

Please note that this webinar will be recorded and published online



Draft Integrated System Plan (ISP) Methodology

Pre-submissions webinar

20 April 2023



We acknowledge the Traditional Owners of country throughout Australia and recognise their continuing connection to land, waters and culture.

**We pay respect to their Elders
past and present.**

Today's objectives



Present a high-level summary of the proposed changes to ISP Methodology.



Provide stakeholders with the opportunity to ask AEMO experts any questions about the proposed updates to the ISP Methodology, before written submissions are due on 1 May 2023.

Today's agenda

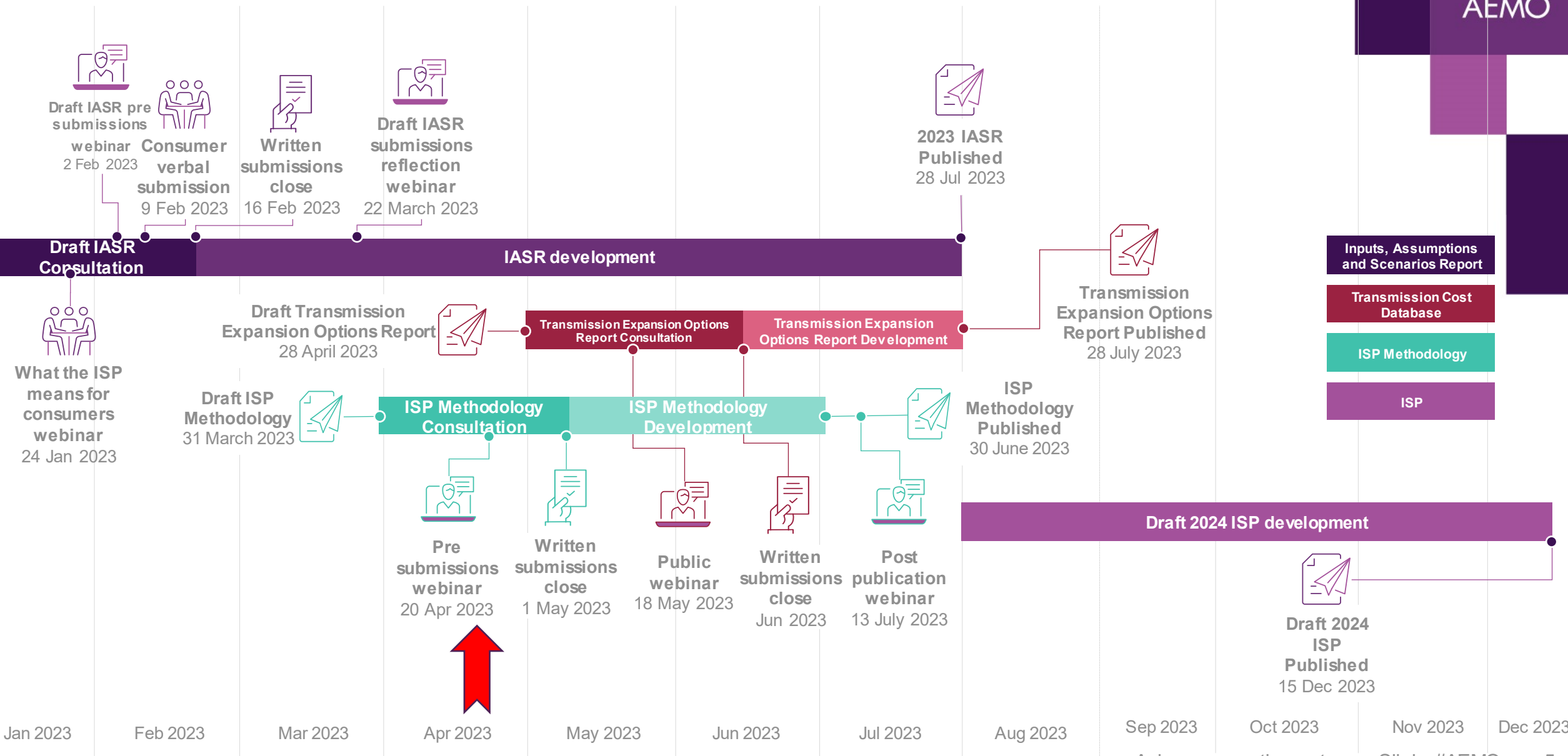
1. Welcome and objectives (2 min)
2. Interaction in the webinar (2 min)
3. Introduction (4 min)
4. Proposed changes to the ISP Methodology (40 min)
5. Questions and comments (40 min)
6. Next Steps (2 min)

How to interact

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Sign in with your name

- Please ask questions or make comments using Slido. When we come to your question, we will unmute you to allow you to engage with the response.
- Written replies may be provided if appropriate.
- We will also place a [direct Slido link](#) in the Teams chat.

Developing the 2024 ISP - Timeline of 2023



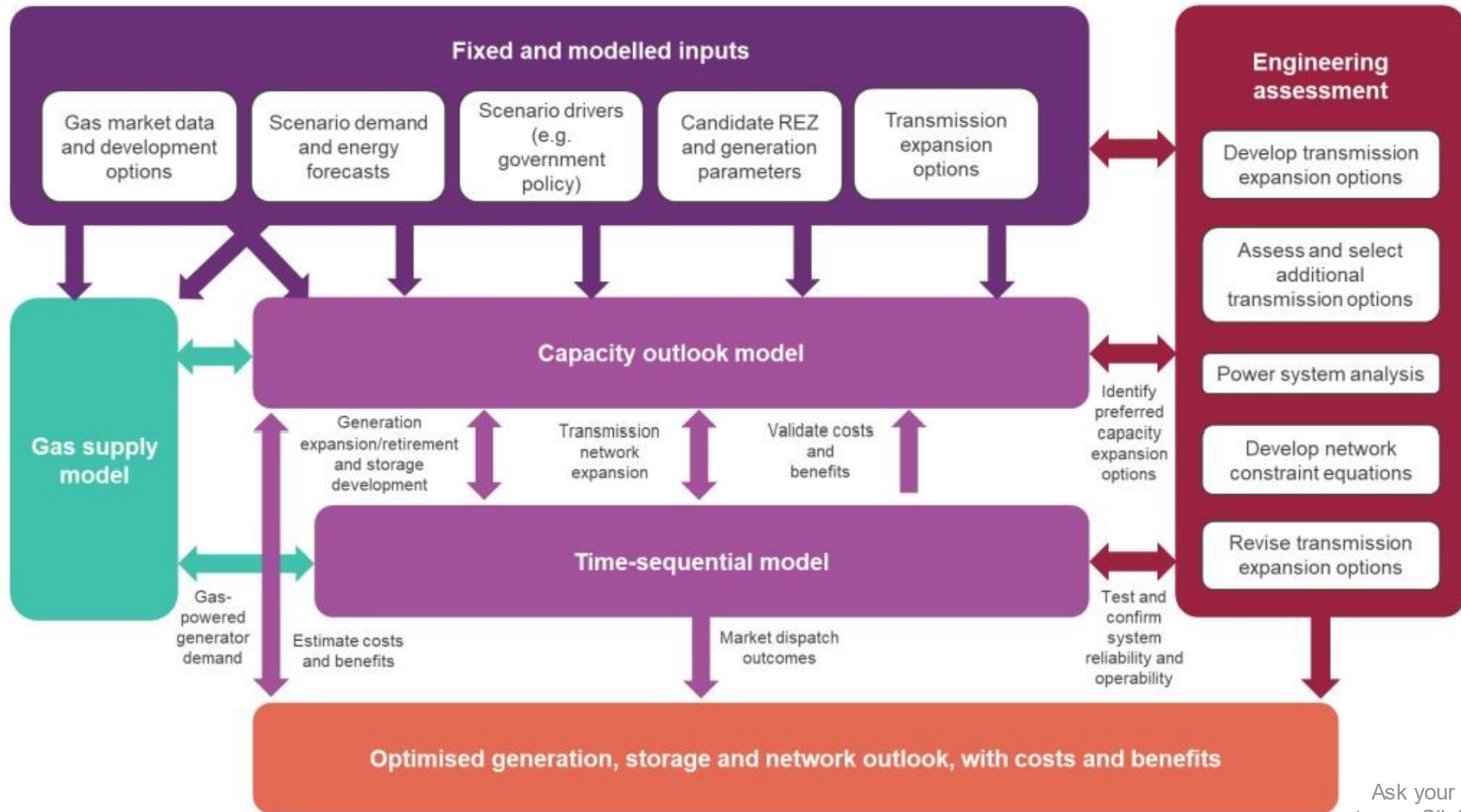
Draft ISP Methodology

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Overview of the ISP modelling methodology



Transmission project lead time uncertainty

The final decision about an ISP Optimal Development Path is strongly influenced by the expected lead times for delivery of individual projects. Supply chain constraints, workforce shortages and community engagement affect these timelines.

AEMO proposes to amend the ISP Methodology so that AEMO can revise project lead times to reflect the greater uncertainty observed in the delivery of these major infrastructure projects.

Impact of fossil-fuelled generation on REZ transmission limits

At the moment, AEMO's modelling approach makes assumptions about synchronous generators being online as part of the setting of transmission network limits for a Renewable Energy Zone (or does 'manual offsets' to adjust for fossil-fuel generator retirements).

To eliminate the need for manual modelling corrections through use of offsets, and given the expected increase in future retirements of fossil-fuelled generators, AEMO proposes to allow fossil-fuelled generators to be included as specific terms in the transmission limits for Renewable Energy Zones.

Network losses between REZs and sub-regions

In the current ISP Methodology, electricity losses are accounted for by modelling losses between the regional reference nodes for each region of the National Electricity Market.

For the creation of Renewable Energy Zones, particularly where they are far from the regional reference node, AEMO is proposing to be able to create new loss equations. This will make sure that electricity losses across the system are appropriately included in the ISP model.

Assumed renewable energy resource quality

AEMO models wind and solar resource quality in the ISP by estimating resource quality based on historical performance profiles, and aggregating these up across the sites assumed to be available inside a Renewable Energy Zone.

AEMO is proposing to:

- Update the wind profile assumptions using the most recent historical performance data.
- Incorporate more granular information about sites which are unsuitable for development within a Renewable Energy Zone, taking account of environmental, ecological and cultural heritage areas as well as land use categories.

Potential inclusion of a value of carbon emissions

Energy Ministers have announced an intention to introduce an emissions reduction objective into the National Electricity Objective. AEMO currently models emissions constraints in the ISP to represent carbon budgets under existing policies.

Once the National Electricity Objective is amended, an additional class of benefit may be required to incorporate the impact of the change into the ISP cost-benefit analysis. AEMO proposes to amend the ISP Methodology to include the possibility of the use of a value of carbon emissions in the ISP analysis, subject to supporting regulatory changes outside of the methodology.

Consumer risk preferences

The current ISP Methodology provides for AEMO to consider consumer risk preferences in the selection of the optimal development path for the ISP. For the 2022 ISP, targeted engagements with consumer advocates were used to incorporate consideration of consumer risk preferences.

AEMO has engaged a consultant to explore the potential use of consumer risk preference metrics. AEMO proposes to amend the ISP Methodology to explain how these metrics may be used.

Dispatch behaviour of short duration storage

AEMO's forecasting and planning models have 'perfect foresight' within each simulated day. This can lead to exaggerated assumptions about dispatch of storage devices – that is, assuming that storage devices will be dispatched at full capacity rate at the exact period when output is most required by the power system.

AEMO proposes to apply limits to the capacity of storage devices in the ISP models to address this issue:

- 50% capacity reduction for devices with less than two hours of storage
- 25% capacity reduction for devices with 2-4 hours storage
- 10% capacity reduction for devices with 4-8 hours of storage.

Duration of demand-side participation response

At the moment, the ISP Methodology assumes that demand side participation response will be unrestricted at times when most required by the power system. However, this approach is no longer consistent with the observed operation of demand side participation response in practice, or for future operations.

AEMO proposes to apply energy limits on the reliability-response band of the demand side participation in the ISP modelling process. AEMO is seeking stakeholder feedback on a proposed limit that assumes a maximum of two hours of operation of demand side participation, based on historical data.



Questions and comments

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Pre-submitted questions

1. Can you elaborate on the proposed sub-regional loss factor equations mentioned in 2.3. Will all generators within a sub-region have the same (dynamic) loss factor, or will there be an additional static MLF that modifies the sub-regional dynamic loss factor?
2. Wouldn't it be more appropriate to use the average loss factor instead of the marginal loss factor? Marginal loss factors over-estimate losses by ~100%, so the model will not be matching supply & demand.
3. Wind lab put in a submission saying that that the modelled capacity factor for the SW_NSW REZ was a large under-prediction. Am I correct in saying that AEMO is not making a material change to the CF for that REZ, but is just tinkering with the percentile ranking (as per section 2.4), which is unlikely to change the CF greatly due to the flat terrain within the REZ?
4. How is AEMO considering Electrification? With the Federal and State policies and intentions to move away from Gas it was concerning to see strong electrification removed as a sensitivity from the GSOO and IASR.

Next steps

- Please [provide feedback](#) on today's webinar.
- Written submissions due to ISP@AEMO.com.au by 5pm AEST on 1 May 2023.
- [Forecasting Reference Group](#) (FRG) Consultation on short duration storage in the ESOO. [Register here](#) to attend on 26 April.



For more information visit

aemo.com.au