ISP 2022 Consumer Panel

AEMO

Attention: ISP @aemo.com.au

Submission: Draft ISP Methodology

28 May 2021

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1 About the ISP Consumer Panel [1]

The ISP Consumer Panel's role is to provide independent expert advice and promote the views and ideas of consumers during development of the 2022 ISP. Our focus is to ensure the long-term interests of consumers are front and centre in all deliberations related to the ISP. Key considerations for the panel will include how the 2022 ISP develops a whole-of-system plan for the National Electricity Market ensuring the best mix of energy resources to deliver lowest cost, sustainable and reliable energy to energy consumers.

The Panel is required to publish two main reports: a report in September 2021 on the Inputs, Assumptions and Scenarios Report (IASR), and a report in February 2022 on the Draft ISP. AEMO must have regard to the Panel's reports as part of its decision-making, and the Draft ISP and Final ISP must include information about how AEMO has considered the Panel's reports.

As well as publishing the two reports required under the rules, the Panel is engaging closely with AEMO through formal and informal submissions and other activities. We have previously made submissions on the draft IASR and on the ISP Methodology Issues Paper. We see our role as part of an ongoing process, helping AEMO develop the critical infrastructure roadmap that underpins our electricity system at a time of significant change and uncertainty in the future

The Consumer Panel can be contacted via ispconsumerpanel@aemo.com.au

[1] See https://www.aemo.com.au/energy-systems/major-publications/integrated-system-plan-isp/2022-integrated-system-plan-isp/get-involved/consumer-panel

2 Summary

This submission provides our comments on the Draft ISP Methodology. We have focussed on issues that we consider are most likely to have a material impact on outcomes for consumers and where a consumer perspective can meaningfully influence AEMO's approach.

Through our engagement with AEMO and consumer stakeholders during the ISP Development process to date, it is becoming clear that our role can be characterised as having (at least) two overarching objectives:

- Forecast accuracy: Promoting increased accuracy of forecasts through engagement with consumers and their representatives.
- Managing uncertainty: Ensuring the ISP adequately deals with the inevitability that these forecasts will be wrong due to the uncertainty in future electricity needs and supply options.

In the context of AEMO's depiction of the Parallel ISP consultations (below), engaging with the Inputs Assumptions and Scenarios (IASR) workstream is largely focussed on improving the accuracy of forecasts while the Methodology stream is largely focussed on managing uncertainty:

Figure 2 Parallel ISP consultations

Overall, we support the approach set out in the Draft ISP Methodology, with a few comments on potential refinements and suggestions for how aspects of it could be implemented. We do, however, have some ongoing concerns around:

(i) AEMO's annuity approach to costs and benefits, particularly the methodology for managing the uncertainty of future benefits and how this interacts with determining an approach to discount rates as part of the (IASR) workstream.

(ii) The treatment of hydrogen in the context of significant contemporary enthusiasm that is only supported by relatively high level, simplistic analysis.

We consider that AEMO has done a good job of responding to feedback on the ISP Methodology Issues Paper from ourselves and other stakeholders. AEMO has made an increased effort to explain how it has considered and responded to feedback compared to its approach in previous ISP documents. The publication of a separate Consultation Paper accompanying the Draft ISP Methodology summarising the key themes of submissions and how AEMO has responded to them is a welcome development that should be used for all future major ISP publications.

The Draft ISP itself is also written in a more accessible plain English style that hopefully makes it easier for consumer representatives to engage with, although noting that parts of it remain highly technical due to the content.

The material points raised in our Issues Paper submission have been addressed and we welcome the additional information AEMO has provided on areas we felt were not sufficiently explained in the Issues Paper.

In particular, we are pleased to see that the Draft ISP Methodology more clearly explains AEMO's proposed approach to the following issues we raised in our submission on the Issues Paper and we broadly support the approach AEMO proposes to take on each of these issues:

- The methodology AEMO proposes to use for determining scenario weightings.
- AEMO's proposed approach to the use of sensitivities, and the difference between a 'scenario' and a 'sensitivity'.
- The range of approaches AEMO intends to use for selecting the optimal development path, including proposing to use multiple methodologies including a weighted net market benefits approach, a least-worst regrets approach, a least-worst weighted regrets approach, a take-one-out-at-a-time (TOOT) analysis and additional sensitivity analysis.

Accurately modelling the energy system of the future as required by the ISP is an almost impossible task, particularly given the extent of current changes in government policies and technology. Better understanding and managing the risks to consumers of either under- or over-investment when the future turns out to be different to what was modelled is a key focus of the Panel. The selection of appropriate scenarios, a consultative approach to developing scenario weights, inclusion of appropriate sensitivity testing and the use of a range of tools to determine the optimal development path are all critical ways AEMO can better manage these risks to consumers and give consumers increased confidence that the 'optimal development path' is likely to remain optimal despite what changes may occur after investment is committed.

Our main substantive comments in this submission relate to AEMO's proposed approach to determining the weighting of the scenarios, which we discuss in section 3 below. Other comments on specific aspects of the Draft ISP Methodology are set out in section 4.

3 Methodology for determining scenario weightings

Our submission on the ISP Methodology Issues Paper stated that we had expected more discussion on how AEMO is approaching the development of scenario weightings, as the Issues Paper was almost entirely silent on this critical issue. We expressed concern that the Issues Paper implied that AEMO may not consult on scenario weightings and may not explain its approach to selecting weightings until the Draft ISP. We proposed that scenario weightings:

> *should be consulted on now as part of finalising the Methodology. We appreciate that scenario weightings are likely to be difficult to determine and relatively subjective, but this makes it even more important that AEMO explains and consults on how it proposes to select those weightings.*
>
> *We believe that an approach that fails to engage in detailed consultation in the context of finalising the ODP will not meet the requirements set out in the AER Guidelines.*

AEMO has taken on board this feedback and similar comments from other stakeholders in the Draft ISP Methodology. AEMO now proposes that:

> *Scenario weights are developed through the use of the Delphi technique and refined through a consultation process that follows the finalisation of scenarios through the IASR process...*
>
> *The Delphi technique draws on an anonymous panel of up to 10 subject matter experts, both internal and external to AEMO, to rank the relative likelihood of each scenario using a questionnaire, and provide reasoning for their selection. Responses are collected, analysed, common and conflicting views identified, and shared with the panel. Panel members then have the opportunity to modify their original views based on the varying positions of other panel experts, with the goal being to reach consensus where possible.*
>
> *Following this process, a stakeholder workshop provides the opportunity for discussion with a broader range of stakeholders, seeking feedback on the reasonableness of weights proposed through the Delphi technique.*
>
> *Before this engagement, AEMO will provide the following information with sufficient time provided for stakeholder consideration:*
>
> - *A scenario or selection of scenarios that meet the criteria for being a candidate for the most likely scenario, that being those scenarios that take the most probable or central outlook for key input variables (for example, economic and population growth, DER uptake). If more than one scenario is specified, these will differ with respect to input such as key events or policy drivers.*
> - *A preliminary view of AEMO's assessment of the weights of each scenario, along with an explanation for how AEMO has made this assessment using outcomes of the Delphi survey technique.*

We support this approach. We consider that an appropriately selected Delphi Panel and broad stakeholder consultation is a sensible way to manage the subjectivity and uncertainty that is inherent in any decision on scenario weightings.

It is critical that consumer perspectives are strongly represented on the Delphi Panel. This will help AEMO incorporate consumers' views on the likelihood of various scenarios and the implications for consumers in terms of allocation of risk and the management of uncertainty. It should also help improve the legitimacy of the ISP amongst stakeholders compared, for example, with a Delphi Panel that is made up entirely of AEMO staff, industry participants and academics. We recommend that the Delphi Panel includes multiple consumer representatives, at least including:

- representation of small, distribution connected consumers, e.g. the CEO of Energy Consumers Australia or her nominee; and
- representation of large, transmission connected consumers, e.g. the CEO of the Energy Users Association of Australia or the Public Officer of Major Energy Users Inc.

The success of any Delphi Panel is also contingent on the choice of independent facilitator, the design of the questionnaire and the number of rounds conducted. We consider that it would not be appropriate for a member of the ISP Consumer Panel to be on the Delphi Panel given our independent role under the rules. Instead we encourage AEMO to involve the Consumer Panel in a co-deign approach to the process.

> *Co-design principles and process is about challenging the imbalance of power held within groups of individuals, who make important decisions about others lives, livelihoods, and bodies. Often, with little to no involvement of the people who will be most impacted by these decisions.*[3]

We encourage AEMO to resource this process sufficiently to engender consumer confidence in the results.

4 Other comments on the Draft ISP Methodology

4.1 Principles governing the cost benefit analysis

The Draft ISP Methodology states that AEMO will be guided by the following principles when undertaking the cost benefit analysis of alternative development paths:

[3] "What is Co-design" the book, available from www.beyondstickynotes.com/what-is-codesign

- *Ensuring flexibility to respond to the conditions in each scenario is appropriately valued, including the consideration of any option value provided by early works and other forms of project staging or timing.*
- *A consideration of the concept of regret as a measure of risk to consumers when considering the merits of any decision to invest or not invest in an ISP project.*
- *The need to ensure that the determination of the ODP is resilient to changes in input assumptions.*

We support these principles and consider that they will assist in the development of an ISP that promotes the long term interests of consumers by minimising the risk of over- or under-investment.

We encourage AEMO to take a similar approach to specifying guiding principles for other parts of the ISP, e.g. for the development of inputs, assumptions and scenarios in the final IASR report. Previous ISP documents such as the draft IASR report have tended to dive straight into dense technical details rather than starting with a clear explanation of the over-arching principles AEMO will apply to reach decisions that promote the long-term interests of consumers.

4.2 Sensitivities

As noted above, we welcome the additional detail AEMO has provided on how it will use sensitivities as part of selecting the optional development path. The use of these sensitivities will be a valuable way of **managing uncertainty** in AEMO's key inputs and assumptions. In particular, the proposed low gas price sensitivity can go some way to addressing our concerns over the robustness and transparency of AEMO's gas price forecasts.

There would be value in the final ISP Methodology or final IASR providing further detail on how these sensitivities will be used, including:

- what is the full list of sensitivities that will be used; and
- what sensitivities will be applied to each scenario.

4.3 Evaluation of costs and benefits and terminal value

The Draft and Consultation Paper provide additional information on why the modelling uses an annuity based approach for both costs and benefits rather than the more conventional alternative of upfront capex/annual assessment of benefits and inclusion of terminal values. We appreciate the additional information provided but we still have serious concerns about the overall approach to managing uncertainty over future benefits.

While we understand the advantages of the annuity approach to **costs** when comparing different projects with different economic lives, our main concern is around how this approach treats **benefits**. The Consultation Papers notes (p.28):

> *"This approach avoids making assumptions on the ongoing benefits of project investments beyond the modelling period. This is equivalent to assuming that costs and benefits are balanced beyond the modelling horizon."*

With the use of the word 'avoid' implying that it is a benefit. On the contrary we consider it a potentially serious flaw. Consider a 50 year asset like a Renewable Energy Zone (REZ) or interconnector that may become part of the Optimal Development Path (ODP) and is developed from 2030. The annuity model would assume that costs equal benefits for the period beyond 2050 – nearly two thirds of the asset life. There is no consideration of stranded asset risk.

We have reservations around AEMO using its previous modelling observations as justification for the proposed approach:

> *"Importantly, AEMO has found in previous assessments that the annualisation approach tends to be more conservative on benefits outcomes. AEMO has observed that forecasts of market benefits in the later years of the horizon are generally higher, so the annualisation approach is more likely to under-estimate total benefits for consumers in most instances by ignoring the continued benefits. For example, across many figures in Appendix 2 of the 2020 ISP 8 (Figures 3, 4, 6, 7) it is evident that the annual net market benefits in the later years of the horizon were at or near to the highest values observed across the full horizon."*

Appendix 2 in the 2020 ISP provided the following justification[4]:

> *"As the 2020 ISP modelling horizon ends in 2042, there is, however, an implicit assumption that benefits associated with the interconnector beyond this point are greater than or equal to the remaining cost of the interconnector. This is a reasonable assumption to make given that benefits of interconnection in the optimal development path generally increase over time as more coal fired generation retires and is replaced with VRE."*

We do not think this should be an automatic assumption because it is an assumption built on an assumption that is contestable. It is contestable because it assumes that retirement of coal plant will always be replaced by transmission connected VRE. This **may** not be the case and we are seeking greater confidence in the treatment of uncertainty over future benefits.

[4] See p. 11 https://aemo.com.au/-/media/files/major-publications/isp/2020/appendix--2.pdf?la=en

After arguing that there is a strong case for the 'benefits are greater in the future' proposition, AEMO seem to acknowledge its limitations in that it[5]:

> *"…would generally result in an assessment of higher net market benefits based on outcomes far into the future where uncertainty is highest."*

Importantly, from a consumer perspective, we are comparing **relatively certain costs** with **uncertain benefits –** both within and beyond the modelling period to 2050.

We are engaging with AEMO on the approach to discounts rates that will be finalised in the IASR. AEMO has engaged an expert consultant and the results of this process will be a key contributor to the management of uncertainty alongside the weighting of scenarios and agreement on the annuity approach to future benefits.

4.4 Gas Supply Model

The Draft ISP Methodology Consultation Paper explains that 'ideally, electricity and gas systems would be co-optimised' but due to computational complexity AEMO 'no longer includes the Gas Supply Model as a core component of the ISP Methodology'.

We appreciate the modelling complexity involved in co-optimising gas and electricity investment, and that the ISP is required by the rules to be a whole of system plan for the electricity system not the broader energy system. However, we think this is an unfortunate limitation on the scope of the ISP and a missed opportunity to improve overall outcomes for energy consumers. We encourage AEMO to include gas supply issues in the ISP to the maximum extent possible and consider ways to improve co-optimisation and coordination in future ISPs. We feel this is likely to be increasingly important in the context of Hydrogen's possible future role in Australia's energy system. Hydrogen is proposed as a substitute for gas in the gas networks but would be produced by electrolysis and hence impacting on the demand for electricity.

4.5 Hydrogen modelling

In our submission on the February Issues Paper, we noted that we are in the very early days of hydrogen modelling and there will be a lot of simplifications. As the Draft notes (p.53):

> *"…the technical progression and commerciality of the (hydrogen) resource is not yet proven, and there remains substantial uncertainty."*

[5] Consultation Paper p.30

We asked for more detail on a range of issues and this has been provided in some, but not all of these. The Draft highlights (p.54):

> *"…a number of simplifying assumptions … when modelling hydrogen in the capacity outlook model"*

These include the domestic and export demand assumptions being 'exogenous and not optimised by the model', only port based electrolyser locations, limited consideration of factors that may differentiate ports (eg development costs, land availability) and 'limited consideration of water availability and cost'[6].

We have previously expressed concern at the methodology to determine the demand forecasts given demand is an exogenous variable. A combination of 'stakeholder engagement' and analysis of consultant reports[7] led to demand assumptions of NEM production of 8 Mt by 2040 and over 20 Mt by 2050. The Draft comments [8]:

> *"…the scale and location of hydrogen production in Australia is scenario-specific and largely assumption driven, informed by stakeholder engagement and literary reviews of targeted hydrogen development forecasts"*

We acknowledge that it is a fast moving situation in what hydrogen use cases might be economic and when[9]. Our submission on the Issues Paper remains unchanged:

> *"We are concerned that the conclusions of the Export Superpower scenario will be the focus of debate and advocacy, not the constraints on the results from the simplistic modelling.*

We acknowledge that the 'Export Superpower' scenario has recently been renamed 'Hydrogen Superpower' (see AEMO presentation at the 26 May 2021 Forecasting Reference Group) and the weighting of this against the scenarios reflecting the other potential future worlds will be assessed by the Delphi Panel process. We emphasise the need to reflect the uncertainty in the forecasts in the information provided to that Panel.

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[6] Two of the sites in Queensland are Townsville and Gladstone, both of which have had periods of severe water restrictions in the last decade.

[7] See Draft IASR pp. 173-4

[8] Draft Methodology p.53

[9] See the discussion of a forthcoming report for the CEFC in Angela Macdonald-Smith "CEFC poised for first investment in hydrogen" Australian Financial Review 26 May 2021 https://www.afr.com/companies/energy/cefc-poised-for-first-investment-in-hydrogen-20210524-p57uq8