a transmission asset or non-network option and may include distribution assets, generation, storage projects or demand side developments that are consistent with the efficient development of the power system.

Therefore, the ODP may including ISP Development Opportunities and by extension consideration of distribution assets, generation, storage projects or demand side developments.

In the latest ISP, the 2026 ISP at section 4 AEMO explains how it determined the ODP in the 2026ISP. Section 4 begins by defining this exercise as follows –

The ISP seeks the ‘optimal development path’ (ODP) for generation, storage and network investments across the NEM to meet power system needs and consumers’ long-term interests at least cost through to 2050, as coal plants retire and while meeting government policies.

Hence, while it is possible for demand side developments to form part of the recommended ODP, in the 2026ISP they were not included.

Annex B – JEC Rule Change Proposal

Rule change proposal

Co-optimisation of all energy resources in the Integrated System Plan

18 February 2026

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About the Justice and Equity Centre

The Justice and Equity Centre is a leading, independent law and policy centre. Established in 1982 as the Public Interest Advocacy Centre (PIAC), we work with people and communities who are marginalised and facing disadvantage.

The Centre tackles injustice and inequality through:

- legal advice and representation, specialising in test cases and strategic casework;
- research, analysis and policy development; and
- advocacy for systems change to deliver social justice.

Energy and Water Justice

Our Energy and Water Justice work improves regulation and policy so all people can access the sustainable, dependable and affordable energy and water they need. We ensure consumer protections improve equity and limit disadvantage and support communities to play a meaningful role in decision-making. We help to accelerate a transition away from fossil fuels that also improves outcomes for people. We work collaboratively with community and consumer groups across the country, and our work receives input from a community-based reference group whose members include:

- Affiliated Residential Park Residents Association NSW;
- Anglicare;
- Combined Pensioners and Superannuants Association of NSW;
- Energy and Water Ombudsman NSW;
- Ethnic Communities Council NSW;
- Financial Counsellors Association of NSW;
- NSW Council of Social Service;
- Physical Disability Council of NSW;
- St Vincent de Paul Society of NSW;
- Salvation Army;
- Tenants Union NSW; and
- The Sydney Alliance.

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1. Overview

Consumers risk paying more than necessary for the energy system transition because the Integrated System Plan (ISP) does not currently fulfil its broadly intended role as a 'whole of system plan'.

The Justice and Equity Centre (JEC) proposal aims to address this by enabling the energy system planner to undertake whole-of-system planning for the most efficient development of the energy system and National Energy Market (NEM), at lowest possible cost to energy consumers.

Our proposal requires the Australian Energy Market Operator (AEMO) to co-optimize the augmentation of all elements of the energy system – including generation, storage, transmission, distribution, and demand side developments – in its identification of the optimal development path.

Adopting this rule change proposal is critical to ensuring system planning best promotes the long-term interest of consumers. It will enable more efficient investment across the energy system and provide a robust foundation for policies made by NEM jurisdictional governments.

The ISP has been broadly effective to date in identifying the inter-state transmission lines which will help ensure a reliable electricity system in NEM participating jurisdictions. But this is no longer sufficient. Expanding transmission alone is no longer the cheapest or most efficient way to develop the capacities of the energy system to meet anticipated demand and committed emissions reduction targets.

Experience since the first ISP suggests that a transmission-centric approach is no longer optimal. We continue to see repeated, significant increases in costs and build-times for transmission projects, including those identified in the ISP. At the same time, we are seeing sharp falls in the costs of battery energy storage systems (BESS), and the appearance of new opportunities to shift and shape demand stemming from a move from a mono-directional to a more flexible, bi-directional energy system. The current approach to the ISP cannot adequately respond to these changes and optimize opportunities in the consumer interest.

Better, more comprehensive planning will enable a more efficient transition, lowering its cost and enabling faster progress. This means:

- consumers face lower bills as:
 - they avoid funding sub-optimal long-term transmission investments;
 - there is a shorter period in which consumers must pay for both the exiting fossil-based generation and renewable generation; and
 - they realise the benefits of a cheaper, less emission-intensive, flexible and modern renewable system sooner;
- private investors face less uncertainty and consequently reduced transaction costs;

- taxpayers face lower taxes as less tax revenue is required to underwrite the transition;
- governments are provided robust planning advice at the jurisdictional level, optimised with respect to all developments in the NEM. This advice will assist them to develop and evolve optimal jurisdictional policies – for example on distributed energy resources (DER) and electrification – and achieve their emission targets more quickly and efficiently, with lower consumer electricity bills and taxes in their jurisdiction;
- AEMO as planner is empowered to influence an expanded set of energy resources and in so doing more completely fulfils its mandate to produce a whole of system plan; and
- AEMO as operator will have available to it a more appropriate and optimal balance of flexible and efficient resources and less need to use expensive directions.

The adoption of the proposed amended rules for the ISP will contribute to the achievement of the National Electricity Objective (NEO). It can be expected to improve economic efficiency in investments in electricity services, reduce the price of electricity, and by hastening the energy transition, contribute to the achievement of emissions reduction targets.

2. Background

2.1 The energy system is changing physically

The physical changes occurring in the energy system are profound and produce new challenges (and opportunities) in relation to both operation and planning.

The key changes include the move from a large-scale, centralised ‘baseload’ plus peaking supply system to (ultimately) a system in which bulk energy services are provided by more distributed variable renewable resources, backed with storage and other firming and flexibility resources. In the interim, there is a necessary crossover period of ‘over-supply’ as the retiring resources are required to remain in the system until the new resources are adequately established. While this is necessary, it is complex to manage and not without cost, placing great importance on optimising efficiency at every opportunity.

There is also a move from a mono-directional to a flexibly ‘bi-directional’ energy system. Both demand and generation are increasingly flexible and responsive. Meeting energy system needs now involves a more diverse mix of generation (including DER), storage and demand flexibility, all being utilised dynamically.

These changes create a new set of challenges to be managed and resolved by the market planner and operator in seeking to efficiently balance supply and demand. These include:

- A sharpening of the diurnal demand cycle due to the coincident peak of a large proportion of the generation resources (rooftop and wholesale solar);
- A rise in the volatility of both supply and demand, and so rises in the volatility and peakiness of energy prices;

- An increase in the significance of high impact, low probability events, including *dunkelflautes* and *kaltflautes*¹; and
- An increase in the efficient rate of curtailment.

However, alongside these challenges to planning and operation are significant new opportunities to respond with more diverse, efficient and cheaper solutions. It is increasingly critical there is more fit-for-purpose, whole-of-system planning capable of meeting these new challenges and seizing these opportunities.

2.2 To date the ISP has been a transmission plan

The ISP plan started life in 2011 as a transmission plan – ‘NEMLink’. While it has grown as an analytical and engagement exercise, its essence as a transmission plan has never wavered. This focus on transmission has remained despite the introduction in 2020 of rule 5.22, which defined the purpose of the ISP as a whole of system plan (NER 5.22.2).

It has broadly served its purpose to date in helping to identify the major inter-state transmission projects which, it was believed, must be built to enable a modern NEM. These connections are intended to help transport electrical energy between different regions when available renewable supply is lower in one region than another due to differences in weather patterns. This both enhances the reliability of supply and lowers prices overall.

The transmission projects needed to connect the different NEM regions were identified in the first ISP, along with the recommended location of renewable energy zones (REZ).

It was assumed transmission would provide the basis for efficient decarbonisation of the NEM. Since the production of the first ISP, however, transmission costs and build times have exponentially increased, well beyond those originally anticipated (and well beyond the benefits cases on which they were established). This has mostly been blamed on supply constraints, stemming from both national and global economic pressures. The dynamic has been recognised by AEMO with these constraints not expected to ease in the foreseeable future.

Nonetheless, the ISP has continued to be transmission-centric. There are two broad reasons which have likely contributed to this.

- The planner needs to have a degree of certainty its recommendations will be enacted. This is a necessary part of its remit to enable a smooth energy transition in which baseline requirements, such as the reliability standard, are never breached. AEMO has been criticised as the transmission planner for seeing every problem as a network one. To the extent that this criticism is valid, it is not necessarily because AEMO is not aware of alternatives or is overly influenced by transmission providers. Rather, AEMO’s preferences are influenced by the existence of a clear actionability mechanism for transmission projects identified as needed by the planner. As it stands, there is no corresponding actionability mechanism for other elements of the national electricity system (such as storage, DER, electrification or

¹ Where these broadly refer to extended periods of ‘drought’ in renewable generation.

demand flexibility projects).

- AEMO has also likely felt constrained in its treatment of jurisdictional policies on supply and demand – for example jurisdictions’ policies on utility renewable generation and storage, or demand side developments. It has tended to treat these as inputs to its cost benefit analysis, but not as potential outputs to be adjusted from candidate development path to development path. This is because of both the NER definition of development path, and guidelines regarding cost benefit analysis (see below).

There has been an incremental development of the ISP over time which has added individual elements to the ISP (for example the Demand Side Factors Statement), or involved greater granularity of analysis of certain resources (for example – consideration of CER). Further, the Capacity Outlook Model does look at what various levels of generation, storage, and gas peakers would meet varying demand forecasts. Nonetheless, none of this modelling can be said to represent “co-optimisation” of the various available resources, namely – generation, storage, transmission, distribution and demand side developments, using robust and transparent cost benefit analysis.

2.3 The costs of transmission have risen sharply

The costs of transmission have risen to such an extent that the viability of a transmission-centric transition is questionable. Not only have costs blown out substantially for the transmission projects identified as actionable in the early ISPs – Project EnergyConnect, the Western Renewables Link, HumeLink, the Central-West Orana REZ Transmission Project, VNI West, and the New England REZ Transmission Project – but the timelines for construction have increased substantially beyond initial estimates and acquisition and retention of social licence has been far more difficult than was widely anticipated. The result has been early projects struggling to completion at multiples of the originally anticipated budget.

At the same time, there have been rapid and significant falls in the costs of solar panels and battery storage. These have both been much greater and faster than anticipated by most stakeholders. These conditions make it possible, indeed likely, that there are transition paths that are cheaper (and more easily enacted) than those envisaged by the ISPs to date. These paths are likely to be ones that co-optimize the development of all the resources in the energy system.

2.4 Potential redundancy of the ISP

There is a risk that if it continues in its current form, the ISP may become redundant. This could arise in a number of ways.

If transmission projects remain the only outputs of the ISP and it becomes clear which transmission projects are needed and which are not, the ISP may essentially become a rubber-stamp, making official what the policy regime already knows. This includes the situation where transmission unambiguously loses its status as the low hanging fruit of energy cost reduction and the transmission projects already in the pipeline become the only ones needed for a long period of time.

The implication of this is that the ISP would not have any meaningful effect on the trajectory of the transition, as the marginal decisions would all occur in areas outside of the outputs of the ISP.

Second, as transmission projects are increasingly planned and overseen by jurisdictional rather than national institutions, the ISP risks devolving into a ‘plan for the gaps’. This would further reduce the impact of the ISP as it becomes less influential on the decisionmakers.

A redundant ISP is not in the interests of consumers. For now, it stands as the central planning mechanism of the transition, despite its limitations. The costs of a messy transition – as opposed to an ordered, optimised one – are great and fall heavily on consumers and taxpayers.

While market participants may receive some short-term benefit from a disorderly transition – through energy prices being higher and/or more volatile than they would have been in an orderly transition – new generation and storage providers’ interests are overall served by an orderly transition which better incorporates their investments and provides greater certainty. These actors pay a premium for uncertainty and would need to pay investors higher returns to accept the greater uncertainty resulting from a disorderly transition.

2.5 Key definitions

When reading this rule change proposal, it is helpful to be aware of the following definitions as currently provided in the National Electricity Law (NEL) and NER.

2.5.1 Definitions from the National Electricity Rules

Integrated System Plan A plan developed and published by AEMO under rule 5.22 as amended by an ISP update from time to time.

optimal development path A development path identified by AEMO as the optimal development path in the most recent *Integrated System Plan* in accordance with rule 5.22.

development path A set of projects in an *Integrated System Plan* that together address *power system needs*.

power system The electricity power system of the *national grid* including associated *generation* and *transmission* and *distribution networks* for the *supply* of electricity but excluding *regulated SAPS*, operated as an integrated arrangement.

ISP development opportunity A development identified in an *Integrated System Plan* that does not relate to a *transmission asset* or *non-network option* and may include *distribution assets*, *generation*, storage projects or demand side developments that are consistent with the efficient development of the *power system*.

The rule change proposal includes proposed amendments to some of the above NER definitions. These proposed amendments can be found in Annex 1.

2.5.2 Definitions from the National Electricity Law

The NEL makes provision for the operation of the national electricity market. The national electricity market is defined in the NEL and includes both the wholesale exchange, and national electricity system.

National electricity market means —

- (a) the wholesale exchange operated and administered by AEMO under this Law and the Rules; and
- (b) the national electricity system;

National electricity system means —

- (a) the generating systems and other facilities owned, controlled or operated in the participating jurisdictions connected to the interconnected national electricity system; and
- (b) the interconnected national electricity system; and
- (c) regulated stand-alone power systems;

Interconnected national electricity system means the interconnected transmission and distribution system in this jurisdiction and in the other participating jurisdictions used to convey and control the conveyance of electricity to which are connected—

- (a) generating systems and other facilities; and
- (b) loads settled through the wholesale exchange operated and administered by AEMO under this Law and the Rules;

The **NEO** is defined in section 7 NEL, set out the objective of the NEL.

The objective of this 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.

3. The issues to be addressed by the proposal

3.1 Nature of the issues

Transmission only

Despite the purpose of the ISP being described as a whole-of-system plan in rule 5.22.2, the ISP is not a whole-of-system plan. In particular, it does not produce a development path for the augmentation of the energy system based on co-optimisation of all the elements of the energy system. The cost-benefit analyses of candidate development paths consider only different transmission development paths; they do not consider paths comprised of different combinations of all the available and relevant elements in the energy system.

This unreasonably narrow focus results in the selection of a sub-optimal development path and higher energy costs for consumers than would otherwise be the case. This fundamentally fails to promote the long-term interest of consumers.

Inability to ensure action on other recommendations

While the ISP and its associated documents, such as the Electricity Statement of Opportunities (ESOO), do produce recommendations in areas other than transmission, they are not robust nor based on co-optimisation of development paths.

Critically, recommendations on non-transmission investments do not carry the same regulatory significance as those on transmission which identify transmission projects as 'actionable'. There is no 'actionability' mechanism for any recommendation outside of transmission.

As the entity primarily responsible for ensuring key outcomes of the energy system, such as the achievement of the reliability standard, AEMO must produce outputs in the ISP that it has a degree of confidence will be progressed. Currently transmission is the only area in which this is possible. Hence, the planner is largely confined to relying on transmission and the transmission network service providers (TNSP) to progress implementation of its transition plan.

As noted above, the impediments to AEMO progressing an ISP that co-optimises the development of all elements of the energy system include factors which are currently beyond AEMO's control. AEMO is currently limited in what it can produce by the rules and laws it operates under and the implications of these.

Expanding the ISP outputs beyond transmission would have to be accompanied by mechanisms analogous to the actionability mechanism for transmission. Specifically:

- with respect to developments pertaining to the distribution networks, we propose the planner recommend to Distribution Network Service Providers (DNSP) actionable distribution projects;
- with respect to other ISP development opportunities, meaning generation, storage, and demand side developments, we propose AEMO make recommendations to jurisdictional governments. Ultimate decision-making power in respect of outcomes relating to generation, storage and demand side development within each NEM jurisdiction would remain with jurisdictional governments. But jurisdictions would be required to make meaningful

commitments to progress the outputs developed by the planner within their jurisdiction, or meaningfully respond to them.

Summary of the nature of the issue

1. The ISP does not co-optimize the development of all aspects of the energy system, resulting in inefficient resource allocation and overreliance on potentially inefficient network augmentation.
2. There is no actionability mechanism for any current or potential outputs of the ISP other than transmission project recommendations.

3.2 Scope of the issue

Financial scope

The primary impact of the current failure of the ISP to co-optimize resources and provide actionable recommendations beyond transmission is higher energy costs for consumers. This results from inefficient investments in energy resources, in particular investment in complex, slow, expensive and inflexible transmission network resources.

This misallocation of resources at the macro-level contributes to inefficient decision-making by a multitude of actors, who are forced to operate in a more uncertain environment than would otherwise be the case. For example, resource allocation decisions in areas from energy efficiency upgrades to the rollout of electric vehicles and behind-the-meter or wholesale batteries are all made by policy actors on the basis of limited analysis and expertise, and by market actors without a clear roadmap of optimised opportunity. The costs of a disorderly transition in this sense ultimately fall on consumers, but these costs impact a number of other stakeholders before this point and work to the detriment of their interests.

Critically, the lack of fit-for-purpose planning risks vital social licence needed from the community for the energy transition as a whole. It does this by undermining the claim that a move to a renewable energy-based system will lower energy bills. While progress has been made in recent months to add nuance to the central claim that the transition will be in consumers' financial interests, inappropriately locking in inefficient network costs will add years to the time when consumers start to notice substantial benefits from the transition.

In the absence of central, co-optimised whole-of-system planning, states must undertake their own analysis of planning of the levels of resources in generation, storage, distribution and demand side measures that are required in their jurisdiction. This fragmented approach is fundamentally less efficient than a more holistic one.

The additional total system costs, borne both by taxpayers and energy consumers, from inadequate whole of system planning is in the order of billions of dollars at a time when minimising costs to consumers is particularly critical.

Governance scope

As we have noted above, an ISP that co-optimises the development of all elements of the energy system would include factors outside AEMO's control. AEMO is limited in what it can produce by the rules and laws it operates under and the implications of these.

While AEMO is charged with producing an all of system plan to guide the transition to a renewable-based energy system, the only outputs it can be adequately confident of being progressed are transmission projects. Though even here, AEMO has no enforcement powers on the actor assigned to provide the actionable projects, TNSPs. Progress relies on the rationality and fiduciary obligations of TNSPs as the basis for confidence they will progress recommendations. It should be noted that even under these conditions, TNSPs have often indicated an inability to proceed with identified projects without government or consumer underwriting.

Any expansion of ISP outputs beyond transmission requires mechanisms analogous to those which currently exist for transmission projects. This would require jurisdictions to make meaningful commitments to progress or respond to the outputs developed by the planner for each region or jurisdiction. While this would demonstrably be in the interests of each jurisdiction, it would ideally rely on a level of cooperation among states.

Operational scope

While a move to co-optimisation would entail a step-change shift in the ISP, it would not require the abandonment of most elements currently part of the production process. It would be appropriate to maintain most inputs in the form they currently take with changes predominantly made to how the inputs are used: the production of candidate development paths, their assessment, and the selection of an optimal development path.

While the computational requirements of the ISP would increase, the incremental increase in cost associated with this would be far outweighed by the benefits accruing from the change.

3.3 How the proposed changes will address the issue

The proposed rule change will address the issues by providing for:

1. the ISP to co-optimize the development of all aspects of the energy system, resulting in the most efficient resource allocation, avoiding inefficient overreliance on network augmentation;
2. an actionability mechanism for any current or potential outputs of the ISP other than transmission project recommendations.

4. The proposed rule change

4.1 Overview of proposed amendments

We propose changes enabling AEMO to co-optimize recommendations on all elements of the electricity system when completing NEM planning on a 20-year time horizon every two years, through preparation of the ISP.

The intention of the rule change is to expand ISP planning, so it delivers fully on the aim of the most efficient whole of system plan for consumers of electricity in NEM jurisdictions. Specifically, it intends to:

- change the purpose of the ISP to focus on designing a national electricity system to meet the needs and promote the interests of consumers;
- expand the scope of the cost benefit analysis undertaken when identifying the optimal development path in the ISP, and require co-optimisation of generation, storage, distribution, transmission, and demand side and flexibility developments;
- expand the output of the ISP to include recommendations on generation, storage, distribution, transmission and demand side developments based on the optimal development path as identified by the cost benefit analysis;
- continue to direct recommendation on actionable ISP projects to TNSPs;
- make recommendations on ISP Development Opportunities -
 - on distribution to DNSPs, and
 - on generation, storage, and demand side developments (including CER, DER, electrification, demand side participation, and demand reduction achieved using energy efficiency measures) to participating jurisdictions;
- require Ministers of participating jurisdictions to report on progress with respect to recommendations on ISP Development Opportunities (or respond to those recommendations), and the Energy and Climate Change Ministerial Council (ECMC) to discuss these progress reports.

4.2 Changes to redefine the purpose of the ISP (Rule 5.22.2)

Overview

We propose that the purpose of the ISP be changed from that of a whole-of-system plan of the power system for the power system needs, to a whole-of-system plan of the national electricity system for the needs of consumers of electricity.

Specifically, we propose:

The purpose of the *Integrated System Plan* is to establish a whole of system plan for the efficient development of the *national electricity system* ~~power-system~~ that meets ~~power system needs the needs of consumers of electricity~~ for a planning horizon of at least 20 years to contribute to achieving the *national electricity objective*.

The aim of this proposed change is to ensure the defined purpose of the ISP captures the full breadth of opportunities for investment and changes to the NEM. Further, it stipulates that the planning is undertaken with a focus on the needs of consumers, rather than simply the needs of the power system.

Plan for efficient deployment of the national electricity system

We recommend replacing efficient development of the *power system* with efficient development of the *national electricity system*, on the basis that *national electricity system* better captures the whole system.

The definition of *power system* in the NER, while not exhaustive – and while it does include ‘associated generation’ and thus can be said to theoretically include CER – explicitly does not include regulated Stand-alone Power Systems (SAPS) which should be part of an efficient electricity system.

Power system The electricity power system of the *national grid* including associated *generation* and *transmission* and *distribution networks* for the *supply* of electricity but excluding *regulated SAPS*, operated as an integrated arrangement.

The term *national electricity system* as defined in the NEL on the other hand includes:

- generation systems and other facilities,
- the *interconnected national electricity system*, and
- explicitly includes regulated SAPS

The NEL provides the following definitions:

national electricity system means— (a) the generating systems and other facilities owned, controlled or operated in the participating jurisdictions connected to the interconnected national electricity system; and (b) the *interconnected national electricity system*; and (c) regulated stand-alone power systems;

interconnected national electricity system means the interconnected transmission and distribution system in this jurisdiction and in the other participating jurisdictions used to convey and control the conveyance of electricity to which are connected— (a) generating systems and other facilities; and (b) loads settled through the wholesale exchange operated and administered by AEMO under this Law and the Rules;

These definitions encompass any generation and storage connected to the grid, whether connected to the transmission or distribution system, in front of the meter, or behind the meter – as in the case of consumer energy resources – whether these take the form of generation, storage or demand flexibility. Further, it includes a facility which aggregates CER or demand and then bids this into the market.

Unlike the *power system* the definition of the *national electricity system* also includes regulated SAPS. This means AEMO will be able to plan to meet the needs of consumers of electricity whose premises are not connected to the national grid but are connected to a regulated SAP. AEMO will not, however, be required to plan for consumer premises not connected to either the grid or a regulated SAP – for example consumers who entirely consume electricity generated using CER and who do not have a grid backup, or members of a community with their own unregulated SAP.

The *national electricity system* does not include any reference to the wholesale market. Rather it is the definition of the *national electricity market* in the NEL that encapsulates both the wholesale exchange, and the national electricity system. Hence AEMO, when developing the ISP, will not be required to plan any markets. The planning and development of market mechanisms will remain the remit of energy ministers and the AEMC.

In summary, AEMO will be required to undertake holistic planning of the entire *national electricity system*, including generation, storage, transmission, distribution, and demand side developments, both grid-connected or which form part of a regulated SAP. It is the combination of all these resources which collectively meet the needs of consumers, and investment decisions in all as a collective, which determines both optimally efficient system and consumer outcomes.

Meet the needs of consumers of electricity (Rule 5.22.3)

We propose that ISP planning is undertaken with a focus on the needs and interests of consumers, rather than simply the needs of the *power system*.

The *needs of consumers of electricity* are not currently defined in the NER.

We propose a definition of consumer needs that includes both *power system needs* as currently defined, and in addition the need for efficient investment in all resources that form part of the system.

We propose *the needs of consumers of electricity* include:

- the *power system needs* as currently defined –
 - the *reliability standard*,
 - *power system security*
 - system standards
 - technical requirements, and
 - emissions
- In addition, the ‘need for efficient investment in, operation and use of all resources that form part of the *national electricity system*, including – generation, storage, transmission, distribution, and demand side developments.’

While utility generation and supply remain important, the system is now distributed and bi-directional. Defining the purpose of planning as meeting the *needs of consumers of electricity* is more closely aligned to the NEO and better reflects the transition underway. Utility generation and storage, and CER connected to the *interconnected national electricity system* are together integral to the operation of the NEM and meeting the *needs of consumers of electricity*. It is no longer possible to plan an efficient system without considering the balance of investment in the supply and demand sides concurrently.

The NEO describes the objective of the NEL ‘[...] is to promote efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers of electricity [...]’.

The NEO defines consumer interests as –

- price, quality, safety, reliability and security of supply of electricity
- the reliability, safety and security of the national electricity system
- the achievement of targets set by a participating jurisdiction

Consumer interests are not necessarily the same as consumer needs. Needs are criteria which are non-negotiable or tradeable and must be met. Interests may include needs (such as safety) but encompass a wider range of aspects which, while important, can be traded off according to circumstances and consumer values or preferences. For example, consumers need system security standards to be met. It is in their interest that energy is delivered reliably and at an affordable price, but these interests are often in opposition and should be set at different relative levels (according to expressed consumer values) in different circumstances and decisions. Efficient investment is that which meets needs and promotes the interests of consumers according to their values and preferences.

Planning the efficient investment in, operation of and use of the NEM serves overlapping consumer interests and needs. No one consumer interest or need can be planned for individually, and the choices made in respect of one interest affect others. Consequently, it is necessary to plan for the optimum overall utility, while meeting consumer needs.

Planning an efficient NEM involves considering not only investment choices in respect of transmission, but investment in all resources that make up the NEM. Namely, generation, storage, transmission, distribution and demand side developments.

The proposed definition of consumer needs recognises that consumers require that the power system functions to provide reliable, secure and safe electricity. It also requires investment choices in respect of all resources that make up the NEM to be appropriately balanced to deliver the most efficiently functioning NEM.

We also propose an explicit requirement that in preparing the ISP, AEMO must seek to deliver the *needs of consumers of electricity*. See the proposed text for rule 5.22.10(a)(4), in Annex 1.

Require the Final ISP to be consistent with the purpose of the ISP

Currently Rule 5.22.14 which sets out the requirements of the Final ISP does not include an explicit requirement that the Final ISP is consistent with the purpose of the ISP.

A repeated criticism of ISPs to date is that they are only transmission plans, whereas the existing purpose defines the ISP as a 'whole of system plan of the power system'. With power system including more than simply transmission.

We propose an explicit requirement that the Final ISP is consistent with the purpose of the ISP to make unequivocally clear that there is a requirement for the ISP to address its purpose in full to promote the interests of consumers.

4.3 Changes to update the required preparation, analysis and content of the ISP (Rules 5.22.6 and 5.22.10)

Overview

The requirements for the analysis and contents of the ISP are set out in rule 5.22.6.

The intent of our proposal is that the ISP must include a wider range of outputs than at present. Specifically, that the optimal development path provides participating jurisdictions recommended volumes of investment in generation, storage, distribution, and demand side developments in addition to actionable transmission projects to be provided by TNSPs. It is proposed that this wider range of outputs are based on a co-optimised analysis of the investment choices of all forms of resources that collectively make up the NEM.

Current requirements

Rule 5.22.6 is divided into analysis and contents that an ISP must include, and contents that an ISP may include.

In summary an ISP must –

- identify a range of development paths, which each identify a set of projects
- describe how the development paths perform against sensitivities
- identify the optimal development path based on cost benefit analysis across a range of scenarios, using the costs and market benefits outlined in rule 5.22.10
- for the optimal development path, identify the actionable ISP projects, future ISP projects and ISP development opportunities
- provide specific details in respect of actionable ISP projects
- provide information on net present value analysis of development paths, gas development and a demand side factors statements

An ISP may –

- include relevant information about ISP development opportunities
- identify potential renewable energy zones, and provide details of these
- identify preparatory activities in respect of future projects

Incorporating ISP development opportunities alongside transmission projects when defining development paths which address consumer needs

The NER provides the following relevant definitions -

optimal development path A development path identified by AEMO as the optimal development path in the most recent Integrated System Plan in accordance with rule 5.22.

development path means a set of projects in an Integrated System Plan that together address power system needs.

ISP development opportunity means a development identified in an Integrated System Plan that does not relate to a transmission asset or non-network option and may include

distribution assets, generation, storage projects or demand side developments that are consistent with the efficient development of the power system.

Rule 5.22.6(a)(5) already requires – ‘the optimal development path, identify the actionable ISP projects, future ISP projects and ISP development opportunities’. However, the definition of ‘development path’ discusses ‘projects’ only and does not mention ‘opportunities’.

We propose that the definition of ‘development path’ is expanded so that each development path represents a set of both actionable ISP projects, future ISP projects and ISP development opportunities.

Further, we propose that the development path address the *needs of consumers of electricity* rather than the needs of the power system. As described above, our proposed definition of the *needs of consumers of electricity* includes power system needs, but also considers the need for efficient investment, operation and use of the NEM.

We propose the definition of *development path* is amended -

development path means a set of ~~projects~~ *actionable ISP projects, future ISP projects and ISP development opportunities* in an Integrated System Plan that together address ~~power system needs~~ *the needs of consumers of electricity in the national electricity system*.

The definition of ISP development opportunity includes generation, storage, distribution and demand side developments.

We propose that with respect to analysis of distribution assets a definition of *actionable distribution projects* is added –

Actionable distribution project means a project

(a) that relates to a *distribution asset or non-network option* the purpose of which is to address an *identified need* specified in an *Integrated System Plan* and which forms part of an *optimal development path*; and

(b) for which a *project assessment draft report* is required to be published in the *Integrated System Plan* that identifies that project.

Consideration will be required as to what is deemed an *identified need* in respect of an *actionable distribution projects*. Some restriction on the level of specificity of a project is required, either in the rules or in an AEMO guideline, given modelling complexity. Example levels of specificity could include modelling –

- Additional network capacity on a distribution network within a sub-region,
- Additional capacity on a distribution network at a bulk supply point,
- Augmentation of specific power lines or substations, or
- Augmentation of street level substations.

We also propose that a definition of *demand side developments* is added, which includes CER and DER, demand side participation, and demand reduction achieved using energy efficiency measures.

We propose –

demand side developments means a development which relates to distributed energy resources (including *consumer energy resources*), demand flexibility, electrification or demand reduction achieved using energy efficiency measures.

The result of the proposed changes to the definition of development path, inclusion of a definition on demand side developments, and revisions to clause 5.22.6(a)(2), is that each development path will reflect a set of investments in resources that cover the full range of generation, storage, transmission, distribution and demand side developments (DER/CER, demand participation and demand reduction achieved using energy efficiency measures). Further, that these projects will address the broader needs of consumers, and not only the needs of the power system.

The cost benefits analysis – co-optimising all forms of resources

We propose that having defined development paths – and required these to be a set of actionable ISP projects, future projects and ISP development opportunities that provide for consumer needs – the content of an ISP is required to identify the optimal development path by co-optimising the provision of all resources which together form the national electricity system.

We propose clause 5.22.6(a)(4) is amended as follows –

- (4) identify the optimal development path which must be based on a quantitative assessment of the costs and benefits of various options across a range of scenarios⁷.
This quantitative assessment must:

(i) co-optimize the provision of all resources that form part of the *national electricity system*, including *generation, storage, transmission, distribution*, and *demand side developments* in order to meet the *needs of consumers of electricity*; and

(ii) be in accordance with *Cost Benefit Analysis Guidelines*;

Updates to the list of costs and market benefits (rule 5.22.10)

We propose that the costs considered are updated in rule 5.22.10(d), and be defined as the costs incurred in constructing, providing, maintaining actionable ISP projects, future ISP projects and ISP development opportunities. This updates the current reference to consider these forms of cost in respect of ‘projects’. It reflects the overall purpose of our rule change proposal for a cost benefit analysis which seeks to co-optimize investments in supply and demand and not merely consider transmission projects.

We also propose revisions in terms of market benefits to ensure they are updated in line with the changing nature of the system.

We have proposed rule 5.22.10(c)(1) is amended to underline that market benefits are those derived from the development path – through actionable ISP projects, future projects, and ISP development projects; i.e. through development paths that consider more than simply transmission projects.

We propose that the existing market benefit – changes in fuel consumption through different patterns of generation dispatch – is replaced by changes in the average cost of per unit of electrical energy consumed.

This replacement is proposed on the basis that it is no longer the case that the main driver of cost in the wholesale market will be large generators' short run marginal costs, which are closely linked to fuel costs. Capturing the changes in average cost of a unit of electrical energy is a more accurate measure of how the proposed development path would drive changes in cost. We have chosen to make this 'per unit of energy consumed' instead of 'per unit of energy sold through the wholesale spot market' on the basis that consumers now both self-consume energy using CER and their own generation or storage, and no longer only receive energy from the grid.

Further, the market benefits of 'changes in voluntary load shifting' should be added given there will be greater integration of the demand side in coming years. It will also be important to consider the 'changes in involuntary generation curtailment' given efficient curtailment is an important part of variable renewable supply.

Given the capital and operating costs of building new generation, storage, distribution and demand side investments are now captured under rule 5.22.10(d) – Costs, the changes in costs in rule 5.22.10(c)(1)(iv)(B) and (C) are now redundant. It is still important to consider the market benefit of difference in timing of new investment. We therefore propose rule 5.22.10(1)(iv) is replaced with – changes in costs incurred due to the differences in timing of investment.

With respect to the cost of resources deployed behind the meter, we propose that the cost benefit analysis is limited to considering the socialised costs and benefits of new investments. That is, costs incurred by consumers themselves are not included. Costs incurred by governments in the form of subsidies or other ways costs are shared amongst consumers are considered. On the benefits side, the benefits considered are limited to those falling on consumers beyond the direct owner and consumer of the resource.

See further the proposed text for rules 5.22.10(c) and 5.22.10(d) in Annex 1.

4.4 Recommending ISP Development Opportunities

Having expanded the set of resources which each development path considers and undertaken a cost-benefit analysis which analyses different development paths, thereby co-optimising the provision of all resources that form part of the NEM to meet consumer needs, the ISP is then able to provide recommendations on the optimal development path.

This optimal development path will have recommended levels of investment in transmission and ISP development opportunities – i.e. generation, storage, transmission, distribution, and demand side development, supported by a verifiable scenario-based cost benefit analysis.

Clarify the requirements on ISP development opportunities

Presently Rule 5.22.6(b) provides that relevant information on ISP Development Opportunities may be provided in an ISP. At the same time rule NER 5.22.6(a)(5) requires that the ODP must identify actionable ISP projects, future ISP projects and ISP development opportunities.

We propose that the situation is clarified to make clear an ISP *must* provide recommendations on ISP Development Opportunities. Specifically, we proposed deleting 5.22.6(b)(1), and amend 5.22.6(a)(2) to required that sech development path identifies a set of actionable ISP projects, future ISP projects and ISP Development opportunities.²

Actionability

There is inherent value in producing such recommendations as robust, consistent and updated guidance. However, the value of the recommendations is improved if AEMO has meaningful scope to address these recommendations to a specific entity with the ability to ensure they are progressed.

Under the existing rules there are rules on the implementation of actionable ISP projects, which name a TNSP as proponent for each actionable project, with a date by which the *project assessment draft report* is to be published.³ We do not propose to alter this.

Our proposal is:

For distribution – that there be recommendations on ‘*actionable distribution projects*’. The recommendations should specify the date by which the *project assessment draft report* should be published and be directed to a DNSP. We have proposed a definition of *actionable distribution project* similar to that of *actionable ISP project*. We have not proposed an extensive structure on *actionable distribution projects*.

For the remaining ISP development opportunities – generation, storage and demand side developments – we propose that AEMO recommend the volume and nature of each resource type to be provided within each participating jurisdiction and provide a recommended time by which progress on these resources should occur (and be demonstrated).

As discussed in detail in the following section, we propose that, having made the recommendations at the level of participating jurisdictions, the participating jurisdictions would then report back each two years on progress made in respect of or response to these AEMO recommendations.

We have proposed that the recommendations on generation, storage and demand side developments are made at the jurisdictional level as the required volume and timing of investments in each resource type will differ by jurisdiction. This is because the transmission is progressing in each state at different paces and includes different challenges. Further, the governments of each jurisdiction have different existing policy tools and commitments, and they are the entity best placed to effect the changes recommended by AEMO, and to monitor and

² See the draft of rule 5.22.6 provided in Annex 1.

³ See rule 5.22.6(a)(6).

report on progress against or response to AEMOs recommendations. Each jurisdiction would be open to seek to implement the recommendations in whatever manner they consider best, accommodating particular terms of their own policy and regulatory circumstances. This could take the form of any number of options such as direct investment, hybrid ownership models, underwriting and other market-based arrangements.

It is important to note that jurisdictions will not be required to conform to AEMO recommendations and will be free to produce and execute their own policies. Our proposal only obliges them to report on their progress or responses to AEMO recommendations at regular intervals. We see AEMO's role as that of an expert planner that produces recommendations based on clear and circumscribed expertise. Democratically elected officials, who have a set of considerations beyond AEMO's expertise, are empowered to use these recommendations in the best way they see fit on behalf of their constituents.

4.5 Ministerial reporting on progress of ISP Development Opportunities (Proposed new rule 5.22.16A)

As noted above, we propose the rules allow AEMO to provide recommendations at the level of participating jurisdictions on investment on ISP development opportunities, and specifically generation/storage/demand side developments, including CER, demand side participation, electrification and demand reduction achieved using energy efficiency measures.

Having made recommendations at a jurisdictional level, we propose there is a process by which jurisdictions monitor and report on their progress or response.

We propose the Ministers of participating jurisdictions would monitor the progress of their jurisdiction, and report this progress to AEMO, the ECMC⁴ and publicly, in a biennial *Jurisdictional ISP Development Opportunity Deployment Report*. The reporting cycle would be aligned to the ISP development cycle, and AEMO would publish the reports.

The ECMC as the collective body including all Ministers of participating NEM jurisdictions would discuss the reports and each states' progress on AEMO's recommendations. This process is intended to introduce a tangible and consistent link between ECMC as the primary collective for decision-making, and regulatory processes planning and implementing ISP recommendations.

The reports would be used by AEMO as part of its IASR process, and in creating the next ISP, to inform AEMO of the progress of each jurisdiction in respect of the role out of ISP Development Opportunities. To the extent that jurisdictions are ahead or behind the recommendations of the last ISP – or to the extent their response deviates from the recommendations – this can then be feed back into the ISP process in an iterative manner.

Proposed text is provided in draft rules 5.22.16A, 5.22.10(a)(5)(viAA) and 5.22.10(b)(4A) in Annex 1.

⁴ Note the ECMC is referred to as the MCE in the NEL.

As these elements of the proposed rule changes require participation of Ministers of a participating jurisdiction and the ECMC, their agreement to this mechanism will be required.⁵

4.6 Updating the guidelines relevant to the ISP (Rule 5.22.5)

Amendment of the rule 5.22 and in particular changes to the purpose, analysis and content of the ISP in the rules, including the expanded scope of each development path to include actionable ISP projects, future ISP projects and ISP development opportunities, will necessitate changes to various AER and AEMO Guidelines.

The key guideline requiring update will be the *AER Cost Benefit Analysis Guideline* (CBA Guidelines). We have proposed that the rules require this is revised, and this revision is updated as a matter of priority (by 1 July 2027). This will be critical to enabling our intent for our proposed changes to take effect promptly and be used in the 2028 ISP.

Rule 5.22.5(d) – Application of Cost Benefit Analysis Guidelines to AEMO for the ISP already requires that the CBA Guidelines are consistent with the purpose of the ISP. We propose this is amended, and two additional requirements are added so that the CBA Guidelines:

- are consistent with the content of the ISP referred to in clause 5.22.6
- require AEMO describe the *needs of consumers of electricity*

The requirement for AEMO to describe the *needs of consumers of electricity* is intended to reflect the wider scope of the ISP, and move the latter away from simply being a transmission plan. We correspondingly propose 5.22.5(d)(6) is deleted as identifying transmission network needs would no longer be the most prominent task which the ISP completes. Meeting *identified needs* will remain a key criterion when assessing RIT-T proposals.

These additions are proposed to ensure that the CBA Guidelines are consistent with the content and intent of our proposed rule change. As noted earlier, an often-raised criticism of the ISP is that it has remained a transmission plan, and not a whole-of-system plan. This is arguably caused in part as a consequence of the CBA Guidelines and the requirements it places on the analysis AEMO is to undertake.

Another often noted criticism of the ISP is that jurisdictional policies are modelled as constraints. We have not proposed changes to rule 5.22.3(b) on government emissions targets and policies, given this distinguishes between emissions targets that must be considered, and jurisdictional policies that 'may' be considered. We consider the reasoning behind this is sound and the rule does not need to be changed.

We propose that jurisdictional governments continue to determine emissions targets, and to balance all relevant factors before determining policies. We propose the role of AEMO would be limited to recommending the most efficient combinations of volumes of resources and the dates for these to be in place.

⁵ See s 35, NEL.

There are good reasons why emissions targets must be treated as constraints. Those reasons do not extend to the jurisdictional environmental or energy policies (for example levels of utility generation and storage to be developed in a jurisdiction) deployed to achieve the emissions targets. There should be flexibility for the planner to define and recommend the optimal levels of the various types of resources within a jurisdiction. Jurisdictional governments can then choose whether to adopt in whole or in part these recommendations, and the policies they will put in place by which to deploy the level of each type of resource. These decisions involve trading off interests of individual stakeholders. These decisions rightly remain in the purview of the elected jurisdictional governments, not the central planner.

The AEMO ISP Methodology will also need to be revised, following amendments to the rules and CBA Guidelines. It is possible that there will also have to be revisions to the AER Forecasting Best Practice Guidelines.

See further the proposed amended text for rules 5.22.5 in Annex 1.

4.7 Aligning recommendations with NEM review reforms

The expert panel, led by Associate Professor Tim Nelson, has made recommendations on future market design settings.⁶ They have recommended market changes which create an Energy Services Entry Mechanism (ESEM). We have proposed in our draft proposed text in Annex 1, how these changes could also be incorporated.

Specifically, we have suggested –

- AEMOs recommendations to jurisdictional ministers on generation and storage are expressed as the volumes of bulk energy services, shaping services, firming services and strategic reserve services to be deployed with a given region, at a given time; and
- We have incorporated definitions on bulk energy services, shaping services, firming services, based on those suggested by the NEM Review Panel.⁷

We see value in alignment and the ISP making recommendations on the volume of bulk, shaping and firming services which are required under the ESEM, as well as recommendations on strategic reserve services.⁸

See further the proposed text for rules 5.22.6(a)(6a)(i) and 5.22.16A in Annex 1.

4.8 Issues for consultation

We identify the following issues for consultation pertaining to the rule change.

⁶ *National Electricity Market wholesale market settings review, Final Report*, December 2025, <https://www.energy.gov.au/sites/default/files/2025-12/national-electricity-market-wholesale-market-settings-review-final-report.pdf>, (NEM Review).

⁷ See NEM Review, p.184. In addition, we have proposed a definition of strategic reserve services, which is intended to mirror a similar form to those proposed definitions from the NEM Review Panel definitions of bulk energy services, shaping services, and firming services.

⁸ Strategic reserve services are services to be provided out of market for high impact, low probability events, including *dunkelflautes* and *kaltflautes*. See NEM Review, recommendation 10D.

Actionability mechanisms for distribution network projects

We have provided only limited guidance on the form of an actionability mechanism relating to needs identified in relation to distribution networks. We have proposed only a definition of actionable projects here, and requirements for AEMO to provide recommendations on these as an output. We suggest that a detailed actionability framework for distribution projects could broadly conform to that rule currently pertaining to actionable transmission projects. The appropriate framework is a matter for consultation.

In addition, we draw attention to the very large volume of data that would need to be acquired and processed by the planner in order to identify needs in the distribution projects. Taking on responsibility for the task of identifying these needs would imply a large upgrade in AEMO's computational capacities. There is a possibility, however, that AEMO would be able to outsource some of this work to DNSPs on the bases that they already have both the data and the computational capacity. Whether this is appropriate or in consumers' interests is a question for consultation. We note that the NSW DNSPs have recently produced a NSW Distribution System Plan (DSP) Opportunities Report.⁹ An assessment of this exercise should be used to evaluate the potential for AEMO outsourcing components of the ISP production process to DNSPs.

Further, there is an issue that arises with regard to the incidence of costs when the benefits of distribution network augmentation fall outside the area of operation of the DNSP undertaking the project. Input should be sought regarding the appropriate cost allocation method of distribution networks such that alignment between the incidences of costs and benefits occurs.

Appropriate level of granularity for outputs

We are aware that there are trade-offs between the complexity of the modelling task and the granularity of the outputs – the more granular the outputs, the higher the computational requirements. We have proposed that development opportunity targets are defined on a regional basis. The appropriate level of granularity is a matter to be consulted on.

Streamlining of the ISP

We are aware of the increase in the computational and analytical task the proposal implies for AEMO. We make two comments with regard to this.

First, the decision as to whether these increased costs are worth incurring must be made on the basis of consumers' interests. As consumers stand to gain many billions of dollars in returned value from the change we are proposing, it is very likely in their interests to, in some way, provide the funds to enable it.

Second, the additional tasks for AEMO implied by our proposal may be able to replace existing elements of the ISP.

⁹ Ausgrid, Endeavour Energy, and Essential Energy, *NSW Distribution System Plan*, November 2025, www.nsw-dsp.com.au.

A key task of consultation should be seeking input on the contribution various elements of the ISP contribute to the core task of the ISP, and on which elements may be streamlined or jettisoned altogether.

5. The AEMC should adopt the proposed rule

5.1 AEMC Rule Making powers and proposed assessment criteria

At the core of the proposed rule is the issue of efficient investment in, operation of, and use electricity services in the consumer interest. The most appropriate way to consider and ensure efficiency is to have a whole of system plan, which co-optimises the investment in all relevant parts of the electricity system.

The AEMC has the power to make the proposed rule. The issue concerned is one for which the AEMC has the power to make rules. The rule proposed is with respect to an issue listed in section 34(1) of the National Electricity Law.

The issue concerns,

- Any matter or thing contemplated by this Law, or is necessary or expedient for the purposes of this Law (see section 34(1)(b))– namely
 - The NEO including –
 - Promotion of efficient investment in, and efficient operation and use of, electricity services for the long-term interest of consumers.
 - Consumer interests – in quality, safety, reliability and security of supply of electricity; the reliability, safety and security of the national electricity system; and the achievement of targets for reducing greenhouse gas emissions (See NEO section 7 NEL)
 - The exercise of AEMO's statutory functions including –
 - to promote the development and improve the effectiveness of the operation and administration of the wholesale exchange (see section 49(1)(b) NEL)
 - to maintain and improve power system security (see section 49(1)(e) NEL)
 - in respect of a function conferred under the NEL or NER – specifically the functions conferred under Rule 5.22 – Integrated System Plan (see section 49(1)(i) NEL, and Rule 5.22 NER)
 - Transmission planner (see section 49(2) NEL)
- Any matter or thing specified in Schedule 1 to the NEL (see section 34(1)(b)). This includes –
 - The operation of generating systems, transmission systems, distribution systems or other facilities. (Item 11)
 - The augmentation of transmission systems and distribution systems. (Item 12)
 - Access to electricity services provided by means of transmission systems and distribution systems. (Item 13)

- The assessment, or treatment, by the AER, of investment in transmission systems for the purposes of making a transmission determination. (Item 17)
- The assessment, or treatment, by the AER, of investment in distribution systems for the purposes of making a distribution determination. (Item 26B)
- National Transmission Planning (Items 30G to 30 J)

The AEMC has the power to direct AEMO to perform additional functions, section 34(3) NEL. Further, the AEMC may confer an obligation on the ECMC, and a Minister of a Participating Jurisdiction with the consent of the ECMC, see section 35 NEL.¹⁰

5.2 Achievement of the National Energy Objective

The key determination is whether the rule changes proposed contribute to the achievement of the NEO.

The rule change proposal is aligned to the NEO.

Section 88 NEL states.

88—Application of national electricity objective

(1) The AEMC may only make a Rule if it is satisfied that the Rule will or is likely to contribute to the achievement of the national electricity objective.

(2) For the purposes of subsection (1), the AEMC may give such weight to any aspect of the national electricity objective as it considers appropriate in all the circumstances, having regard to any relevant MCE statement of policy principles.

[...]

The National Electricity Objective is set out in section 7 NEL.

7—National electricity objective

The objective of this 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

¹⁰ See also s 51A - s51 NEL, requests made to AEMO by ministers for information; and s 57A NEL, functions and powers of ministers.

- (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.

Note—

The AEMC must publish targets in a targets statement: see section 32A.

Read together section 88(1) and section 7 NEL, require the AEMC in discharging its obligation under section 88(1) must be satisfied the rule will contribute to achieving the NEO's overarching objective of, "efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers of electricity".

Our proposed rule change meets this requirement, as it is about ensuring more efficient and effective whole of system planning on a 20-year planning horizon.

The most appropriate way to ensure efficient investment, use and operation of electricity services in the consumer interest, is to undertake system planning which considers all relevant elements and which co-optimises the investment in these elements of the system. As set out below in the section on benefits and costs – the rule change will result in more effective ISP planning and provides key benefits in respect efficiency and promoting the consumer interest in price. The ISP will continue to plan for a safe, reliable, secure system, and the achievement of emissions targets.

5.3 Expected benefits and costs of the proposed change, and impacts

We consider the rule change will have a range of benefits and costs, including:

5.3.1 Economic efficiency

The proposed change would improve allocative efficiency by enabling the planner to select the mixture of resource augmentation which maximises long term consumer interest, rather than being limited to identifying only the transmission development path.

The proposed change would also increase the efficiency of resource allocation by jurisdictional governments by providing them with robust-co-optimised foundations for their investments and subsidies to the market in all aspects of the energy system. Currently jurisdictional decision-makers – making judgements on matters such as how much to support new generation and storage capacity, demand participation take-up and electrification – face two limitations.

- They lack the computational resources and expertise of the national planner.
- They have no capacity to co-optimize their investments with changes across the NEM and are forced to produce policies by which to achieve emissions targets in relative isolation from one another.

The proposed change would enable AEMO to produce robust and well-founded advice on the efficient levels of development of each energy resource, while leaving determinations on how to achieve or respond to those recommendations to the jurisdictional policymakers.

Price

Scope for more efficient options in the optimal development path enable lower whole of system costs and reduced prices of energy for consumers.

Safety, reliability and security of supply

The proposed change would not impact the level of safety, reliability or security of the energy system. It would impact the mix of resources in the energy system and the cost of those resources delivering those outcomes, but the existing requirements in terms of safety, reliability and security, and the parties responsible for ensuring they are fulfilled, would be unchanged.

Emissions

The proposed change would contribute to reduced emissions via several mechanisms.

Currently the ISP relies on network options to enact the transition of an energy system which is much broader than transmission. A more efficient plan, based on co-optimisation of all resources would very likely involve greater deployment of other resources – for example CER, storage, energy efficiency, and energy flexibility – relative to their current trajectories. In all four cases, this would result in a larger proportion of demand being served by zero emission generation relative to the current trajectory.

Costs implications and other impacts

The co-optimisation of generation, storage, transmission, distribution, and demand side developments, will require greater AEMO resources to complete. This incremental increase must be offset against the substantial benefit likely to result from the ISP recommending less spending on transmission. Similarly, while some parts of the electrical energy industry may lose revenue, there will be a net benefit as the overall costs of the system, and the transition will be lower.

The potential impacts on those likely to be affected are set out below.

For consumers:

- Consumers will receive lower energy prices during and after the transition due to an increase in the efficiency of investments and avoiding the costs of inefficient network investments that result from a planning operation that does not co-optimize the development of resources.
- They receive lower cost reliability outcomes due to an increase in the efficiency of the balance of resources in the energy system.

For AEMO in its role as planner:

- AEMO gains an ability to provide guidance with respect to a greater set of resources across the energy system. This increases their capacity to meet the core challenge of the transition, which is to ensure there is adequate and appropriate resources in place to replace the

decreasingly reliable and retiring coal generators.

- The proposed changes will impose additional cost on AEMO in its production of the ISP, primarily due to an increase in the size of the computational task and due to an increase in the data that needs to be acquired and processed. We propose this is minimised by a streamlining of the ISP production process.

For AEMO in its role as operator:

- As a result of a more optimised balance of resources in the energy system, particularly with respect to firming, it can be anticipated that the rate of the operator using inefficient directions will be lower than it would have been if the proposal was not adopted.

For jurisdictional governments:

- Jurisdictional governments face reduced costs from schemes underwriting investment in energy resources due to the improved investment signals that the ISP produces under the proposal.
- Jurisdictional ministers face a new task of biennial reporting on the degree to which they effect or respond to recommendations produced by AEMO in the ISP defined in terms of volume of energy resource in a given region and time of delivery.
- We stress that our rule change does not seek to undermine the primacy of jurisdictions in determining their own emissions-reduction targets or energy-related policies. It does seek to enable the central energy planner to provide consistent, updated and robust advice for jurisdictional policies based on analysis that co-optimises all elements of the energy system. We are aware that jurisdictional governments make policies on the basis of appropriate considerations beyond the purview of the national electricity planner, and our proposal does not seek to limit them from doing this.

For the ESEM administrator:

- The proposal enables AEMO to provide input and advice, based on a co-optimised ISP, to the ESEM administrator on the efficient levels of bulk, firming, shaping and out-of-market strategic reserve services at given points in time.

For Industry:

TNSPs

- The proposed changes would likely result in less transmission projects being identified as actionable relative to the baseline case of the change not being adopted. This would result in less revenue for TNSPs that might otherwise be the case.

DNSPs

- The proposed changes would likely result in some more distribution projects being identified as actionable relative to the baseline case of the change not being adopted. This would result in a gain in revenue to the DNSPs.

Commercial developers of generation, storage and demand side developments:

- The proposed changes would likely result in more generation, storage and demand side developments being recommended, in place of transmission projects relative to the baseline case of the change not being adopted. This would result in a gain in revenue for commercial developers of generation, storage and demand side developments.

6. Conclusion

The JEC requests that the AEMC consider adoption of the rule change proposals to:

- Change the purpose of the ISP to focus on designing a national electricity system to meet the needs and promote the interests of consumers.
- Expand the scope of the cost benefit analysis undertaken when identifying the optimal development path in the ISP, and require co-optimisation of generation, storage, distribution, transmission and demand side and flexibility developments.
- Expand the output of the ISP to include recommendations on generation, storage, distribution, transmission and demand side developments based on the optimal development path as identified by the cost benefit analysis.
- Continue to direct recommendation on actionable ISP projects to TNSPs.
- Make recommendations on ISP Development Opportunities -
 - on distribution to DNSPs, and
 - on generation, storage, and demand side developments (including CER, DER, electrification, demand side participation, and demand reduction achieved using energy efficiency measures) to participating jurisdictions.
- Require Ministers of participating jurisdictions to report on progress with respect to recommendations on ISP Development Opportunities – or their response to them – and the ECMC to discuss these progress reports.

The rule change will address the nature of the issue identified as it provides for:

1. The ISP to co-optimize the development of all aspects of the energy system, resulting in more efficient resource allocation.
2. Provides an actionability mechanism for ISP outputs beyond transmission project recommendations.

The proposal promotes the interests of consumers and will result in benefits to consumers and others which outweigh any potential costs.

Rule change proponent's details:

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Annex 1 – Draft text of rule change proposal

Key Definitions – including proposed additions and amendments

National Energy Rules definitions -

Actionable ISP project

A project:

- (a) that relates to a *transmission asset* or *non-network option* the purpose of which is to address an *identified need* specified in an *Integrated System Plan* and which forms part of an *optimal development path*; and
- (b) for which a *project assessment draft report* is required to be published in the *Integrated System Plan* that identifies that project.

Actionable distribution project means a project

- (a) that relates to a *distribution asset* or *non-network option* the purpose of which is to address an *identified need* specified in an *Integrated System Plan* and which forms part of an *optimal development path*; and
- (b) for which a *project assessment draft report* is required to be published in the *Integrated System Plan* that identifies that project.

bulk energy services means the capability to generate zero emissions electricity from one or more specified *generating unit* or *voluntarily scheduled resource*.

consumer energy resources means energy resources behind a consumer *connection point*.

demand side developments means a development which relates to distributed energy resources (including *consumer energy resources*), demand flexibility, electrification or demand reduction achieved using energy efficiency measures.

development path means a set of ~~projects~~ *actionable ISP projects, future ISP projects* and *ISP development opportunities* in an *Integrated System Plan* that together address ~~power system needs~~ *the needs of consumers of electricity*.

electricity services has the meaning as provided in the NEL.

firming services means the capacity from one or more specified *scheduled generating unit, bidirectional unit, voluntarily scheduled resource* or *wholesale demand response unit* that is capable of being dispatched continuously for the time it takes to reach the *cumulative price threshold* if prices are at the *market price cap*.

identified need – The objective a *Network Service Provider* or a group of *Network Service Providers* seeks to achieve by investing in the *network* in accordance with the *Rules* or an *Integrated System Plan*.

Integrated System Plan A plan developed and published by *AEMO* under *rule 5.22* as amended by an *ISP update* from time to time.

ISP development opportunity means a development identified in an Integrated System Plan that does not relate to a transmission asset or non-network option and may include distribution assets, generation, storage projects or demand side developments that are consistent with the efficient development of ~~the power system~~ *the national electricity system for the needs of consumers of electricity.*

needs of consumers of electricity has the meaning provided in Rule 5.22.3(a0)

NEM (National Electricity market) has the meaning given in the NEL.

optimal development path A development path identified by AEMO as the optimal development path in the most recent Integrated System Plan in accordance with rule 5.22.

power system The electricity power system of the *national grid* including associated *generation* and *transmission and distribution networks* for the *supply* of electricity but excluding *regulated SAPS*, operated as an integrated arrangement.

shaping services means the capability to consume or generate from one or more specified *bidirectional unit or voluntarily scheduled resource*, or to consume and cease to consume from one or more specified *voluntarily scheduled resource*.

strategic reserve services means long-term out-of-market reserves covering high-impact, low-likelihood events with the capability to consume or generate at the direction of an operator.

National Energy Law Definitions

Section 2 of the NEL provides the following definitions -

national electricity market means—

- (a) the wholesale exchange operated and administered by AEMO under this Law and the Rules; and
- (b) the national electricity system;

national electricity system means—

- (a) the generating systems and other facilities owned, controlled or operated in the participating jurisdictions connected to the interconnected national electricity system; and
- (b) the interconnected national electricity system; and
- (c) regulated stand-alone power systems;

interconnected national electricity system means the interconnected transmission and distribution system in this jurisdiction and in the other participating jurisdictions used to convey and control the conveyance of electricity to which are connected—

- (a) generating systems and other facilities; and
- (b) loads settled through the wholesale exchange operated and administered by AEMO under this Law and the Rules;

electricity services means services that are necessary or incidental to the supply of electricity to consumers of electricity, including—

- (a) the generation of electricity;
- (b) electricity network services;
- (c) the sale of electricity;

MCE means the group of Ministers (constituting or forming part of a Ministerial Council, Standing Council of Ministers or similar body (however described)) responsible for energy matters at a national level comprising 9 Ministers as follows:

- (a) 1 Minister from the Commonwealth;
- (b) 1 Minister from each State (totaling 6 Ministers);
- (c) 1 Minister from each Territory (totaling 2 Ministers),

acting in accordance with its own procedures;

Minister of a participating jurisdiction means a Minister who is a Minister of a participating jurisdiction within the meaning of section 6;

Section 6 provides,

6—Ministers of participating jurisdictions

(1) The Ministers of the participating jurisdictions are—

- (a) the Minister of the Crown in right of South Australia administering Part 2 of the National Electricity (South Australia) Act 1996 of South Australia; and
- (b) the Ministers of the Crown in right of the other participating jurisdictions administering the laws of those jurisdictions that apply this Law or any part of this Law (whether by a law that corresponds to Part 2 of the National Electricity (South Australia) Act 1996 of South Australia or by some other law).

Section 7, sets out the national energy objective

7 - National electricity objective

The objective of this 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.

Integrated System Plan

5.22.1 Duty of AEMO to make Integrated System Plan

AEMO must publish an *Integrated System Plan* every two years by 30 June in accordance with the *Rules*.

5.22.2 Purpose of the ISP

The purpose of the *Integrated System Plan* is to establish a whole of system plan for the efficient development of the *national electricity system* ~~*power system*~~ that achieves ~~*power system needs*~~ *the needs of consumers of electricity* for a planning horizon of at least 20 years to contribute to achieving the *national electricity objective*.

5.22.3 ~~Power system~~ Needs of consumers of electricity

(a0) *The needs of consumers of electricity* are:

(1) the need for efficient investment in, operation and use of all resources that form part of the *national electricity system*, including generation, storage, transmission, distribution, and demand side developments; and

(2) *the power system needs*.

(a) *The power system needs* are:

(1) the *reliability standard*;

(2) *power system security*;

(3) *system standards*; and

(4) standards or technical requirements in Schedule 5.1 or in an *applicable regulatory instrument*.

(b) In determining *power system needs* and in determining how the *Integrated System Plan* would contribute to achieving the *national electricity objective*, in relation to *participating jurisdictions*, *AEMO*:

(1) must consider the *emissions reduction targets* stated in the *targets statement*; and

(2) may consider a current environmental or energy policy of a *participating jurisdiction*, including an *emissions reduction target* which is not set out in the *targets statement*, where that policy has been sufficiently developed to enable *AEMO* to identify the impacts of it on the *power system* and at least one of the following is satisfied:

(i) a commitment has been made in an international agreement to implement that policy;

(ii) that policy has been enacted in legislation;

(iii) there is a *regulatory obligation* in relation to that policy;

(iv) there is material funding allocated to that policy in a budget of the relevant *participating jurisdiction*; or

- (v) the *MCE* has advised *AEMO* to incorporate the policy.

5.22.4 ISP timetable

- (a) *AEMO* must publish an *ISP timetable* within 3 months of the publication of the most recent *Integrated System Plan* published by *AEMO*.
- (b) This *ISP timetable* must set out the timing for the establishment of the *ISP consumer panel* and the dates of publication for the following matters:
 - (1) the *Inputs, Assumptions and Scenarios Report*;
 - (2) if *AEMO* is not using an existing *ISP methodology*, the *ISP methodology*;
 - (3) the draft *Integrated System Plan*; and
 - (4) the *Integrated System Plan* in accordance with clause 5.22.1.
- (c) The *ISP timetable* may include additional information that *AEMO* reasonably considers will assist stakeholders, including when information is to be provided or joint planning is to occur under clause 5.14.4.
- (d) *AEMO* must keep the *ISP timetable* updated.
- (e) *AEMO* may, from time to time, make and publish changes to the *ISP timetable* in which case it must provide a brief explanation for the change.

5.22.5 Guidelines relevant to the ISP

Cost Benefit Analysis Guidelines

Definitions

- (a0) In this clause 5.22.5:
 - current application** has the meaning given to it by clause 5.22.5(g).
- (a) The *AER* must make, *publish* and may amend the *Cost Benefit Analysis Guidelines* in accordance with the *Rules consultation procedures*.
- (b) The *Cost Benefit Analysis Guidelines* are to be used:
 - (1) by *AEMO* to prepare an *Integrated System Plan*; and
 - (2) by *RIT-T proponents* in applying the *regulatory investment test for transmission* to actionable *ISP projects*; and
 - (3) by a *RIT-T proponent* in ascertaining whether a material change in circumstances has occurred that would require it to take the steps required pursuant to clauses 5.16A.4(n)(3), 5.16A.4(n)(4) and 5.16A.4(n)(5).
- (c) The *AER* may specify the relevant parts of the *Cost Benefit Analysis Guidelines* that are binding on *AEMO* and *RIT-T proponents*.

Application of Cost Benefit Analysis Guidelines to AEMO for the ISP

- (d) The *Cost Benefit Analysis Guidelines* must in relation to the preparation of an *Integrated System Plan* by *AEMO*:

- (1) be consistent with the purposes of the *Integrated System Plan* referred to in clause 5.22.2;
- (1a) be consistent with content of the *Integrated System Plan* referred to in clause 5.22.6;
- (1b) require AEMO to describe the *needs of consumers of electricity*;
- (2) require AEMO to test the robustness of alternative *development paths* to future uncertainties through the use of scenarios and sensitivities;
- (3) be capable of being applied in a predictable, transparent and consistent manner;
- (4) describe the objective that AEMO should seek to achieve when:
 - (i) developing the counterfactual *development path*; and
 - (ii) selecting a set of *development paths* for assessment;
- (5) describe the framework used to select the *optimal development path*, including the assessment of the costs and **market** benefits, **as provided in 5.22.10(c) and 5.22.10(d)**, of various *development paths* across different scenarios; and
- ~~(6) set out how AEMO describes the identified need relating to an actionable ISP project.~~

Developing and publishing the Cost Benefit Analysis Guidelines

- (e) In developing and publishing the *Cost Benefit Analysis Guidelines*, the AER must:
 - (1) recognise the risks to consumers arising from uncertainty, including over investment, under-investment, premature or overdue investment;
 - (2) provide flexibility to AEMO in its approach to scenario development, modelling and selection of the *optimal development path*;
 - (3) require the *optimal development path* to have a positive net benefit in the most likely scenario;
 - (4) have regard to the need for alignment between the *Integrated System Plan* and the *regulatory investment test for transmission* as it applies to *actionable ISP projects*.
- (f) The AER may make minor or administrative amendments to the *Cost Benefit Analysis Guidelines* without complying with the *Rules consultation procedures*.
- (g) An amendment to the *Cost Benefit Analysis Guidelines*:
 - (1) relating to a matter specified in subparagraphs (b)(1) or (2) does not apply to a current application of the *regulatory investment test for transmission* for an *actionable ISP project* or a current process for the development of an *Integrated System Plan*;
 - (2) relating to the matter specified in subparagraph (b)(3) does not apply to:

- (i) a stage of an *actionable ISP project* that is a staged *actionable ISP project* after the *RIT-T proponent* has prepared a *project assessment draft report* in respect of that stage; or
 - (ii) an *actionable ISP project* that is not a staged *actionable ISP project* after the *RIT-T proponent* has prepared a *project assessment draft report* in respect of that project.
- (h) For the purposes of paragraph (g), a "current application" means any action or process initiated under the *Rules* which relies on or is referenced to the *Cost Benefit Analysis Guidelines* and is not completed at the date of the relevant amendment to *Cost Benefit Analysis Guidelines*.

(h1) The *AER* must update the *Cost Benefit Analysis Guidelines* by 1 July 2027.

Forecasting Best Practice Guidelines

- (i) The *AER* must include in the *Forecasting Best Practice Guidelines* made under clause 4A.B.5 guidance for *AEMO's* forecasting practices and processes as they relate to an *Integrated System Plan* and the process (including consultation requirements) to be used for an *ISP update*.
- (j) The *AER* may specify parts of the *Forecasting Best Practice Guidelines* relevant to the *Integrated System Plan* that are binding on *AEMO*.

5.22.6 Content of Integrated System Plan

- (a) An *Integrated System Plan* must:
 - (1) identify a range of *development paths*;
 - (2) for each *development path*, identify a set of *actionable ISP projects*, *future ISP projects* and *ISP development opportunities* that collectively form the *development path*;
 - (3) describe how each *development path* performs under any sensitivities *AEMO* considers reasonable;
 - (4) identify the *optimal development path* which must be based on a quantitative assessment of the costs and benefits of various options across a range of scenarios;. This quantitative assessment must:
 - (i) co-optimize the provision of all resources that form part of the *national electricity system*, including *generation*, *storage*, *transmission*, *distribution*, and *demand side developments* in order to meet the *needs of consumers of electricity*; and
 - (ii) be in accordance with *Cost Benefit Analysis Guidelines*;
 - (5) for the *optimal development path*, identify the *actionable ISP projects*, *future ISP projects* and *ISP development opportunities*;
 - (6) for each *actionable ISP project* specify:

- (i) the date by which the *project assessment draft report* must be published and made available to relevant persons, which date must be:
 - (A) at least 6 months after, and within 24 months of, the date of publication of the *Integrated System Plan*; and
 - (B) based on the anticipated commencement date of the *actionable ISP project*;
 - (ii) the relevant *Transmission Network Services Providers* who will be the *RIT-T proponent* for the *actionable ISP project*;
 - (iii) the *ISP candidate option or ISP candidate options*;
 - (iv) the *non-network options* that were considered by *AEMO* as part of the *Integrated System Plan* process in relation to that *actionable ISP project* (where relevant);
 - (v) the *identified need* related to that *actionable ISP project* and whether it is *reliability corrective action*;
 - (vi) whether the *actionable ISP project* is a staged project and, if so, the stages;
 - (vii) if applicable, any *preparatory activities or early works* that *AEMO* considers would be beneficial for a *Transmission Network Service Provider* to undertake for that project; and
- (6a) include relevant information about ISP development opportunities. The information provided in respect of these, which do not relate to a transmission asset or non-network option and may include distribution assets, generation, storage projects, and demand side developments should identify:
- (i) In respect of generation and storage –
 - (A) the level of services which required in each participating jurisdiction. This includes information on the levels and recommend delivery date of:
 - i. bulk energy services;
 - ii. shaping services;
 - iii. firming services; and
 - iv. strategic reserve services.
 - (ii) In respect of distribution -
 - (A) for each *actionable distribution project*, specify the date by which the project assessment draft report must be published, and identify the *Distribution Network Services Providers* who will be the *RIT-D proponent*.
 - (iii) In respect of demand side developments including –
 - (A) CER -

- i. the recommended volume of consumer energy resources to be deployed within each participating jurisdictions; and
- ii. the date by which the CER should be deployed.

(B) demand side participation -

- i. the recommended volume of demand side participation to be activated within each participating jurisdictions; and
- ii. the date by which the demand side participation should be activated.

(C) demand reduction achieved using energy efficiency measures -

- i. the recommended level of demand reduction to be achieved using energy efficiency measures, to be activated within each participating jurisdictions; and
- ii. the date by which the demand reduction, to be achieved using energy efficiency measures, should be deployed.

(D) any additional recommended demand side development which may be of assistance.

(iv) Any other information AEMO believes is relevant and will assist in planning and implementing ISP Development Opportunities.

(7) include the results of a net present value analysis for each *development path* for each scenario, together with an explanatory statement regarding the results;

(8) include:

- (i) the gas development projections covering the period ~~of development of the power system~~ to which the *Integrated System Plan* relates;
- (ii) a summary of the assumptions, inputs and scenarios used by *AEMO* to develop the gas development projections;
- (iii) an explanation of any differences between the assumptions, inputs and scenarios used to develop the gas development projections and relevant information in gas industry information publications; and
- (iv) other information and analysis relating to the gas development projections that *AEMO* considers relevant; and

(9) include a demand side factors statement covering the period relevant to the *Integrated System Plan*.

(b) An *Integrated System Plan* may:

~~(1) include relevant information about ISP development opportunities;~~

~~(2)~~(1) identify potential REZs;

- ~~(2A)~~(2) for any REZs for which a *REZ design report* is being prepared under clause 5.24.1(b)(1), include an update as to the current plan for the development of the *transmission network* for the relevant REZ stages; and
- (3) include sensitivities showing the impacts of energy or environmental policies of a *participating jurisdiction* where *AEMO* has been requested to do so by that *participating jurisdiction*. These sensitivities are in addition to those sensitivities considered in clause 5.22.6(a)(3) and do not form part of any *development path*.

Preparatory activities

- (c) An *Integrated System Plan* may specify the *preparatory activities* that must be carried out for *future ISP projects* and the timeframes for carrying out *preparatory activities*.
- (d) Subject to paragraph (e), a *Transmission Network Service Provider* must:
- (1) in the case of an *actionable ISP project* for which *preparatory activities* have not yet commenced, carry out the *preparatory activities* which the *Transmission Network Service Provider* considers are reasonably necessary as soon as practicable; and
 - (2) in the case of a *future ISP project*, if the *Integrated System Plan* provides that *preparatory activities* must be undertaken for that project, carry out those *preparatory activities* in accordance with the timeframes specified in the *Integrated System Plan* for that project.
- (e) If *preparatory activities* are required to be undertaken pursuant to clause 5.24.1(b)(2), a *jurisdictional planning body* must ensure that *preparatory activities* carried out in accordance with the timeframes described in subparagraph (d)(1) or (d)(2) (as applicable).

5.22.6A Demand side factors statement

Purpose and content

- (a) The purpose of the demand side factors statement is to provide information about:
- (1) opportunities for the development of *distribution networks*, identified using information made available to *AEMO*, that are consistent with the efficient development of the *power system*; and
 - (2) the potential for demand side factors to affect the efficient development of the *power system*.
- (b) In relation to the development of *distribution networks*, the demand side factors statement must:
- (1) identify opportunities for the development of *distribution networks* that:
 - (i) *AEMO* has identified based on the information provided to *AEMO* by *Distribution Network Service Providers* under paragraph (e) or available to *AEMO* from other sources; and

- (ii) *AEMO* considers are consistent with the efficient development of the *power system*;
 - (2) identify which of those opportunities *AEMO* assumed, for the *Integrated System Plan*, will be developed;
 - (3) describe how *AEMO* considers the opportunities referred to in subparagraph (2) would contribute to the efficient development of the *power system*; and
 - (4) include a summary of the assumptions, inputs and scenarios used by *AEMO* in identifying the opportunities referred to in subparagraph (2).
- (c) In relation to demand side factors, to the extent reasonably possible having regard to the information provided to *AEMO* by *Distribution Network Service Providers* under paragraph (e) or available to *AEMO* from other sources, the demand side factors statement must:
- (1) identify current, and potential future, demand side factors that can reasonably be expected to affect the efficient development of the *power system*;
 - (2) include:
 - (i) a projection of the impact of each demand side factor or combination of demand side factors on the efficient development of the *power system* during the period of development of the *power system* to which the *Integrated System Plan* relates; and
 - (ii) a summary of the assumptions, inputs and scenarios used by *AEMO* to develop the projection;
 - (3) include sensitivity analysis that considers the effect on the efficient development of the *power system* if the impact of the demand side factor (or combination) is less than, and greater than, projected; and
 - (4) identify information available in the *ISP database* relating to demand side factors.
- (d) A demand side factors statement may include other information and analysis that *AEMO* considers relevant having regard to the purpose of the demand side factors statement.

Information to be provided by Distribution Network Service Providers

- (e) A *Distribution Network Service Provider* must, in accordance with the Demand Side Factors Information Guidelines, prepare and provide to *AEMO*, information for the demand side factors statement.
- (f) Despite paragraph (e), a *Distribution Network Service Provider*:
 - (1) is only required to provide information in the possession or control of the *Distribution Network Service Provider* or that is based on information in its possession or control; and
 - (2) is not required to disclose information:
 - (i) that the *Distribution Network Service Provider* is required by law not to disclose;

- (ii) in relation to which the *Distribution Network Service Provider* owes an obligation of confidentiality to another person; or
- (iii) that is subject to legal professional privilege.

Demand Side Factors Information Guidelines

- (g) *AEMO* must develop, *publish* and maintain Demand Side Factors Information Guidelines for the collection of information from *Distribution Network Service Providers* that *AEMO* considers is reasonably necessary for the preparation of a demand side factors statement.
- (h) The Demand Side Factors Information Guidelines must set out:
 - (1) the categories of information that a *Distribution Network Service Provider* must provide to *AEMO*, which may differ according to the circumstances of the *Distribution Network Service Provider*;
 - (2) an explanation of how the information will be used to inform the demand side factors statement;
 - (3) the form in which information must be provided to *AEMO*;
 - (4) the process and timetable for the provision of information to *AEMO*, including when *AEMO* may issue requests for information and the time by which a *Distribution Network Service Provider* must provide its response; and
 - (5) the process for *AEMO* to handle claims of confidentiality in relation to information in a response.
- (i) In developing the Demand Side Factors Information Guidelines, *AEMO* must:
 - (1) consider whether the relevant information is already available to *AEMO* from other sources;
 - (2) consult with the *AER* and *Distribution Network Service Providers* to determine the costs and benefits of *Distribution Network Service Providers* preparing and providing information in accordance with the Demand Side Factors Information Guidelines;
 - (3) have regard to the reasonable costs of efficient compliance by *Distribution Network Service Providers* with the Demand Side Factors Information Guidelines compared to the likely benefits from the use of information for the purposes of informing an *Integrated System Plan*; and
 - (4) have regard to the need to allow for the different circumstances of *Distribution Network Service Providers* with respect to the matters in the demand side factors statement.
- (j) *AEMO* must comply with the *Rules consultation procedures* when developing or amending the Demand Side Factors Information Guidelines.
- (k) *AEMO* must *publish* the information provided to *AEMO* by *Distribution Network Service Providers* under the Demand Side Factors Information Guidelines in the *ISP database*.

5.22.7 ISP consumer panel

- (a) In respect of the preparation of an *Integrated System Plan*, AEMO has the function of establishing and supporting a panel ("**ISP consumer panel**") to provide written reports to AEMO on:
 - (1) the *Inputs, Assumptions and Scenarios Report* that will be used to prepare a draft *Integrated System Plan*; and
 - (2) the draft *Integrated System Plan*,
(each a "**consumer panel report**").
- (b) The *ISP consumer panel* must consist of at least 3 members appointed by AEMO, who have qualifications or experience in a field AEMO considers relevant to the assessment of the *Integrated System Plan* and who have experience representing consumer interests.
- (c) Prior to appointing members to the *ISP consumer panel*, AEMO must publish an expression of interest for persons to apply to become a member. The expression of interest must include:
 - (1) the terms of reference for the *ISP consumer panel*; and
 - (2) information about the requisite qualifications and experience required to become a member.
- (d) The *ISP consumer panel*:
 - (1) must, in accordance with the terms of reference, give a consumer panel report to AEMO within two months of AEMO publishing the *Inputs, Assumptions and Scenarios Report* and draft *Integrated System Plan* respectively;
 - (2) must, in preparing the consumer panel report, have regard to the *national electricity objective*; and
 - (3) may carry out its activities, including the giving of a consumer panel report, in the way it considers appropriate but must seek to give the report by consensus.
- (e) A consumer panel must:
 - (1) include the *ISP consumer panel's* assessment of the evidence and reasons supporting the *Inputs, Assumptions and Scenarios Report* or draft *Integrated System Plan* respectively; and
 - (2) state whether the report is given by consensus.
- (f) AEMO must publish a consumer panel report on its website.
- (g) AEMO must have regard to a consumer panel report but is not obliged to give effect to any recommendations in a consumer panel report.

5.22.8 Preliminary consultations

- (a) AEMO must, in accordance with the *ISP timetable* and the *Forecasting Best Practice Guidelines*, develop, consult and publish a report on the inputs,

assumptions and scenarios to be used for the *Integrated System Plan* (the *Inputs, Assumptions and Scenarios Report*).

- (b) In developing the *Inputs, Assumptions and Scenarios Report* and *ISP methodology*, *AEMO* must:
 - (1) make an invitation to make submissions as set out in a published notice within a specified timeframe of not less than 30 days from the date of the invitation;
 - (2) must take into consideration the submissions received within the specified timeframe; and
 - (3) publish an issues summary on material issues and *AEMO's* response to each issue.
- (c) The *Inputs, Assumptions and Scenarios Report* may:
 - (1) be included in a document that also provides for the assumptions and inputs to be used in preparing other *AEMO* publications, including a *reliability forecast*;
 - (2) be consulted on as part of the same consultation process with relevant stakeholders in preparing other *AEMO* publications, including a *reliability forecast*; and
 - (3) be updated for an *Integrated System Plan* process separately to the consultation process used in preparing a *reliability forecast*, in accordance with paragraph (b).
- (d) *AEMO* must, in accordance with the *Forecasting Best Practice Guidelines*, develop, consult and publish a cost benefits analysis and modelling methodology to be used for *Integrated System Plan* ("*ISP methodology*") which is consistent with the *Cost Benefit Analysis Guidelines*.

5.22.9 AER transparency review on Inputs, Assumptions and Scenarios Report

- (a) The *AER*, must within one month of the publication of the *Inputs, Assumptions and Scenarios Report* that will be used to prepare the draft *Integrated System Plan*, publish a report ("**IASR review report**") of its review as to the transparency of the *Inputs, Assumptions and Scenarios Report*, including whether:
 - (1) *AEMO* has adequately explained how it has derived key inputs and assumptions and how key inputs and assumptions have changed since the previous *Integrated System Plan*; and
 - (2) key inputs and assumptions have been based on verifiable sources, or that *AEMO* has provided stakeholders with adequate opportunity to propose alternative inputs and assumptions where verifiable sources are not readily available.
- (b) The *AER* is not required to consult on an *IASR review report*.
- (c) If the *IASR review report* identifies issues with the *Inputs, Assumptions and Scenarios Report*, *AEMO* must:

- (1) as soon as practicable, provide further explanatory information in an addendum to the *Inputs, Assumptions and Scenarios Report*; and
- (2) consult on the issues in the draft *Integrated System Plan*.

5.22.10 Preparation of ISP

ISP requirements

- (a) In preparing an *Integrated System Plan*, AEMO must:
 - (1) comply with any requirements set out in the *Cost Benefit Analysis Guidelines* under clause 5.22.5(c);
 - (2) comply with any requirements set out in the *Forecasting Best Practice Guidelines* under clause 5.22.5(j);
 - (3) adopt the inputs and assumptions, material issues and scenarios identified in the *Inputs, Assumptions and Scenarios Report*, or provide reasons where AEMO has used updated information;
 - (4) seek to deliver ~~power system needs~~ *the needs of consumers of electricity*;
 - (5) consider the following matters:
 - (i) the efficient integration of ISP development opportunities;
 - (ii) the risks to consumers arising from uncertainty, including over investment, under-investment, premature or overdue investment;
 - (iii) fuel security;
 - (iv) *credible options* (including *non-network options*);
 - (v) outcomes of joint planning with *Transmission Network Service Providers* under clause 5.14.4;
 - (vi) relevant intra jurisdictional developments and any incremental works that may be needed to coordinate the *Integrated System Plan* with intra jurisdictional planning;
 - (viAA) the content of *the Jurisdictional ISP Development Opportunity Deployment Report provided by the Minister of each participating jurisdiction*;
 - (viA) outcomes of the *general power system risk review*;
 - (vii) the forecast quantity of electricity that is expected to flow, and the periods in which electricity is expected to flow, and the magnitude and significance of future *network losses* on *interconnectors*, as projected in the *Integrated System Plan* over the *Integrated System Plan* planning horizon;
 - (viii) the projected capability of the *national transmission grid*, and the technical requirements of the *power system* (such as *frequency, voltage, inertia* and system strength) required to support the secure and reliable operation of the *national transmission grid*;

- (ix) *good electricity industry practice*; and
- (x) such other matters as *AEMO* considers relevant.

Relevant documents

- (b) In preparing an *Integrated System Plan*, *AEMO* must have regard to the following documents:
 - (1) the *ISP methodology*;
 - (2) the *Cost Benefit Analysis Guidelines*;
 - (3) the *Forecasting Best Practice Guidelines*;
 - (4) the most recent *Transmission Annual Planning Reports*;
 - (4A) the *Jurisdictional ISP Development Opportunity Deployment Report*;
 - (5) the most recent *statement of opportunities*;
 - (6) the most recent gas industry information publications;
 - (7) the most recent *NSCAS Report*, *System Security Report* and *Inertia Report*;
 - (7A) the most recent *general power system risk review*;
 - (8) *ISP consumer panel* reports;
 - (8A) any *REZ design reports* published under clause 5.24.1(b)(1); and
 - (9) any other documents that *AEMO* considers relevant.

Market benefits

- (c) In preparing an *Integrated System Plan*, *AEMO* must:
 - (1) consider the following classes of market benefits **listed below** that could be delivered by the *development path*, **through the actionable ISP projects, future ISP projects and ISP development opportunities** that together address **the needs of consumers of electricity**:
 - (i) ~~changes in fuel consumption arising through different patterns of generation dispatch~~; changes in the average cost of per unit of electrical energy consumed;
 - (ii) changes in voluntary *load* curtailment;
 - (iia) changes in voluntary *load* shifting;
 - (iii) changes in involuntary *load shedding*, with the market benefit to be considered using a reasonable forecast of the value of electricity to consumers;
 - (iiia) changes in involuntary generation curtailment;
 - (iv) changes in costs incurred due to differences in timing of investments.

~~changes in costs incurred for by parties, in constructing or providing or operating or maintaining new generation, storage, transmission, distribution or demand side participation assets, due to:~~

~~(A) differences in the timing of new plant;~~

~~(B) differences in capital costs; and~~

~~(C) differences in the operating and maintenance costs;~~

- (v) differences in the timing of expenditure;
- (vi) changes in *network losses*;
- (vii) changes in *ancillary services* costs;
- (viii) changes in Australia's greenhouse gas emissions;
- (ix) competition benefits;
- (x) any additional option value (where this value has not already been included in the other classes of market benefits) gained or foregone from implementing that *development path* with respect to the likely future investment needs of the *market*; and
- (xi) other classes of market benefits that are:
 - (A) determined to be relevant by *AEMO* and agreed to by the *AER* in writing before the publication of the draft *Integrated System Plan*; or
 - (B) specified as a class of market benefit in the *Cost Benefit Analysis Guidelines*;
- (2) include a quantification of all classes of market benefits which are determined to be material to the optimal *development path* in *AEMO's* reasonable opinion; and
- (3) consider all classes of market benefits as material unless it can provide reasons why:
 - (i) a particular class of market benefit is likely not to materially affect the outcome of the assessment of the *development path*; or
 - (ii) the estimated cost of undertaking the analysis to quantify the market benefit is likely to be disproportionate given the level of uncertainty regarding future outcomes.

Costs

- (d) In preparing an *Integrated System Plan*, *AEMO* must quantify the following classes of costs:
 - (1) costs incurred in constructing or providing the ~~projects~~ *actionable ISP projects, future ISP projects and ISP development opportunities* in the *development path*;

- (2) operating and maintenance costs in respect of the *projects actionable ISP projects, future ISP projects and ISP development opportunities* in the *development path*;
- (3) the cost of complying with laws, regulations and applicable administrative requirements in relation to the construction and operation of the *projects actionable ISP projects, future ISP projects and ISP development opportunities* in the *development path*; and
- (4) any other class of costs that are:
 - (i) determined to be relevant by *AEMO* and agreed to by the *AER* in writing before the publication of the draft *Integrated System Plan*; or
 - (ii) specified as a class of cost in the *Cost Benefit Analysis Guidelines*.

5.22.11 Draft Integrated System Plan

- (a) *AEMO* must publish the draft *Integrated System Plan* in accordance with the *ISP timetable* and include:
 - (1) all relevant matters referred to in clause 5.22.6;
 - (2) if applicable, an explanation of how *AEMO* has had regard to the consumer panel report on the *Inputs, Assumptions and Scenarios Report*;
 - (3) an invitation for written submissions on the draft *Integrated System Plan*, which must:
 - (i) specify the deadline for when written submissions must be submitted which date must not be earlier than 30 *business days* after the publication of the draft *Integrated System Plan*; and
 - (ii) list the matters in respect of which submissions are invited; and
 - (4) an invitation to participate in public forums on the draft *Integrated System Plan*.
- (b) *AEMO* must hold a public forum on the draft *Integrated System Plan* prior to the deadline for written submissions.
- (c) Any person may make a written submission to *AEMO* on the matters, documents and information referred to in paragraph (a) and which forms part of the draft *Integrated System Plan*, by the date specified in the *ISP timetable*.
- (d) Nothing in this clause 5.22.11 is to be construed as precluding *AEMO* from publishing any issues, consultation and discussion papers, or holding any conferences and information sessions that *AEMO* considers appropriate.
- (e) *AEMO* must publish submissions on its website subject to its confidentiality obligations under section 54 of the *NEL*.

5.22.12 Non-network options

- (a) Where a draft *Integrated System Plan* identifies an *actionable ISP project*, *AEMO* must publish a notice at the same time as it publishes the draft *Integrated System Plan*, that:

- (1) requests submissions for *non-network options*;
- (2) provides sufficient detail on the technical characteristics that the *non-network options* must meet; and
- (3) describes the relevant technical characteristics of the *identified need* that the *actionable ISP project* (including any *non-network option*) is addressing, such as:
 - (i) the size of the load reduction or additional *supply*;
 - (ii) location; and
 - (iii) operating profile.
- (b) Proponents of *non-network options* requested under paragraph (a) must submit their *non-network option* proposal to AEMO within 12 weeks of the publication of the draft *Integrated System Plan*.
- (c) AEMO and the relevant *Transmission Network Service Provider* will conduct a preliminary review of the *non-network option* proposal submitted by a proponent under paragraph (b), as part of the joint planning process under clause 5.14.4.
- (d) AEMO must provide its assessment in the *Integrated System Plan* on whether the *non-network option* proposals submitted under paragraph (b) meet, or are reasonably likely to meet, the relevant *identified need*, as outlined in the draft *Integrated System Plan*.
- (e) If the assessment of *non-network options* proposals in the *Integrated System Plan* concludes:
 - (1) that the *non-network option* proposal is reasonably likely to meet the relevant *identified need*, the relevant *Transmission Network Service Provider* must assess that *non-network option* proposal in their *project assessment draft report*; or
 - (2) that the *non-network option* proposal will not meet the relevant *identified need*, the relevant *Transmission Network Service Provider* does not have to assess that *non-network option* proposal in their *project assessment draft report*.

5.22.13 AER transparency review of draft Integrated System Plan

- (a) The AER, must within one month of the publication of the draft *Integrated System Plan*, publish a report ("**ISP review report**") of its review as to whether AEMO has adequately explained how it has derived key inputs and assumptions and how key inputs and assumptions have contributed to the outcomes in the draft *Integrated System Plan*.
- (b) The AER is not required to consult on an *ISP review report*.
- (c) If the *ISP review report* identifies issues with the draft *Integrated System Plan*, AEMO must:
 - (1) as soon as practicable, provide further explanatory material in an addendum to the draft *Integrated System Plan*; and

- (2) consult on the issues.

5.22.14 Final Integrated System Plan

- (a) *AEMO* must publish the *Integrated System Plan* in accordance with the *Rules* and the *ISP timetable*.
- (a1) *The Integrated System Plan must be consistent with the clauses 5.22.2.*
- (b) The *Integrated System Plan* must include:
 - (1) all relevant matters for an *Integrated System Plan* referred to in clauses 5.22.6 and 5.22.12;
 - (2) an explanation of how *AEMO* has had regard to the consumer panel report on the draft *Integrated System Plan*;
 - (3) the reasons for decisions made in relation to the *Integrated System Plan*; and
 - (4) *AEMO's* responses to each of the stakeholders' submissions made in response to the addendum to the draft *Integrated System Plan* to *AEMO* under clause 5.22.13(c).
- (c) *AEMO* must publish on its website:
 - (1) if the *Integrated System Plan* identifies an *actionable ISP project* not included in the draft *Integrated System Plan*, a notice requesting submissions for *non-network options*, which notice must include the information specified in clause 5.22.12(a) and the period in which proponents of *non-network options* must submit their *non-network options* to *AEMO*;
 - (2) summaries of each issue, that *AEMO* reasonably considers to be material, contained in valid written submissions received under clauses 5.22.9(c)(2), 5.22.11, and 5.22.13(c)(2);
 - (3) *AEMO's* response to each such issue; and
 - (4) subject to its confidentiality obligations under section 54 of the *NEL*, copies of those written submissions.

5.22.15 ISP updates

- (a) *AEMO* must issue an *ISP update* if:
 - (1) a *RIT-T proponent's preferred option* for an *actionable ISP project* fails to satisfy the trigger event set out in clause 5.16A.5(b);
 - (2) there is no *credible option* for an *actionable ISP project* that satisfies the *regulatory investment test for transmission* under rule 5.16A; or
 - (3) in the course of assessing a *preferred option* in respect of an *actionable ISP project* for the purposes of clauses 5.16A.5(b), *AEMO* considers that there is a material change to the need for, or characteristics of another *actionable ISP project*.
- (b) If, after the publication of the most recent *Integrated System Plan*:

- (1) new information becomes available to *AEMO* relating to the matters set out in clause 5.22.6 and, in *AEMO's* reasonable opinion, that new information, may materially change the outcome of the *regulatory investment test for transmission* for an *actionable ISP project* that has either commenced or is due to commence prior the publication of the next *Integrated System Plan*; or
 - (2) a *RIT-T proponent* requests *AEMO* to assess an *actionable ISP project* or stage of an *actionable ISP project* under clause 5.16A.5(b),
- then *AEMO* must as soon as practicable, assess the impact of the new information on the *optimal development path* under that *Integrated System Plan*.
- (c) If *AEMO* is required to publish an *ISP update* under paragraph (a), or *AEMO's* assessment under paragraph (b) determines that there is a material change to the need for, or the characteristics of a current *actionable ISP project*, *AEMO* must consult on the new information and the impact on the *optimal development path* under the *Integrated System Plan*, in accordance with the consultation requirements set out in the *Forecasting Best Practice Guidelines* for an *ISP update*.
 - (d) An *ISP update* must include:
 - (1) a description of the new information requiring the update in a descriptive form that is consistent with the *Integrated System Plan*; and
 - (2) the impact of that new information on the *optimal development path* under the *Integrated System Plan*.
 - (e) If *AEMO* has consulted under paragraph (c), *AEMO* must publish on its website:
 - (1) summaries of each issue, that *AEMO* reasonably considers to be material, contained in valid written submissions received under paragraph (d);
 - (2) *AEMO's* response to each such issues; and
 - (3) subject to its confidentiality obligations under section 54 of the *NEL*, copies of those written submissions.

5.22.16 ISP database

- (a) *AEMO* must establish, maintain and make available to the public, a database ("**ISP database**") of information that includes:
 - (1) inputs used by it in preparing the most recent *Integrated System Plan* or *ISP update*;
 - (2) the most recent *Inputs, Assumptions and Scenarios Report*;
 - (3) supporting information in relation to each of the draft and final *Integrated System Plan* (at the same time as they are published) which will assist in the understanding of the draft and final *Integrated System Plan* having regard to:
 - (i) the *Forecasting Best Practice Guidelines*;
 - (ii) *AEMO's* confidentiality obligations under section 54 of the *NEL*; and

- (iii) the best form of the information for this purpose; and
 - (4) *NSCAS Reports, System Strength Reports and Inertia Reports*.
- (b) Subject to paragraph (c) and its confidentiality obligations under section 54 of the *NEL*, *AEMO* must publish the following on *AEMO's* website:
 - (1) any forecasts prepared under clause 5.22.18(b)(1); and
 - (2) sufficient information used to develop the forecasts referred to in subparagraph (1) to enable an understanding of how such forecasts were developed.
- (c) The information referred to in subparagraph (b)(2) must be published at the same time as, or as soon as reasonably practical after, the forecasts referred to in (b)(1).

5.22.16A MCE and minister of participating jurisdiction

- (a) The Minister of each *participating jurisdiction* must provide assistance *AEMO* reasonably requests in connection with the preparation of the ISP.
- (b) The Minister of each *participating jurisdiction* must consider the recommendations made by *AEMO* pursuant to clauses 5.22.6(a)(6a)(i), 5.22.6(6a)(iii) and 5.22.6(a)(6a)(iv).
- (c) The Minister of each *participating jurisdiction* must provide a biennial *Jurisdictional ISP Development Opportunity Deployment Report* to *AEMO* reporting on progress in respect of, or response to, *AEMO* recommendations pursuant to clauses 5.22.6(a)(6a)(i), 5.22.6(6a)(iii) and 5.22.6(a)(6a)(iv).
- (c) *AEMO* must publish a *Jurisdictional ISP Development Opportunity Deployment Report* on its website within 1 month of receiving the report.
- (d) The MCE must meet and discuss all *Jurisdictional ISP Development Opportunity Deployment Reports* submitted by the *participating jurisdictions*.

5.22.17 Jurisdictional planning bodies and jurisdictional planning representatives

- (a) A *jurisdictional planning body* must provide assistance *AEMO* reasonably requests in connection with the performance of its *NTP functions*.
- (b) If there is no *jurisdictional planning body* or no *jurisdictional planning representative* for a *participating jurisdiction*, *AEMO* may assume the functions of such a body or representative under the *Rules*.

5.22.18 NTP Functions

- (a) Paragraph (b) has effect for the purposes of section 49(2)(e) of the *NEL*.
- (b) The *NTP functions* also include the following:
 - (1) developing any forecasts of electricity demand at a *regional* or *connection point* level; and
 - (2) *AEMO's* functions relating to an *Integrated System Plan* under clause 5.14.4 and rules 5.16A, 5.22 and 5.23.

- (c) *AEMO's* preparation and publication of *Integrated System Plans* is undertaken pursuant to, and in satisfaction of, *AEMO's NTP functions* under sections 49(2)(a) to (d) of the *NEL*.