

Meeting Agenda

Meeting Title:	Pilbara Advisory Committee (PAC)
Date:	Thursday 29 August 2024
Time:	9:30 AM – 11:30 AM
Location:	Online, via TEAMS

Item	Item	Responsibility	Type	Duration
1	Welcome and Agenda <ul style="list-style-type: none"> Conflicts of interest Competition law statement 	Chair	Noting	2 min
2	Meeting Apologies/Attendance	Chair	Noting	1 min
3	Minutes of Meeting 2024_06_20 Published 19 July 2024	Chair	Noting	1 min
4	Action Items	Chair	Noting	2 min
5	Update on EPWA's Pilbara Energy Transformation Plan work program	Kathryn Barrie	Discussion	30 min
6	EPNR Project Update	WG Chair	Discussion	40 min
7	Pre-development of Rule Change Proposal consultation: Deferral of long-term planning requirements	ISO	Discussion	15 min
8	Pre-development of Rule Change Proposal consultation: Review of PNR Subchapters 7.3 and 7.4	ISO	Discussion	15 min
9	General Business	Chair	Discussion	10 min
	Next meeting: 9:30 AM, 5 December 2024			

Please note, this meeting will be recorded.

Competition and Consumer Law Obligations

Members of the PAC (**Members**) note their obligations under the *Competition and Consumer Act 2010 (CCA)*.

If a Member has a concern regarding the competition law implications of any issue being discussed at any meeting, please bring the matter to the immediate attention of the Chairperson.

Part IV of the CCA (titled "Restrictive Trade Practices") contains several prohibitions (rules) targeting anti-competitive conduct. These include:

- (a) **cartel conduct**: cartel conduct is an arrangement or understanding between competitors to fix prices; restrict the supply or acquisition of goods or services by parties to the arrangement; allocate customers or territories; and or rig bids.
- (b) **concerted practices**: a concerted practice can be conceived of as involving cooperation between competitors which has the purpose, effect or likely effect of substantially lessening competition, in particular, sharing Competitively Sensitive Information with competitors such as future pricing intentions and this end:
 - a concerted practice, according to the ACCC, involves a lower threshold between parties than a contract arrangement or understanding; and accordingly; and
 - a forum like the PAC is capable being a place where such cooperation could occur.
- (c) **anti-competitive contracts, arrangements understandings**: any contract, arrangement or understanding which has the purpose, effect or likely effect of substantially lessening competition.
- (d) **anti-competitive conduct (market power)**: any conduct by a company with market power which has the purpose, effect or likely effect of substantially lessening competition.
- (e) **collective boycotts**: where a group of competitors agree not to acquire goods or services from, or not to supply goods or services to, a business with whom the group is negotiating, unless the business accepts the terms and conditions offered by the group.

A contravention of the CCA could result in a significant fine (up to \$500,000 for individuals and more than \$10 million for companies). Cartel conduct may also result in criminal sanctions, including gaol terms for individuals.

Sensitive Information means and includes:

- (a) commercially sensitive information belonging to a Member's organisation or business (in this document such bodies are referred to as an Industry Stakeholder); and
- (b) information which, if disclosed, would breach an Industry Stakeholder's obligations of confidence to third parties, be against laws or regulations (including competition laws), would waive legal professional privilege, or cause unreasonable prejudice to the Coordinator of Energy or the State of Western Australia).

Guiding Principle – what not to discuss

In any circumstance in which Industry Stakeholders are or are likely to be in competition with one another a Member must not discuss or exchange with any of the other Members information that is not otherwise in the public domain about commercially sensitive matters, including without limitation the following:

- (a) the rates or prices (including any discounts or rebates) for the goods produced or the services produced by the Industry Stakeholders that are paid by or offered to third parties;
- (b) the confidential details regarding a customer or supplier of an Industry Stakeholder;
- (c) any strategies employed by an Industry Stakeholder to further any business that is or is likely to be in competition with a business of another Industry Stakeholder, (including, without limitation, any strategy related to an Industry Stakeholder's approach to bilateral contracting or bidding in the energy or ancillary/essential system services markets);
- (d) the prices paid or offered to be paid (including any aspects of a transaction) by an Industry Stakeholder to acquire goods or services from third parties; and
- (e) the confidential particulars of a third party supplier of goods or services to an Industry Stakeholder, including any circumstances in which an Industry Stakeholder has refused to or would refuse to acquire goods or services from a third party supplier or class of third party supplier.

Compliance Procedures for Meetings

If any of the matters listed above is raised for discussion, or information is sought to be exchanged in relation to the matter, the relevant Member must object to the matter being discussed. If, despite the objection, discussion of the relevant matter continues, then the relevant Member should advise the Chairperson and cease participation in the meeting/discussion and the relevant events must be recorded in the minutes for the meeting, including the time at which the relevant Member ceased to participate.



Agenda Item 4: PAC Action Items

Pilbara Advisory Committee (PAC) Meeting 2024_08_29

Shaded	Shaded action items are actions that have been completed since the last PAC meeting. Updates from last PAC meeting provided for information in RED .
Unshaded	Unshaded action items are still being progressed.

Item	Action	Responsibility	Meeting Arising	Status
6/2024	Arrange for Mr Bray to attend a PAC meeting to provide an overview and update of EPWA's broader Pilbara work program.	EPWA	2024_06_20	Completed EPWA to provide update during Item 5.
7/2024	Circulate final modelling results to PAC members out of session.	EPWA	2024_06_20	Completed EPWA circulated final modelling results to the PAC as part of the meeting papers for Item 6 of this meeting (29 August 2024).

Note. Closed action items will be removed from this list once noted at a PAC meeting. Accordingly, the numbering of action items may not be sequential.



Pilbara Energy Transition

Jarndunmunha, 1,128m above sea level, near Tom Price



Department of Energy, Mines,
Industry Regulation and Safety
Energy Policy WA

Pilbara Energy Transition Plan

Pilbara Advisory Committee

29 August 2024

Working together for a
brighter energy future.

Jarndunmunna, 1,128m above sea level, near Tom Price

A quick recap

In 2023 ...

Through the Pilbara Industry Roundtable, industry agreed to:

- Important role of common use transmission infrastructure (new builds)
- The essential need for Aboriginal participation not reaction
- Regulatory evolution pathway
- Access to land and approvals is key pain point

Australian Government agreed to:

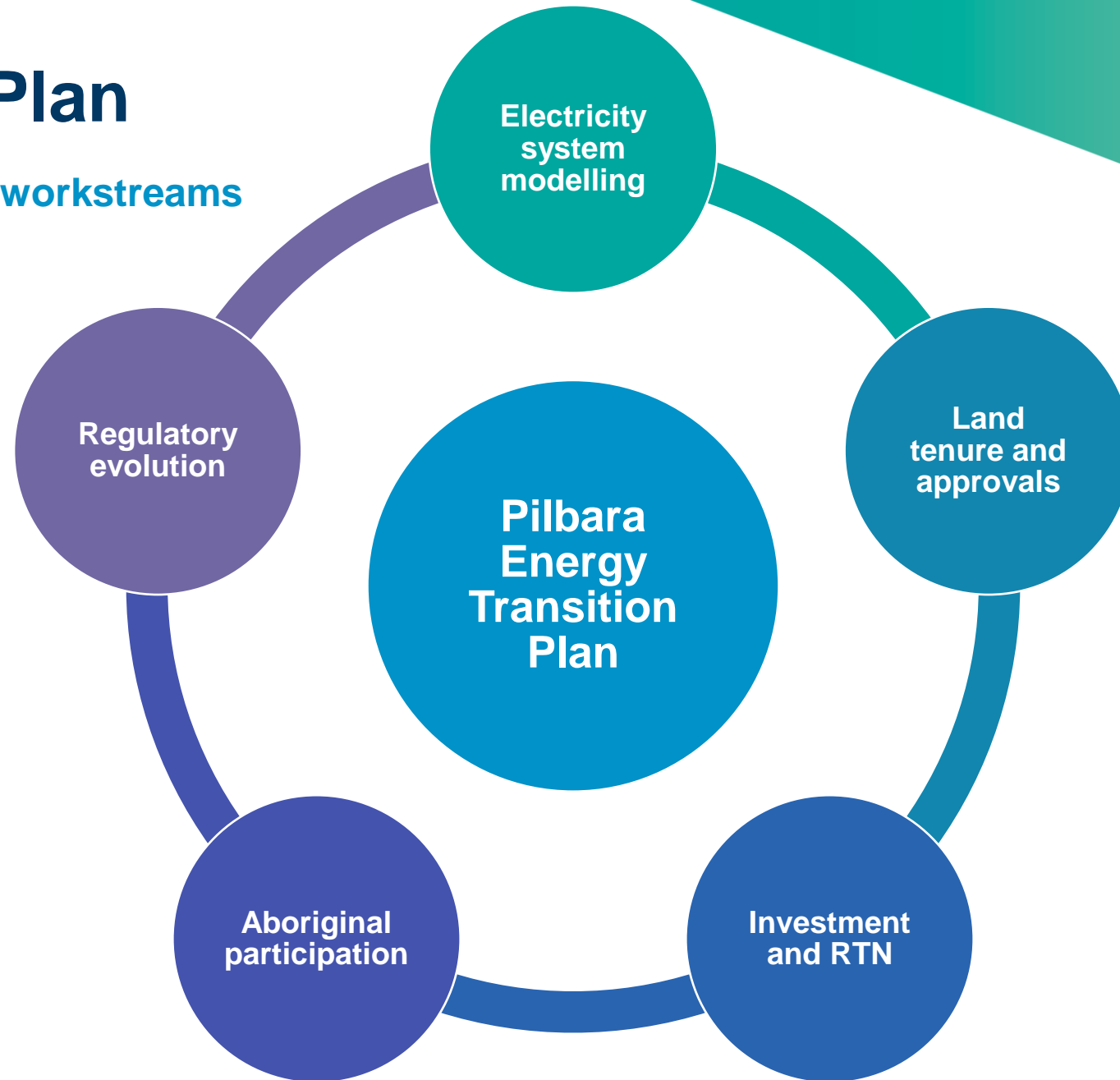
- \$3 billion of concessionary finance for WA through Rewiring the Nation and CEFC
- Must be “stapled” to State driven priorities

State Government agreed to:

- The Pilbara Energy Transition Plan and associated funding package

The PET Plan

Five interrelated workstreams



Working together for a **brighter** energy future.

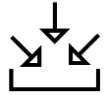
Pilbara Roundtable Phase 2

Includes Industry, Traditional Owners and government representatives

- **Chaired by the Minister for Energy**
- **Key forum for delivering Pilbara Energy Transformation Plan**
- **Gathers key industry, Government and Aboriginal stakeholders together**
- **EPWA working with Government, Industry and Traditional Owners to deliver agreed outcomes**
- **First meeting 14 June 2024 in Karratha**
- **Second meeting planned for September 2024**

Electricity system modelling

Modelling objectives



Determine the plausible development pathway(s) to the creation of an efficient high voltage common use transmission network in the Pilbara.



Through high and low demand scenarios, consider the extent to which coastal loads will increase, and how this may impact future transmission planning



Launch a public-facing vision for the Pilbara's future electricity system, including a framework for the staging of shared transmission infrastructure

Proposed scenarios

Pilbara Energy Transition - Modelling Scope

The following scenarios will be most investigated in the current study:

Current Trajectories

Demand assumptions aligned with stakeholder current commitments. Minimal developments in new industries, with economic and population growth in line with current WA Government projections.

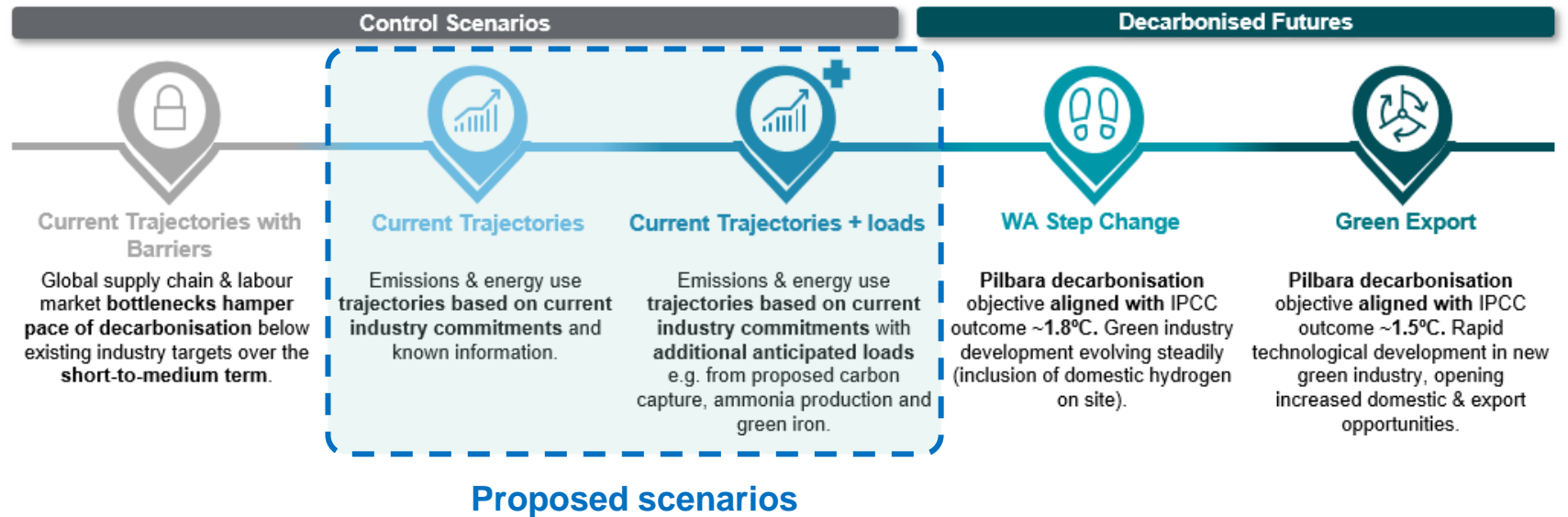
Current Trajectories Plus Loads

Additional new industry development including at the Strategic Industrial Areas (SIAs) identified by the WA government.

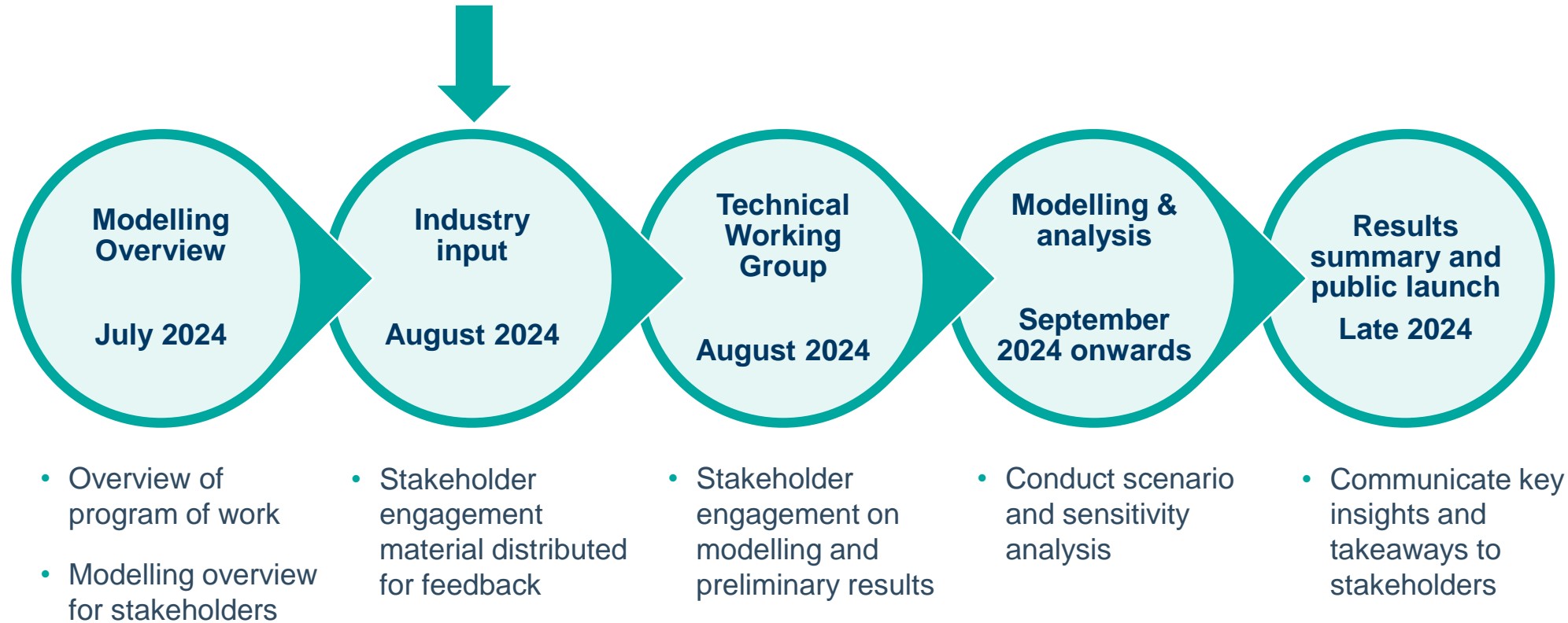
The following transmission considerations will be most relevant to the current study:

Semi-interconnected network

A future network will be modelled with existing and committed transmission where new shared transmission can build between demand nodes. All firming capacity remains onsite to reflect industry practice



Timelines



Land tenure and approvals

Getting it done

- Specialised team in DPLH working to provide bespoke tenure advice and support.
- EPWA is working with DPLH and other key agencies to develop a pathway for the State to take an interest in the land corridor(s).
 - Corridor planning and activation alongside Traditional Owners and developers is an immediate focus
- Developing a handbook outlining renewable (transmission and generation) approvals process.

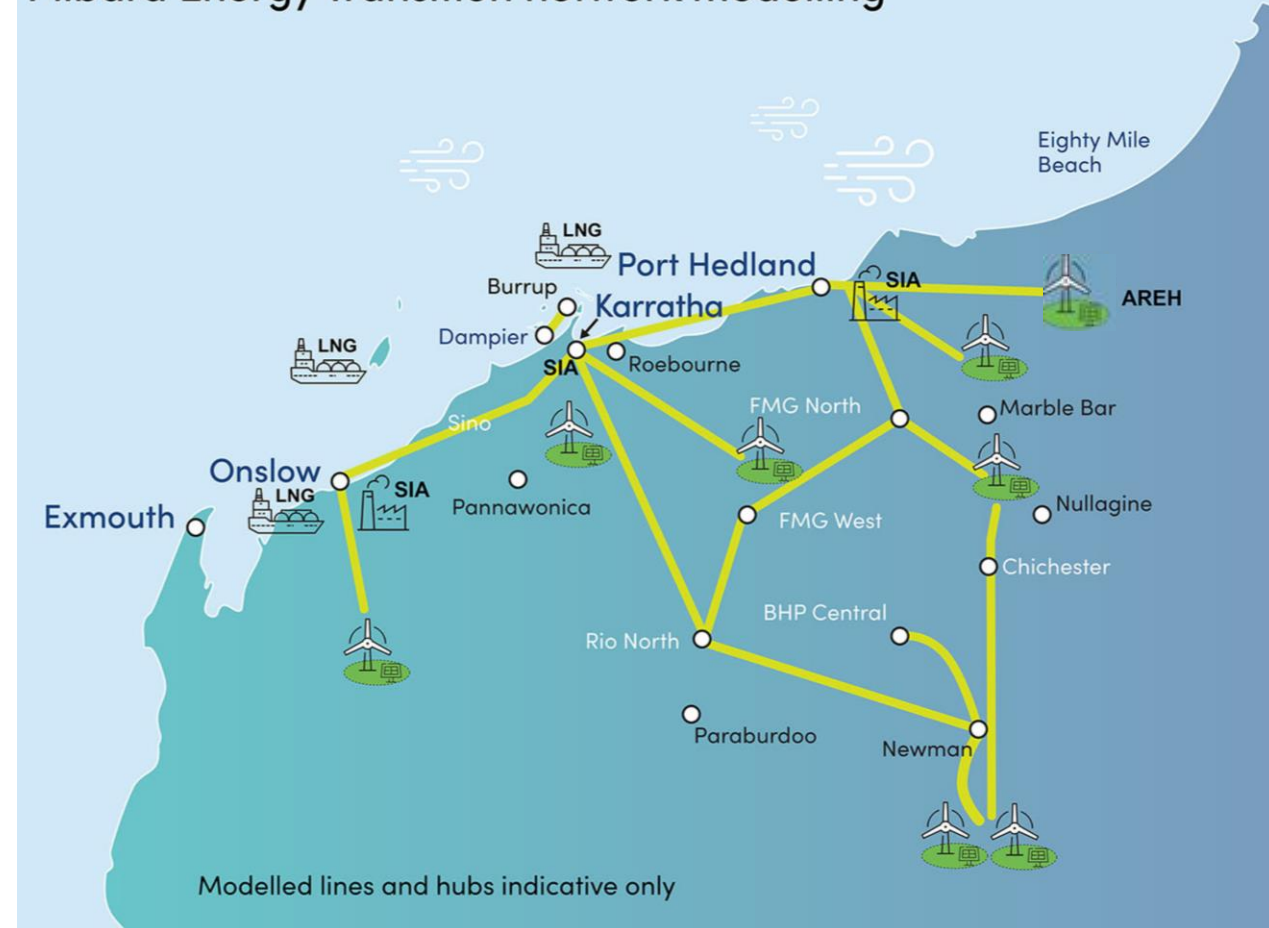


Investment and RTN

Priority transmission projects will be selected based on the following criteria:

1. Support Pilbara decarbonisation
2. Deliver positive outcomes for Traditional Owners
3. Deliver positive outcomes for the community
4. Support common use infrastructure
5. Be viable and timely

Pilbara Energy Transition network modelling



Investment and RTN

Priority actions

- Announce transmission priorities and launch process to determine preferred provider
- Confirm providers
- RTN concessional finance



Aboriginal participation

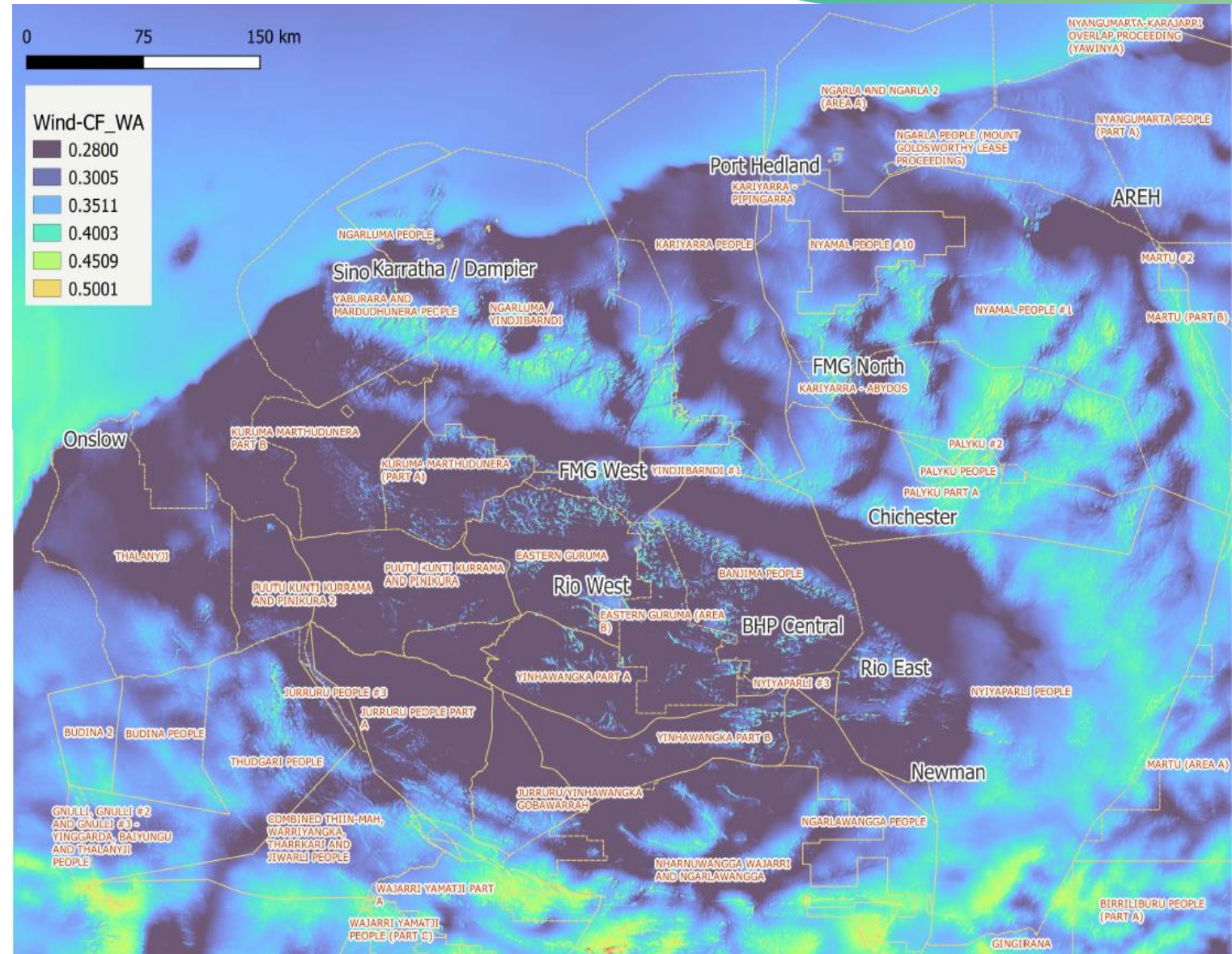
Ensuring the renewable energy transition is a genuine partnership with Traditional Owners and creates lasting benefits for Aboriginal people

- Working Group established in recognition that early and ongoing engagement with Traditional Owners is needed to enable self-determination and to create the environment in which Free, Prior and Informed Consent (FPIC) can be achieved.
- A forum where information and knowledge can be provided equally to:
 - understand critical timelines for government and industry;
 - understand the risks and opportunities; and
 - determine priorities both at an individual Native Title level and at Pilbara wide level.
- What else is WA Government doing to support Traditional Owners?
 - Established the Traditional Owners Participation Support Fund (TOPS) to enable long term and ongoing support for Aboriginal organisations and businesses
 - Developing resources to support broader understanding about the renewable energy transition.
 - Established a dedicated team in DPLH to provide land tenure advice.



32 Traditional Owner Groups hold Native Title and Cultural Rights

- Direct and indirect impacts – opportunities may vary depending upon location and actual final route.
- Engagement has been important to understand priorities including confirming support for common use and minimising footprint.
- Ongoing engagement to ensure Traditional Owners are active partners at all stages/ in decision making and there is timely sharing of information.
- Rewiring the Nation Funding Criteria – Determining priority projects supports active partnership and requires FPIC.



Regulatory evolution

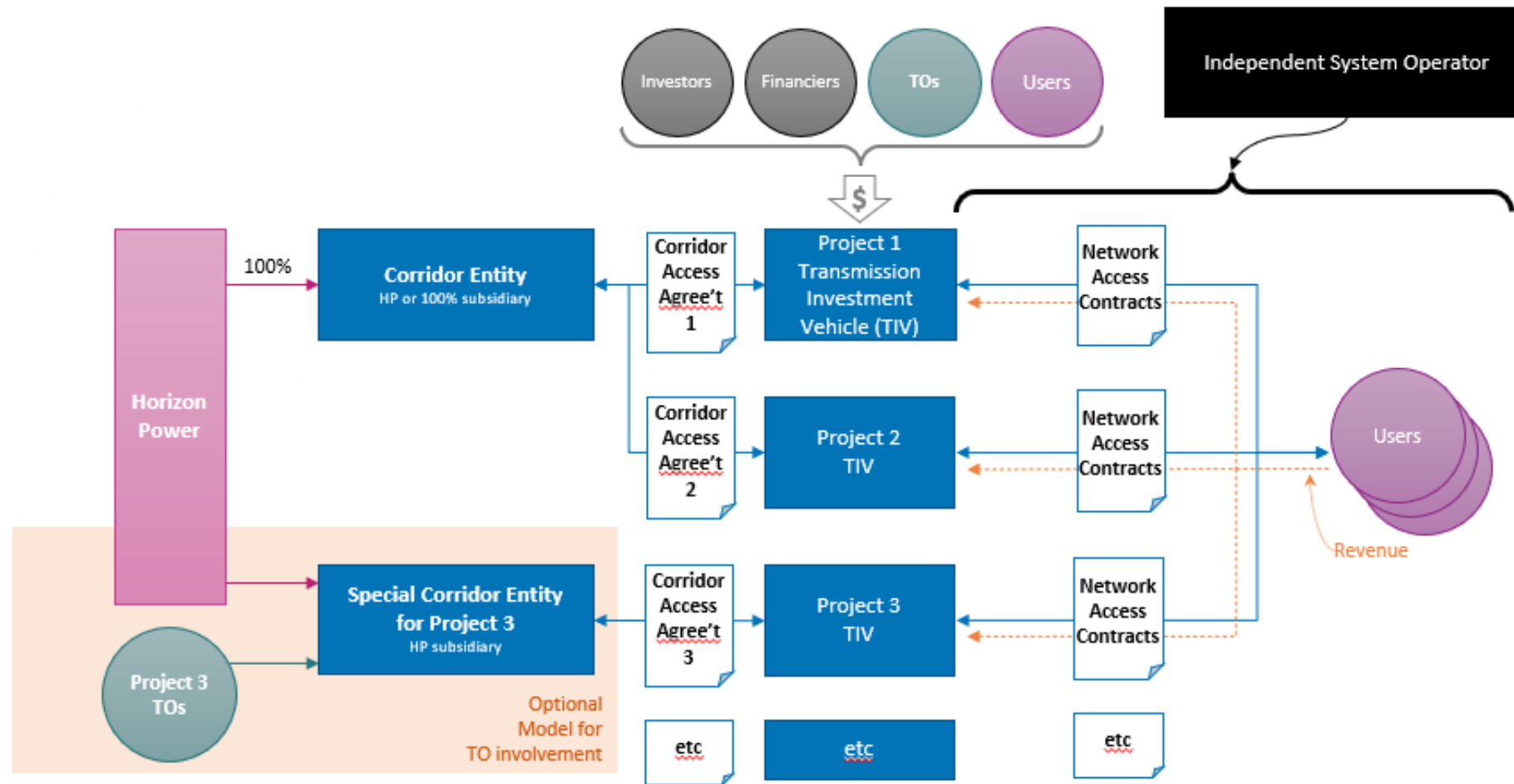
Regulatory
evolution

Evolution of
Pilbara Networks
Rules

Evolution of
Pilbara Networks
Access Code

Commercial and regulatory settings

Current draft working model for feedback purposes



Pilbara Networks Access Code

Current thinking

Third party access

- Intend that all new elements which can form part of the core interconnected meshed system will be covered.

Contracting for access

- Network access contract between TIV-NSP and access seeker.
- Considering measures to ensure that TIV-NSP conflicts of interest do not hinder access negotiation.

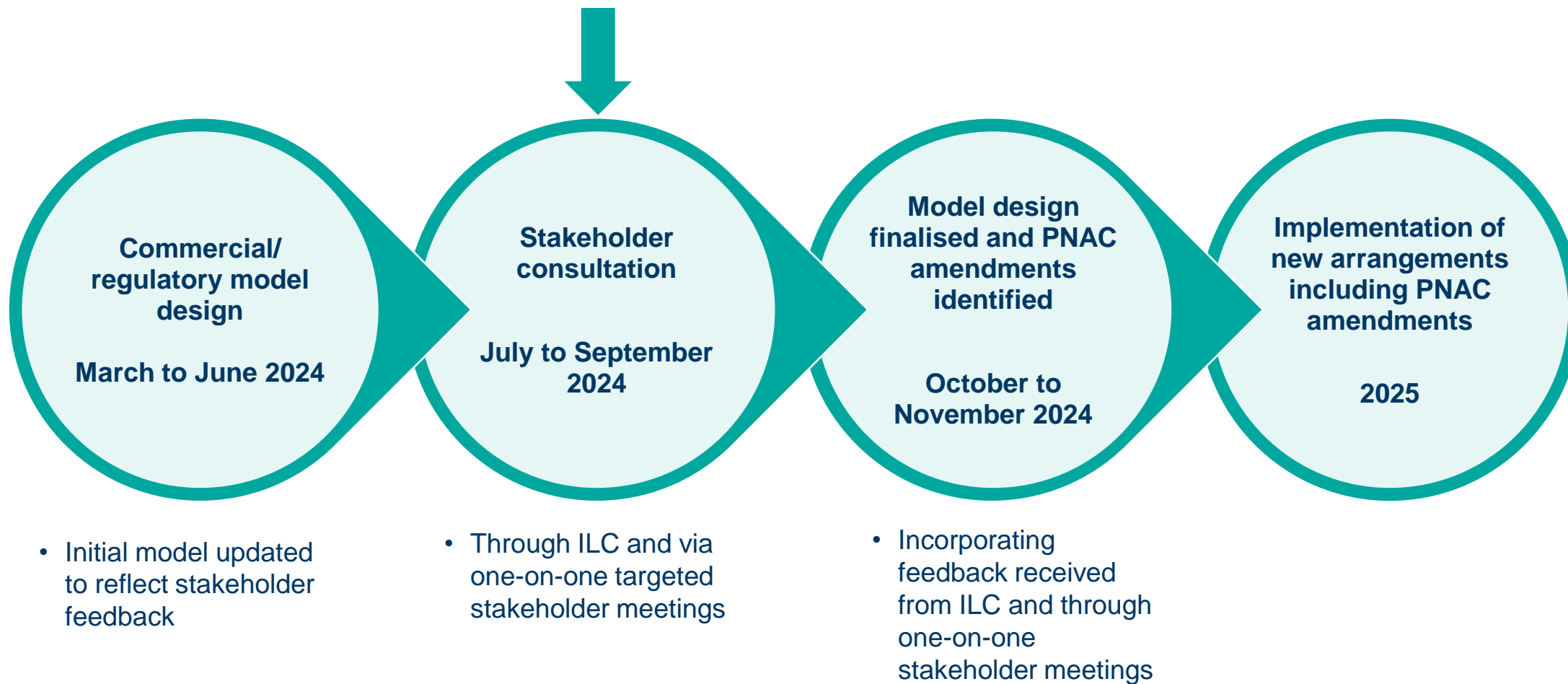
Foundation contracts/users

- Necessary to balance competing objectives (certainty for existing users but viable access for third parties).
- Intend to develop a regime which prioritises reliability for foundation customers.

Access pricing

- Building block cost of service model, parties free to negotiate bespoke arrangements (subject to certain requirements).
- As far as possible, looking to retain the retain the 'light regulation' approach, in which the NSP manages the tariff setting process.

Indicative timelines





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Energy Policy WA





Agenda Item 6: Evolution of the Pilbara Networks Rules (EPNR) Project Update

Pilbara Advisory Committee (PAC) Meeting 2024_08_29

1. Purpose

The purpose of this agenda item is to:

- provide an update to the PAC on recent EPNR Working Group meetings (held since the previous PAC meeting); and
- seek PAC's feedback on the key issues discussed by the Working Group.

2. Recommendation

That the PAC:

- (1) notes the information provided in this Agenda Paper and the Presentation Slides (slides 2 to 21 to be discussed during the meeting, with slides 23 to 88 included for PAC members' information only) (**Attachment 1**); and
- (2) provides feedback on working group discussions to guide further work, including:
 - a. any further comments on the final modelling outputs; and
 - b. content and suggested prioritisation of PNR evolution initiatives.

3. Background

- Since the previous PAC meeting on 20 June 2024, the PAC's EPNR working group has held five meetings.
 - A summary overview of these meetings is provided in Table 1 (below).
 - [Meeting materials and approved Minutes are published online.](#)

Table 1 – Summary Overview of recent EPNRWG meetings

27 June 2024 (Meeting 3, PNR workstream) – [Minutes published](#)

- Concluded discussion of the modelling outputs for scenarios 1A, 1B and 1C including capital costs, operational costs and overall costs for each scenario.
- Discussed initial list of PNR development initiatives (start of project stage 3).
- Discussed criteria for 'best practice' governance for the governance arrangements in the Pilbara.

11 July 2024 (Meeting 2, HTR workstream) – [Minutes published](#)

- Received and discussed status updates for all items on the HTR Issues list (previously shared with the PAC) from nominated 'Issue Leads'. Discussion focused on issues nominated as high priority.

-
- Members discussed and agreed (in principle) to:
 - clarify in the Rules that the intent of the HTR is to provide a single set of end-to-end 'automatic' standards that facilitate access when these standards are met; and
 - develop options for negotiation framework for deviations from the standards, including for early resolution of disputes.

29 July 2024 (Meeting 4, PNR workstream) – draft Minutes (Attachment 2)

- Discussed and provided feedback on an initial outline of 23 proposed development initiatives.
- Discussed prioritisation of the development initiatives list, to identify the initiatives to focus on in the development of a consultation paper.

22 August 2024 (Meeting 5, PNR workstream) – Minutes not yet available

- Discussed prioritisation criteria and finalised prioritisation of the development initiatives to focus on in of the development of the consultation paper.
- Discussed initial concepts for the following development initiatives:
 - Reliability standard and supply adequacy;
 - Balancing service with (optional) reduced load following requirements; and
 - ISO board composition.

28 August 2024 (Meeting 3, PNR workstream) – Minutes not yet available

- Issue Leads provided updates on high priority issues and, where solutions had been developed, these were presented to the workstream for discussion.

4. Next Steps

- Stage 3 ('detailed review of the PNR') is underway with EPNR working group meetings, in both the PNR and HTR workstreams, progressing through the initiatives identified
- A Draft Consultation Paper will be prepared and presented to the PAC for review at its 5 December 2024 meeting.

5. Attachments

- (1) EPNR Project Update - Presentation Slides
- (2) Draft (unapproved) Minutes EPNRWG Meeting 29 July 2024.



Government of Western Australia
Energy Policy WA

Pilbara Advisory Committee

EPNR Project Update

29 August 2024

Working together for a
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2. Working Group (PNR Workstream) update

PNR working group

The PNR working group held meetings on 27 June, 29 July, and 22 August 2024. Meeting materials and Minutes (when finalised) are published on the EPWA website.


The June meeting focused on the revised modelling scenarios, and the July and August meetings on prioritising rule development initiatives.

The following slides provide a debrief on highlighted topics: I. Modelling conclusions; II. Prioritised development initiative list III. Review of ISO governance arrangements.

The summary of working group discussions presented is EPWA's view and is not a formal record of the meeting.

The PAC is asked to note the information provided and provide feedback to guide the project team and working group.

Project Delivery	Timeframes
Stage 1: Establish the Working Group	February 2024
Stage 2: Scenario development and modelling	March – July 2024
Stage 3: Assessment of PNR	July – November 2024
Public Consultation	December 2024
Stage 4: Implementation Plan	Q1 2025

 We are here

I. Modelling Conclusions

Modelling outcomes

Modelling outputs are included in **Appendix A**. For completeness, this includes material already presented – members will be familiar with most slides.

Modelling indicates that:

- High renewable penetrations are achievable once transmission investment unlocks access to renewable energy zones
- With high penetration of variable renewables:
 - The current approach to assessing system reliability will no longer be effective
 - Generation volatility means ancillary services must be revisited
 - Electricity users in the Pilbara will see significant cost efficiencies from more integrated operations
- Changes can be delivered incrementally rather than requiring a completely new paradigm

The Pilbara Network Rules need to start describing requirements and obligations for a power system with more participants and more contracting between parties, to give confidence that all parties will meet their obligations to maintain power system security and reliability

Implications for the PNR

The largest benefits come from:

- Having more centralised services – starting with balancing, and potentially moving to full merit-order dispatch later
- Applying reliability standards on a whole-of-system basis, where individual network owners still have the option to build or contract dedicated capacity

To unlock these benefits, the PNR need to:

1. Provide a mechanism for greater operational integration, timed to commence alongside the transmission investment that enables renewable investment. This includes:
 - Monitoring and intervention power for the ISO
 - Amended load following rules
 - Adjustments to ESS definitions to manage reduced load-following requirements and increased renewable energy penetration
2. Include a formal reliability definition and target (whether for individual networks or for the system as a whole)
3. Provide a transparent mechanism for collaborative long-term planning

The group agreed to move on to the next stage of the project.

Does the PAC have any further comments on the modelling outputs?

II. Prioritised development initiative list

List of PNR evolution initiatives

Power system security and reliability

- Reliability standard and supply adequacy
- Long term planning
- Outage planning
- ESS definitions and procurement
- ESS cost allocation
- Responsibility for setting system strength requirements

Scheduling, dispatch and settlement

- Balancing service with (optional) reduced load following requirements
- Metering obligations
- Load shedding arrangements
- Fee allocation

New connections

- NSP to NSP connection arrangements, including constrained access
- Process for new transmission build, including transmission pricing and constrained access
- Registration category and requirements for storage facilities
- Registration category and requirements for DSR
- Exemptions and derogations from the HTR

Terminology

- Registration constructs – definition of “NSP”
- Definition and use of “energisation” and “commercial operations”
- Consistency between PNR and HTR

Governance of the ISO

- Board composition
- Resourcing and budget
- Ringfencing and confidentiality regime

Compliance and enforcement

- Responsibilities and process for compliance monitoring
- Enforcement options

This initiatives list was presented to the working group on 29 July and agreed on 22 August.

A detailed explanation of each issue listed is provided in **Appendix B**.

29 July Working group discussion

EPWA presented a development initiative list (previous slide) and discussed prioritisation of issues to focus on, in advance of the consultation paper. The working group:

- Agreed that the initiatives identified were relevant, and identified one additional initiative
 - New issue: an overall review of registration constructs (particularly the NSP definition) to ensure it remains fit-for-purpose in future.
- Noted the importance of retaining a holistic view, to make sure that the EPNR work is well integrated with other ongoing initiatives working on Pilbara matters, including transmission modelling, transmission build business models, Pilbara Access Code, and ISO reviews.
 - EPWA agrees and is ensuring that the EPNR team regularly engages with other relevant teams.
- Requested that initiatives relating to power system security and reliability be prioritised, and highlighted that supporting governance arrangements are important.
- Requested that EPWA provide a prioritisation criteria at the next meeting (22 August) to guide working group discussion of which initiatives to focus on.

Prioritisation criteria

EPWA identified and discussed six criteria to guide prioritisation of initiatives on 22 August.

1. Focus on power system security and reliability matters (“PSSR”)
2. Focus on removing barriers and providing incentives for emissions reduction and renewable investment (“Emissions”)
3. Focus on issues that will manifest sooner than later (“Timing”)
4. Focus on items likely to have low costs and/or high benefits (“Value”)
5. Focus on matters which need more design activity (so as to get them underway) (“Size”)
6. Avoid issues under active consideration by ISO or others so we can build on that work (“Other activity”)

Members were comfortable with these criteria, noting that some relate to policy goals, and others to implementation characteristics.

Prioritised initiatives to focus on in advance of the consultation paper?

Power system security and reliability

- Reliability standard and supply adequacy
- Long term planning
- **Outage planning**
- ESS definitions and procurement
- ESS cost allocation
- Responsibility for setting system strength requirements

Scheduling, dispatch and settlement

- Balancing service with (optional) reduced load following requirements
- Metering obligations
- Load shedding arrangements
- **Fee allocation**

New connections

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- Ringfencing and confidentiality regime

Compliance and enforcement

- Responsibilities and process for compliance monitoring
- Enforcement options

Legend

Tier 1 (2+ criteria)

Tier 2 (1 criteria)

Progressing elsewhere

Does the PAC have any comments on the initiative list, or the priority initiatives?

22 August working group discussion

In addition to finalising the prioritisation of issues, the working group discussed the initial concepts for revisions to the supply adequacy regime, centralised balancing service, and ISO board composition.

The group:

- Considered that outage planning should be progressed as a priority in this review, but was comfortable that this lagged behind the ISO Review currently underway.
- Accepted that central capacity forecasting and certification were a natural evolution of the existing generation adequacy provisions
- Were broadly comfortable with the high-level capacity certification methods proposed
- Noted that thermal generation should be assessed based on its maximum output under expected peak system conditions, rather than “nameplate capacity”.
- Did not express a strong preference for whether supply adequacy should be the responsibility of a central party, or remain decentralised. The key question is who has responsibility to act if a capacity shortfall is predicted.
- Sought assurance that bilateral arrangements would be respected, and that embedded generation would be able to participate or coexist with a capacity adequacy mechanism and a balancing mechanism.
- Asked that EPWA consider appropriate timing for introducing a balancing mechanism, potentially linking it to increasing renewable generation.

Does the PAC have any additional views or comments?

III. Review of ISO governance arrangements

Review of PNR Governance Arrangements

The Pilbara Networks Rules (PNR) establishes a significant role for the ISO.

Following stakeholder feedback raised during the Pilbara ISOCO's authorisation application to the ACCC, EPWA advised the working group on 23 May 2024 that it would prioritise a review of the governance framework of the PNR, including the Pilbara ISO governance.

EPWA provided a summary Pilbara ISO governance arrangements and features, and the scope of the of suggested review to the PAC at its last meeting on 20 June.

Three governance initiatives were identified and discussed at the 29 July working group meeting: board composition, ISO resourcing and budget and ringfencing and confidentiality regime (detailed in Appendix B).

Initial concepts for the board composition initiative were discussed at the 22 August working group meeting (outlined on the next slides)

Board composition (1)

Evolution of SO independence

- Jurisdictions around the world have gone through similar journeys to the Pilbara. From vertically integrated, to industry self-governance, to independent facilitation.
- New Zealand began retail competition in 1993 with a self-regulating industry body overseeing competition, and moved to independent oversight in 2004.
- The Philippines began wholesale market operations 2006 with a market operator governed by participant nominees, and moved to a fully independent board in 2018.
- In the WEM, system operations was part of Western Power until 2016, when it moved into the independent operator.
- In the UK, the monopoly transmission network operator National Grid is the system operator and owns (without any control or financial interest) the market operator Elexon. SO functions are being spun out into a separate independent system operator, and ownership of Elexon is expected to be transferred to industry, although governance arrangements will still require independent directors and finances.

Board composition (2)

Pilbara ISOCo Limited has been appointed to the ISO role.

In line with Pilbara ISOCo's constitution, the current board consists of an Independent Chair, a government appointed Director, APA member director, Horizon Power member director and Rio Tinto member director.

An expanded ISO role means a need for clearer independence of ISO governance, from a board with the knowledge and experience to navigate the energy transition.

Board appointment rules could:

- Be retained as is
- Require all directors to be independent of participants in the sector
- Require a majority of directors to be independent, but retain some participant representation.
- What else?

22 August working group discussion

The working group did not offer comment on the potential for altered ISO board composition.

Does the PAC have any comments on the review of ISO governance?

2. Working Group (HTR Workstream) update

HTR working group

The HTR working group met on 11 July and 28 August.

The August meeting was brought forward (from September) enabling an additional meeting to be added to the original schedule to allow more time for the group's work ahead of public consultation later in the year.

The HTR working group is progressing the list of HTR issues presented at the previous PAC meeting.

The distributed leadership for the issues identified is working well, with designated leads coordinating discussion with interested parties, for discussion at the working group.

Additionally, the working group agreed (in principle) to:

- clarify that the intent of the HTR is to provide a single, complete set of end-to-end standards that facilitate 'automatic' access when minimum standards are met; and
- develop options for negotiation framework for deviations from the standard, including for early resolution of disputes.

3. Next steps

Next steps

- EPWA to prepare options for selected initiatives
- Upcoming meetings :
 - **10 October** – HTR workstream meeting
 - **24 October** – PNR workstream meeting:
 - Proposals for issues discussed 22 Aug
 - Long term planning, fee allocation, ISO resources and budgeting, enforcement options, confidentiality regime
 - **14 November** – HTR workstream meeting
 - **21 November** – PNR workstream meeting:
 - Proposals for issues discussed 24 Oct
 - ESS definitions/procurement/cost allocation, NSP to NSP connections, storage registration, terminology
 - **5 December** – PAC meeting
 - **Dec - Feb** – Consultation paper

Questions or feedback can be emailed to energymarkets@dmirs.wa.gov.au

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Western Australia.*

Appendix A – Stage 2 Modelling Outputs

Appendix contents

-
1. Summary of modelling outputs and implications
 2. Modelling approach and scenarios
 3. Demand insights
 4. Capital costs
 5. Operational costs
 6. Overall costs
 7. Sensitivity analysis
-

1. Summary of modelling outputs and implications

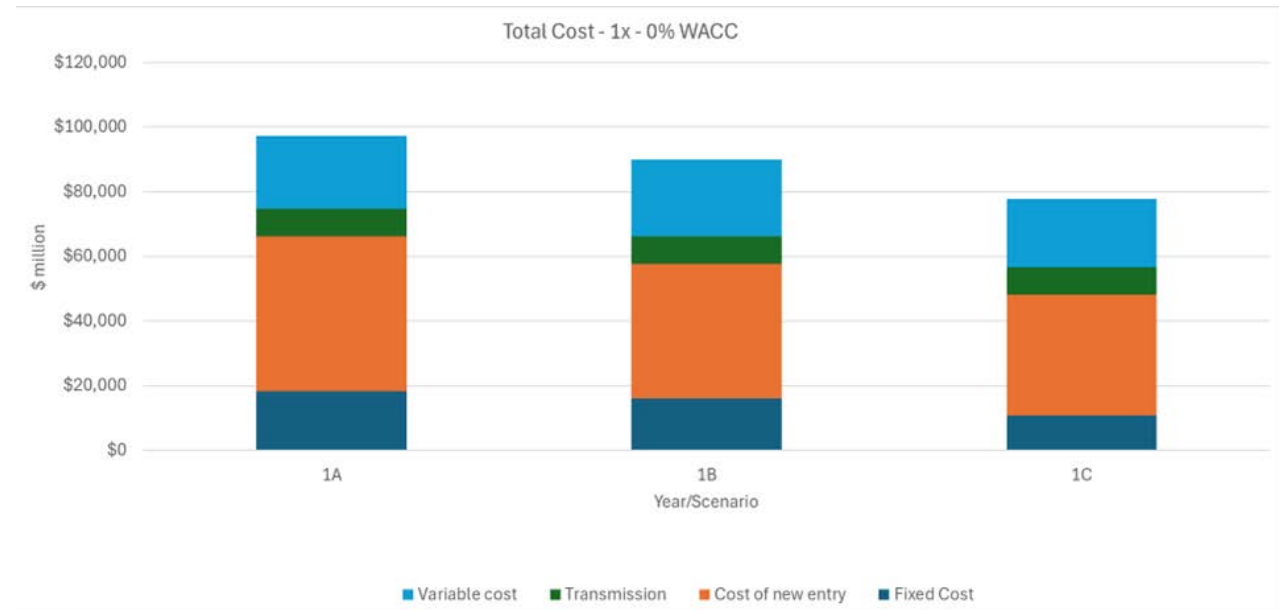
EPNR Project and modelling

- The purpose of the review is to consider whether the Pilbara Networks Rules (PNR) and Harmonised Technical Rules (HTR) are fit for purpose in a low-carbon future
- Context of current PNR:
 - Mostly vertically integrated participants with weakly interconnected, self-sufficient power systems
 - Gas generation is predominant
 - Transition to intermittent renewable generation plus firming is likely to require changes to the existing arrangements
- The project has been scoped for delivery in four stages (table below).
- This slide deck summarises the outputs of the Stage 2 modelling exercise
 - The EPNR modelling aims to provide insights into how the PNR will perform in different future states (with increased levels of renewable generation)

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Stage 4: Implementation Plan	Q1 2025

Stage 2: Summary of modelling outcomes

- Scenarios were designed across two dimensions - sectoral drivers (#) and level of integration (a/b/c)
- Modelling results indicate significant system and operational cost savings can be achieved through increased integration. Chart indicates 20% lower costs in Scenario 1C in contrast to Scenario 1A
- Initial results indicate that a centralised balancing service would bring substantial savings when compared to self-procurement



Modelling indicates that:

- With high penetration of variable renewables, electricity users in the Pilbara will see significant cost efficiencies from more integrated operations
- Most of the benefit can be delivered by incremental change rather than a completely new paradigm

The Pilbara Networks Rules need to start describing requirements and obligations for a power system with more participants and more contracting between parties, to give confidence that all parties will meet their obligations to maintain power system security and reliability

1. Modelling approach and scenarios

Scenarios

Six core scenarios have been modelled, plus three sensitivity scenarios.

Scenarios are built on two dimensions while keeping the transmission build the same

1. Sectoral drivers:

- Reuse data from 2023 Pilbara Energy Transformation Assessment, including scenario demand assumptions and transmission build outputs
- Scenario 1x: CT - Current Trajectories
- Scenario 2x: CT+ - Current Trajectories + Loads (load from Strategic Industrial Areas - SIAs and CCS facilities)

2. Level of integration:

- Scenario nA: Current practices: self-capacity procurement, self-balancing
- Scenario nB: Partial integration: self-capacity procurement, central balancing service
- Scenario nC: Full integration: system-wide capacity procurement, system-wide merit-order dispatch

Sensitivity scenarios explore the effects of changes in assumptions around intermittent generation volatility, shape of the load duration curve, and emissions limits.

		Level of Integration		
		A	B	C
Sectorial drivers	1	1A	1B	1C
	2	2A	2B	2C

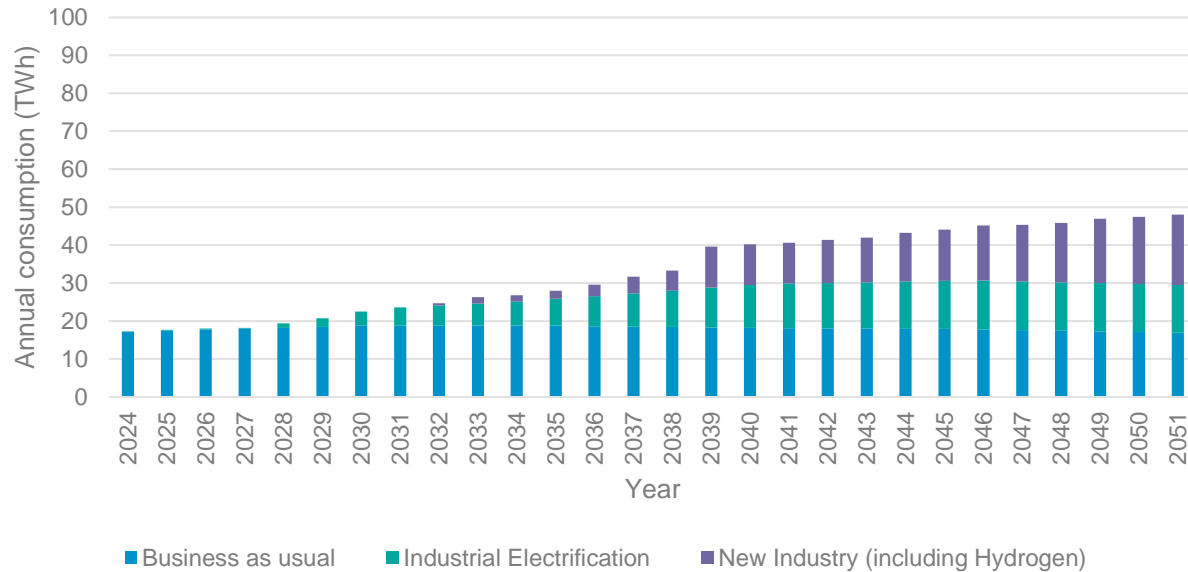
Differences between the scenarios

- None of the scenarios are achievable without new transmission build. Transmission build is assumed in the sectoral driver dimension, aligning with PETA outputs
 - Scenarios A, B, and C all have the same transmission assumptions, allowing us to focus on differences in generation build and operation. Capacity is built to avoid unserved energy within and across portfolios
- WEMSIM optimises dispatch across the entire power system based on cost minimisation with specified constraints
 - Status quo PNR - In scenarios 1A and 2A, each participant's load must be met from its own generation portfolio (whether owned or contracted). Sufficient capacity is built to avoid unserved energy
 - Partial integration - In scenarios 1B and 2B, participants still have their own generation portfolios, but the modelling assumes storage facilities can be used to meet any participant's load. This means less overall capacity is required, and more efficient overall dispatch
 - Full integration - In scenarios 1C and 2C build sufficient capacity to meet load and balancing services on a system wide basis and allow optimised dispatch across the whole system
- To manage solve time, these results cover every fifth year: 2025, 30, 35, 40, 45, and 50

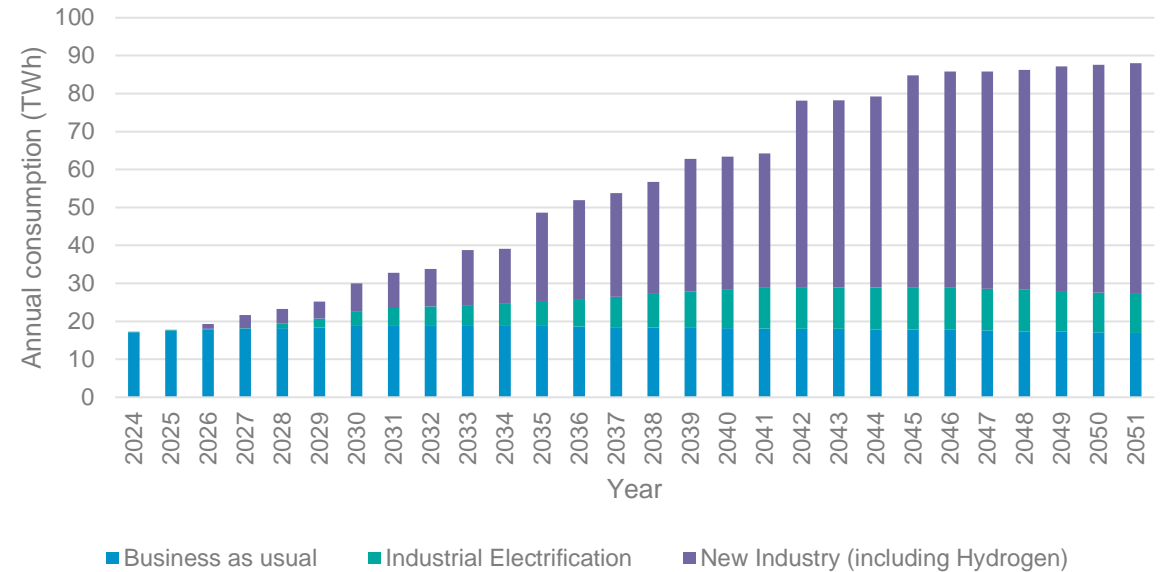
Representing the scenarios in the model (1)

Increasing volumes of non-vertically integrated demand, and potentially more flexible demand

Scenario 1 (CT)



Scenario 2 (CT+)



Input assumptions are drawn from PETA modelling. New load comes from:

- CT: industry announced plans for decarbonisation. Mine haulage electrification, onsite electricity at LNG plants, growth of lithium mining sector. Modest hydrogen export consistent with AEMO Step Change scenario.
- CT+: a portion of potential new industrial demand at the Maitland, Boodarie, Ashburton strategic industrial areas. CCS facilities for emissions in LNG and chemical sectors.

Representing the scenarios in the model (2)

Objective function: Lowest overall cost to meet

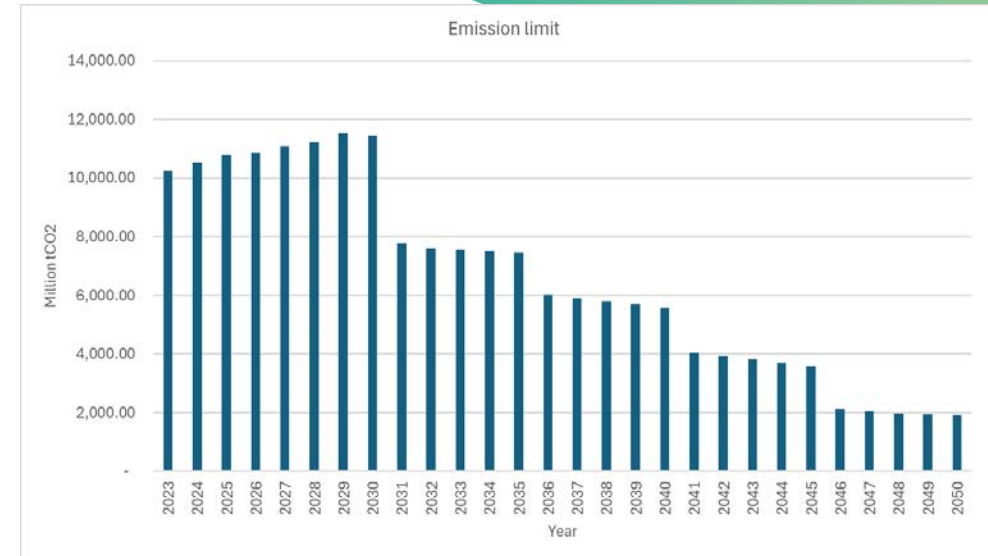
- Reliability (zero energy not served)
- Industry carbon emission targets (core scenarios reflect PETA 2023 inputs)

Costs

- Fixed & Variable Operation and Maintenance Cost
- Cost of new entry
- Supply cost (including fuel cost)

10% is added to temperature dependent load to approximate 10% POE demand

Transmission assumptions use specific scenarios from 2023 modelling, with the same transmission assumptions in each of A/B/C.



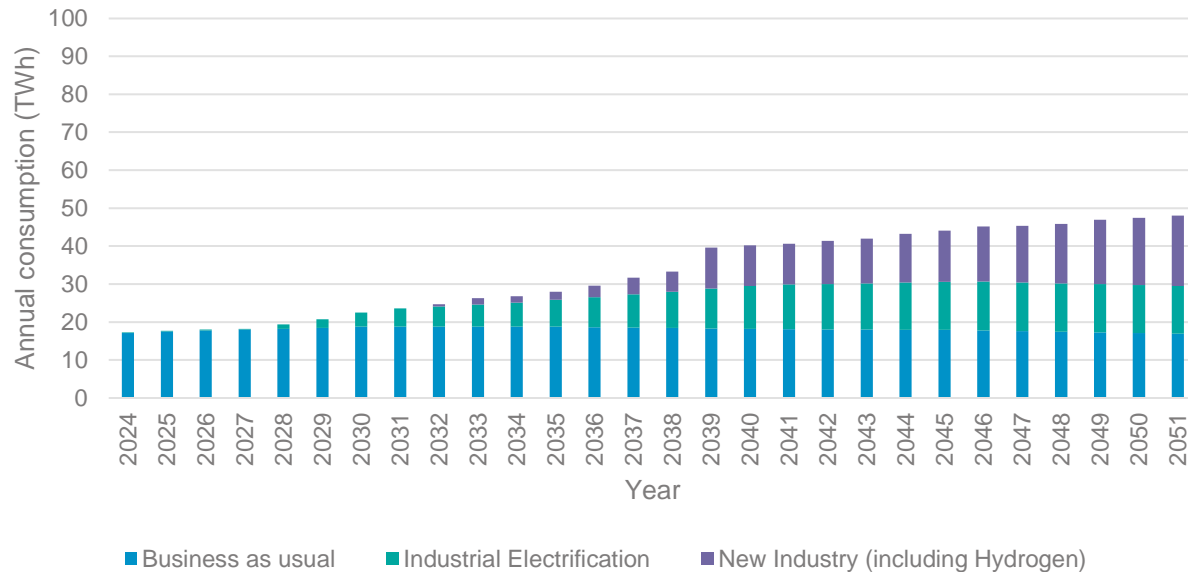
Integration Scenario	Transmission	Capacity
A	PETA “Current Trajectories – Semi Interconnected” transmission scenario	Portfolio capacity added to meet 100% of portfolio load
B		Portfolio capacity + system wide storage added to meet portfolio load
C		Capacity added to meet system-wide load

3. Demand insights

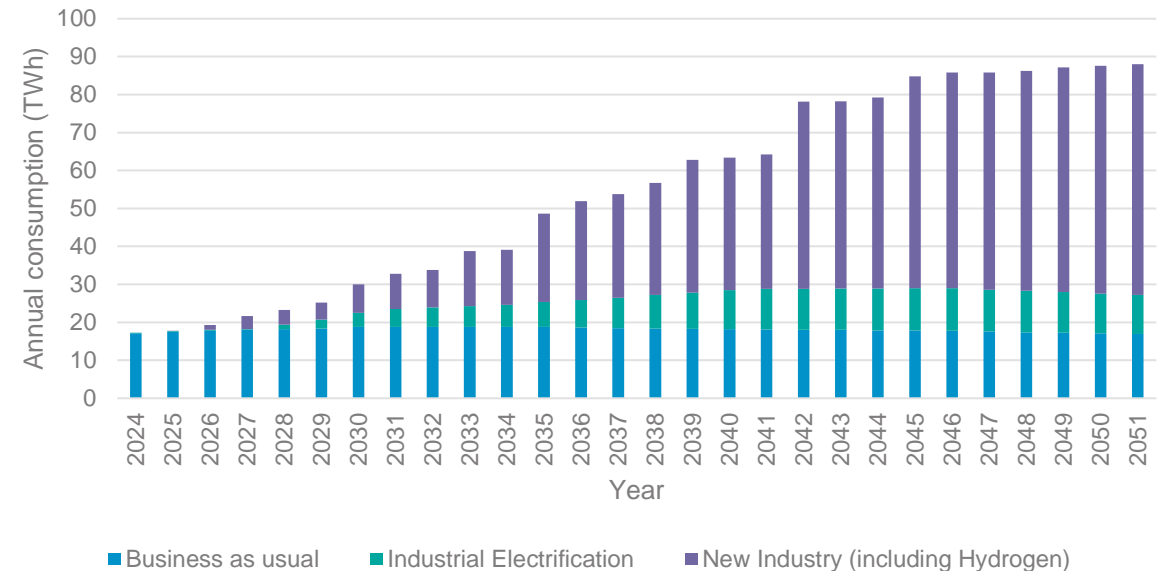
The type of load will change

Increasing volumes of non-vertically integrated demand, and potentially more flexible demand

Scenario 1 (CT)



Scenario 2 (CT+)

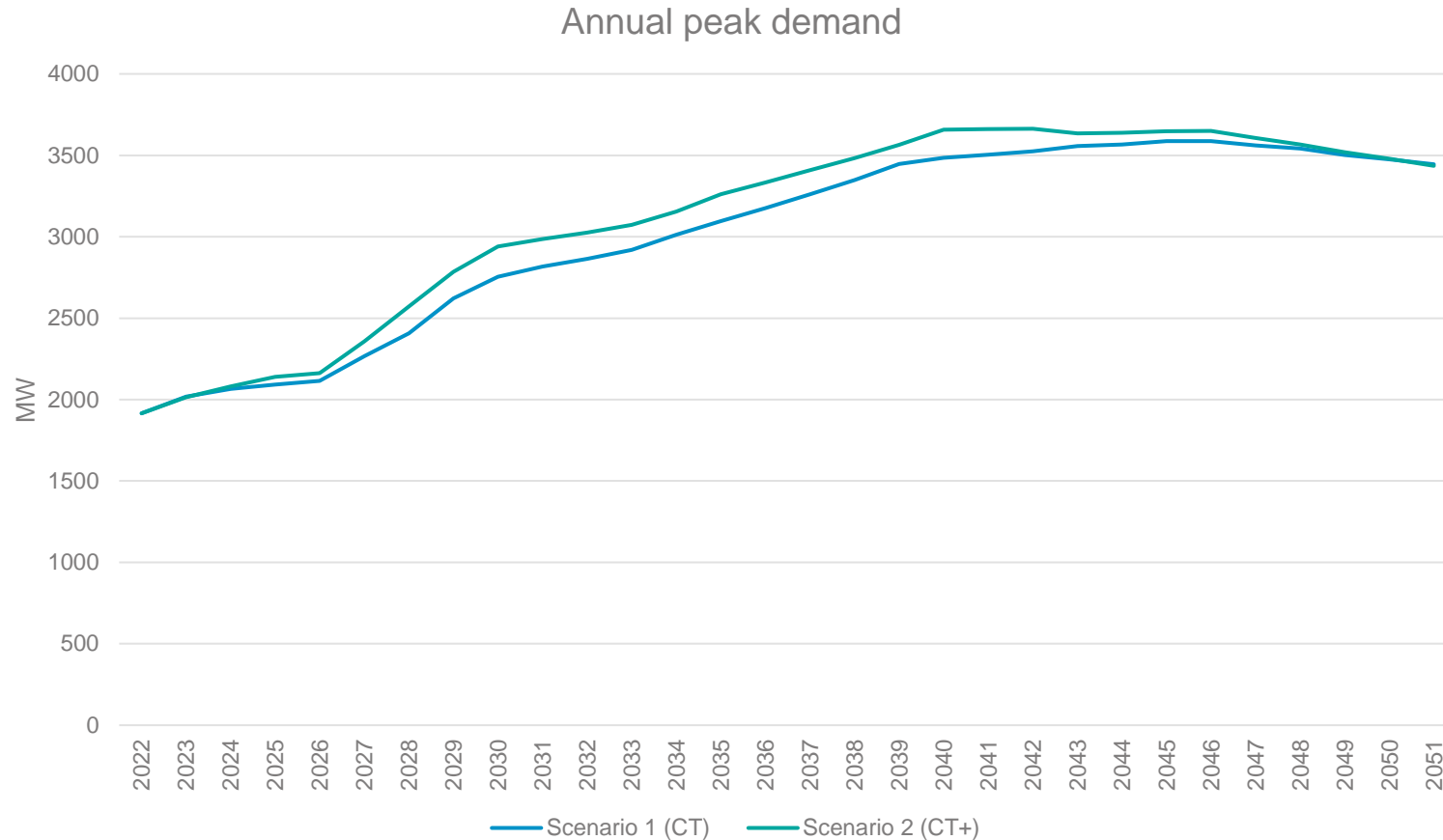


Input assumptions are drawn from PETA modelling. New load comes from:

- CT: industry announced plans for decarbonisation. Mine haulage electrification, onsite electricity at LNG plants, growth of lithium mining sector. Modest hydrogen export consistent with AEMO Step Change scenario.
- CT+: a portion of potential new industrial demand at the Maitland, Boodarie, Ashburton strategic industrial areas. CCS facilities for emissions in LNG and chemical sectors.

The peak load will increase significantly...

Chart shows underlying operational peak demand excluding flexible load, for the whole modelled area.

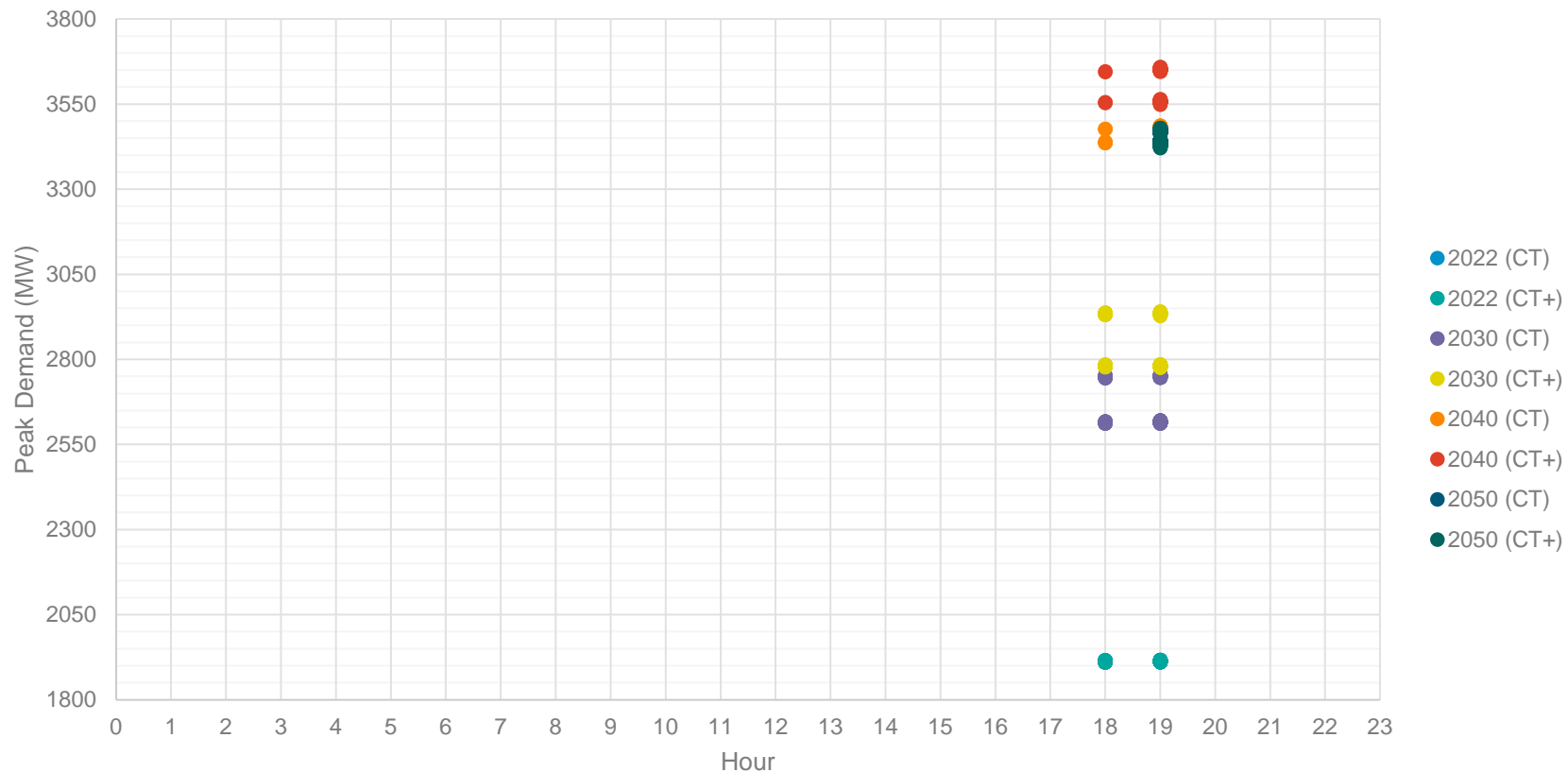


... but timing remains similar.

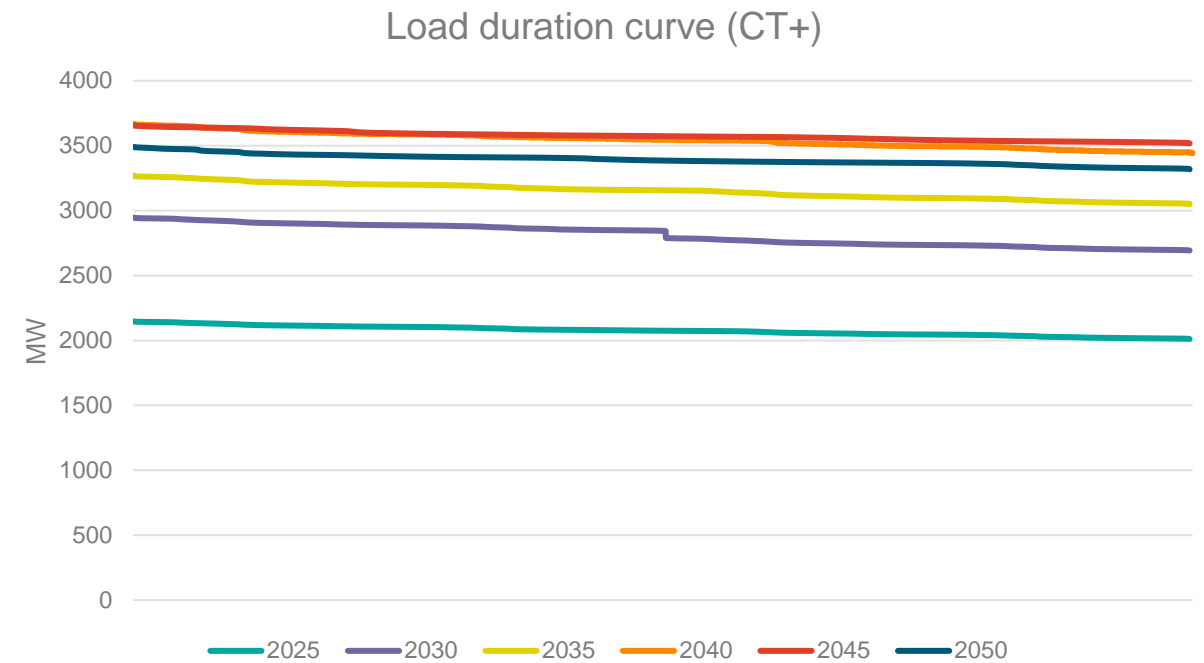
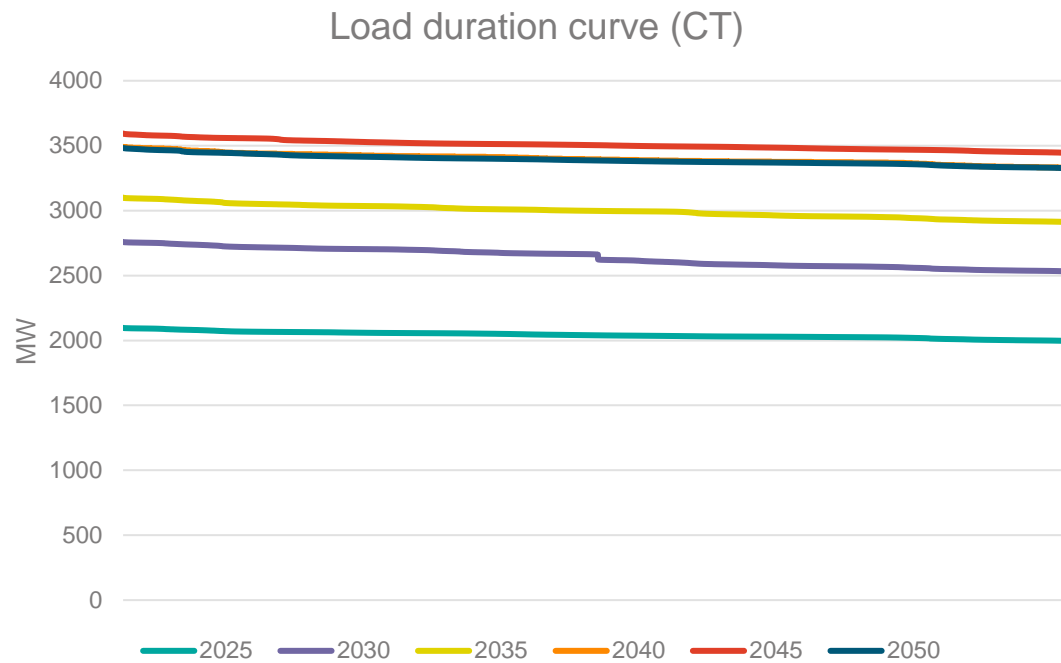
Minimal load volatility means minimal difference season to season.

Timing of the peak remains in the early-mid evening.

Chart shows timing and magnitude of daily peak demands for selected years, for the whole study area.

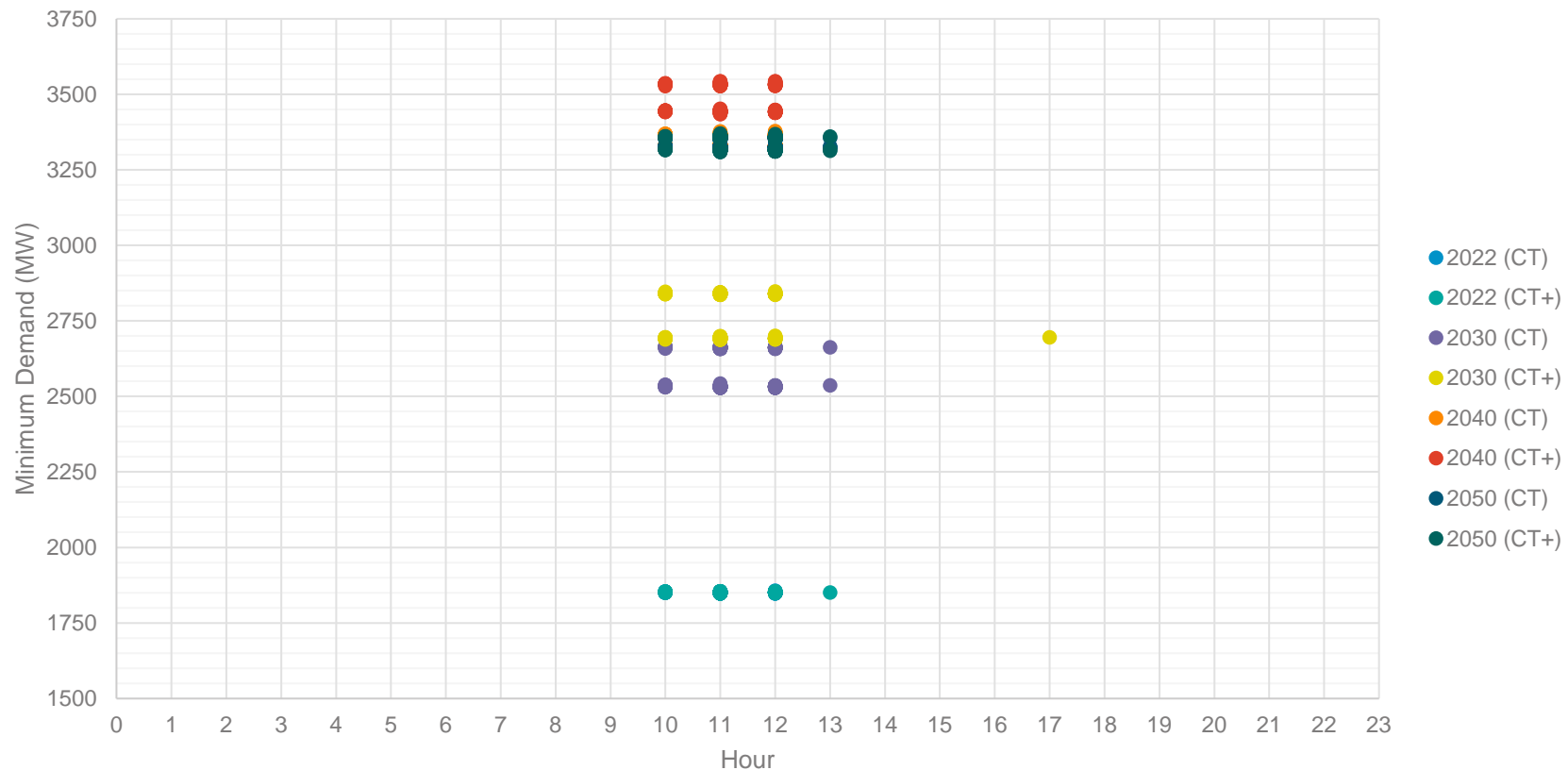


Underlying Load Duration Curve remains much flatter than other systems...



...so minimum demand is unlikely to be a problem

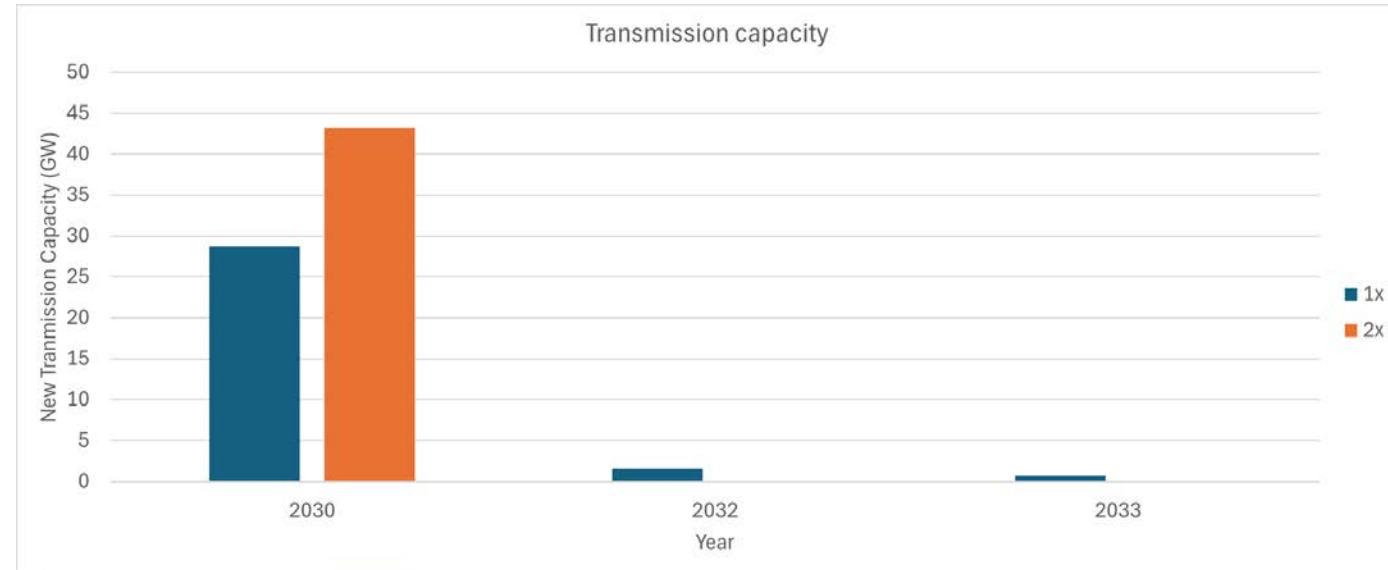
Chart shows timing and magnitude of daily minimum demands across the whole study area for selected years. The Pilbara has minimal temperature dependent load, and minimal uncontrolled non-utility scale solar, we do not see a “duck curve” in the underlying load.



4. Capital costs

Transmission Build

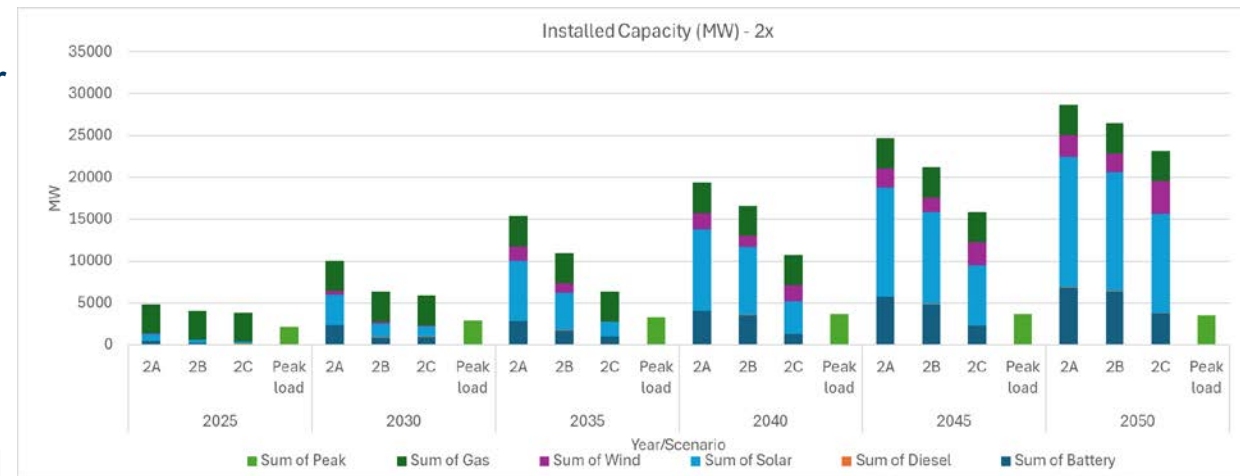
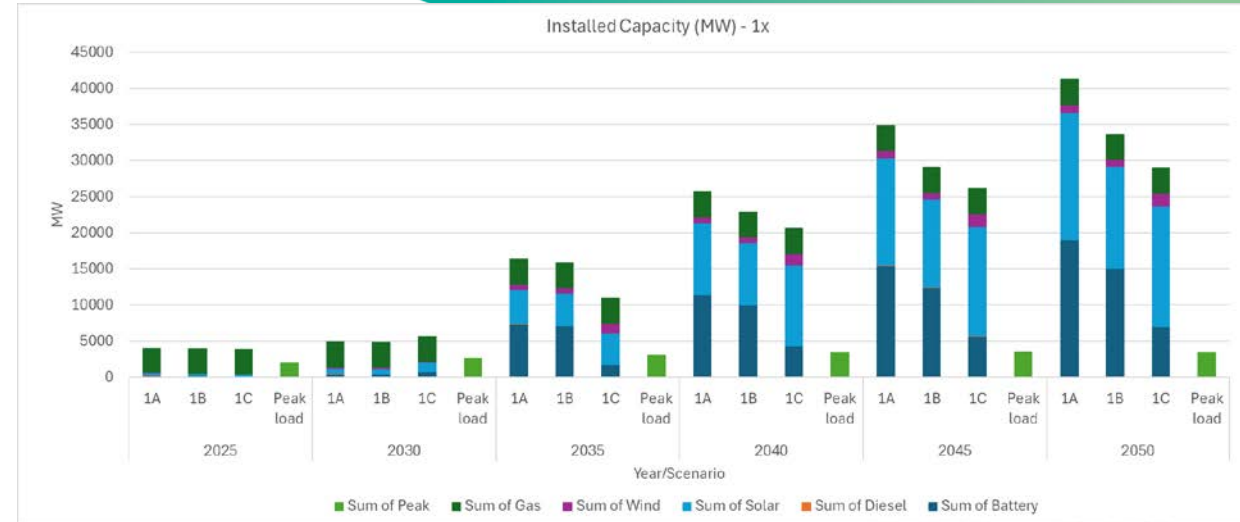
- We use the transmission build settings from the 2023 Pilbara Energy Transformation Assessment
 - Most transmission build coincides with the steep fall in the emission limit between 2030-2031 to accommodate new capacity
 - The 2x load scenario requires more transmission build to meet the higher industrial demand from SIAs and CCS
 - The transmission cost is 45% higher to accommodate the new builds for meeting the higher demand in 2x
- EPWA has commenced a refresh of the PETA modelling to further investigate transmission requirements and staging



Load scenario	Transmission cost (\$ million)
1x	\$8,625
2x	\$12,477

Generation Build

- In a high renewable future, significant overbuild is needed due to the intermittent nature of the facilities, and to meet the carbon emission targets
- The 2x scenarios have a greater proportion of new capacity coming from wind, enabled by the higher transmission build.
- Even though the overall demand is higher in the 2x scenarios, because there is more wind, the total installed capacity in the 2x scenarios is lower
- The fully integrated scenario (nC) requires less capacity when compared to nA and nB as resources are shared among the participants in the network
- Storage is integral in all scenarios to distribute intermittent capacity to other parts of the day and to provide firming capability to the system as gas facilities are restricted by emission targets

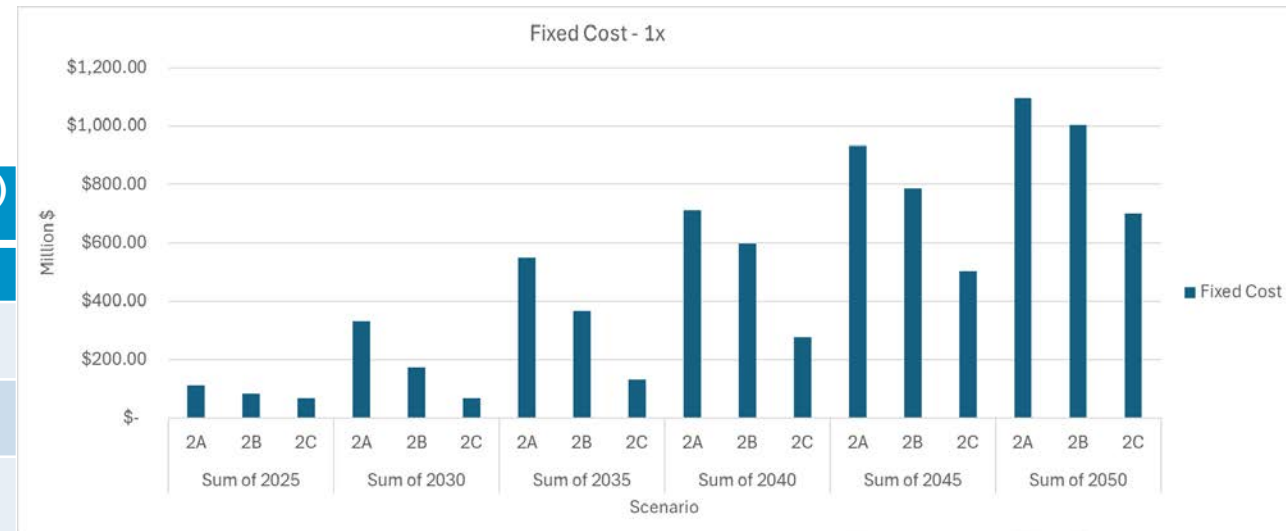
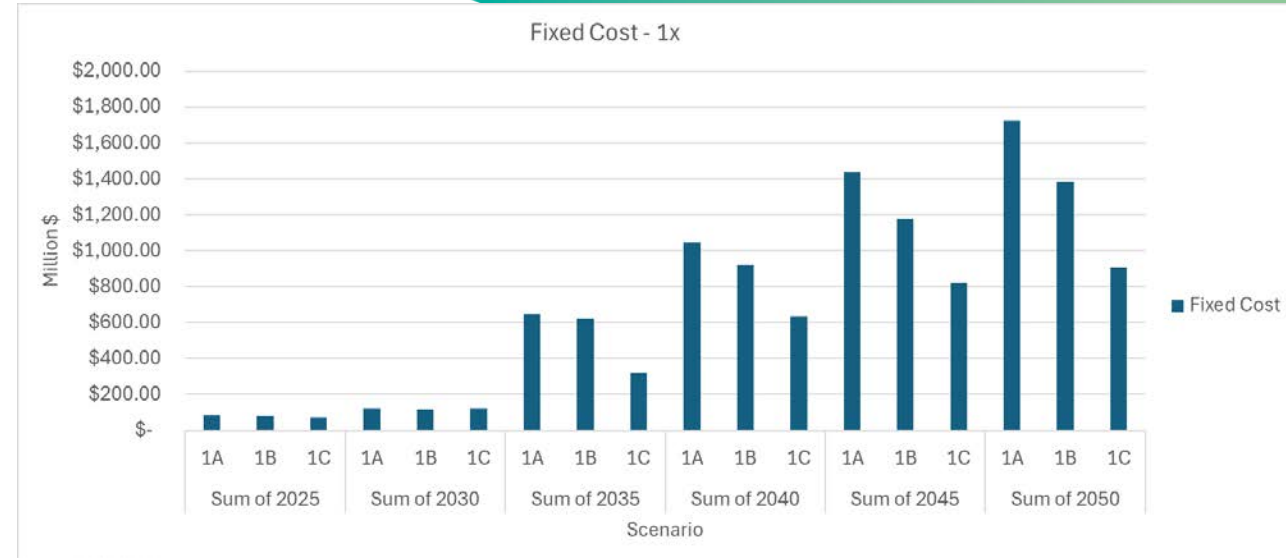


Note: The % of new capacity addition is based on PETA modelling data

Generation Build Cost

- The fixed cost is closely proportional to the installed capacity
- Build cost is higher for scenario nA, nB than nC as capacity is reserved to meet demand within the portfolio and this requires significant overbuild and leads to inefficient use of resources
- In terms of generation build cost, there is a potential to reduce 20-30% of the capacity cost by procuring capacity to meet reliability needs on a system-wide basis when compared to self procurement in both the sectoral driver scenarios

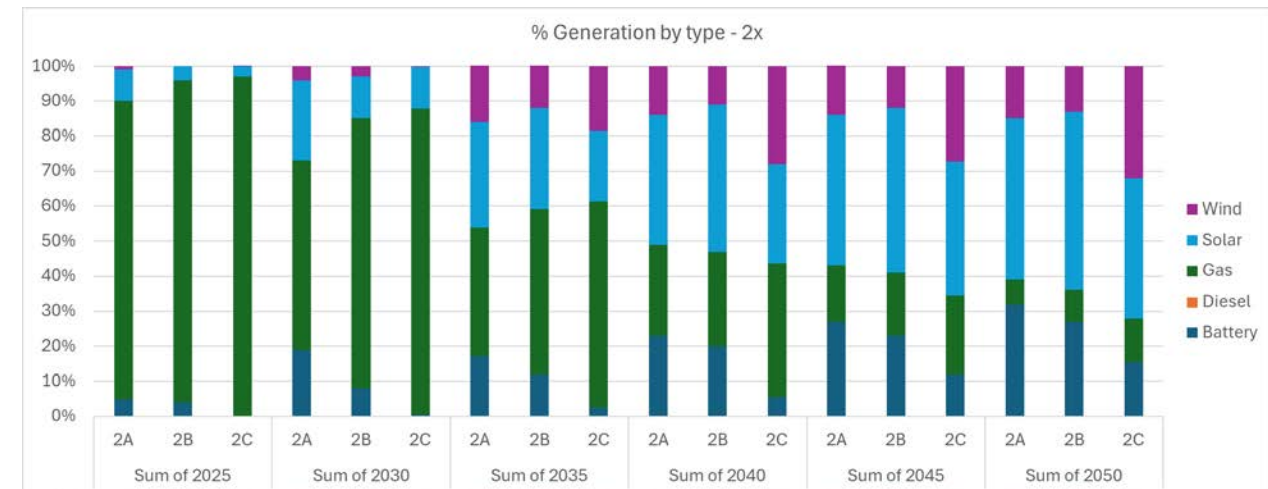
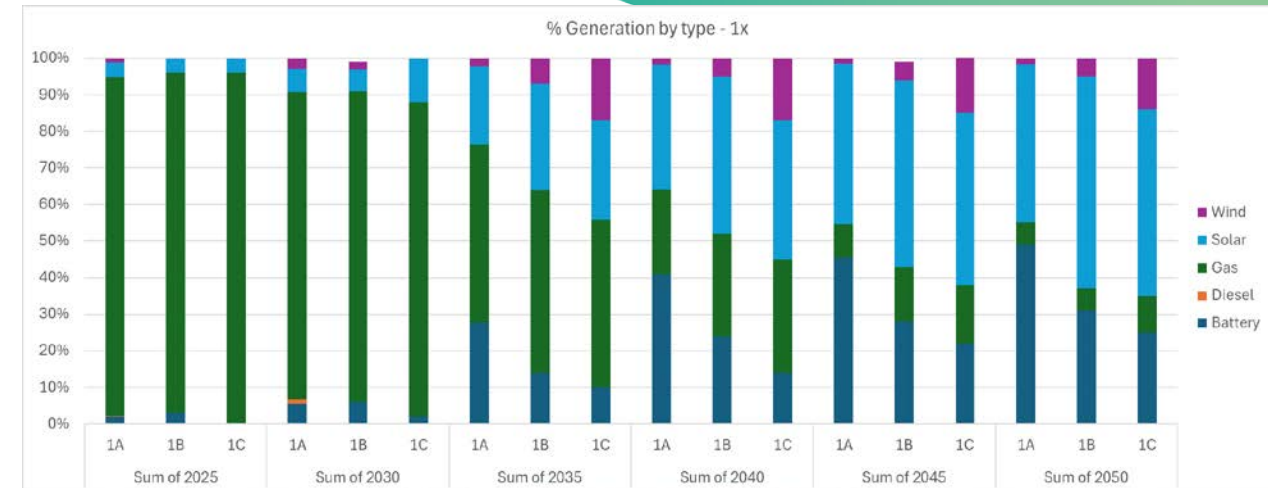
Scenario	Generation build cost (fixed + cost of new entry) (Million \$)	
	1x	2x
1A	\$ 66,175.59	\$ 49,660.42
1B	\$ 57,662.25	\$ 40,719.94
1C	\$ 48,103.63	\$ 35,677.80



5. Operational costs

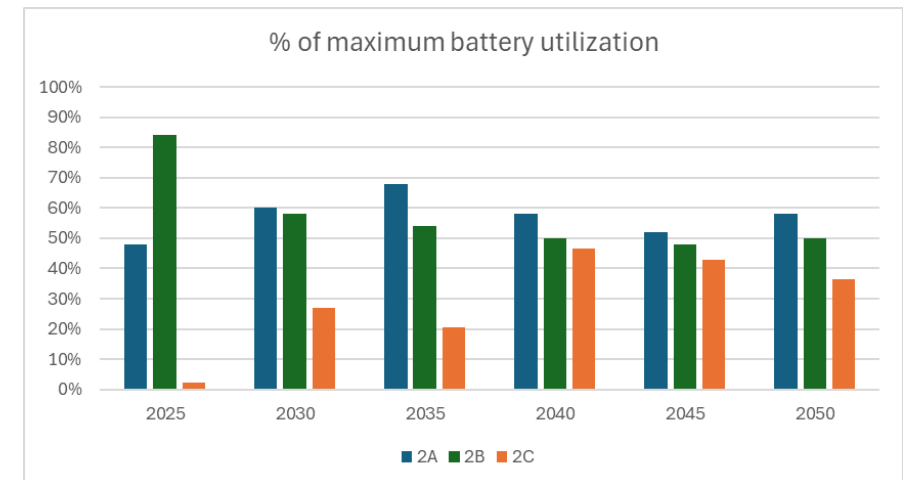
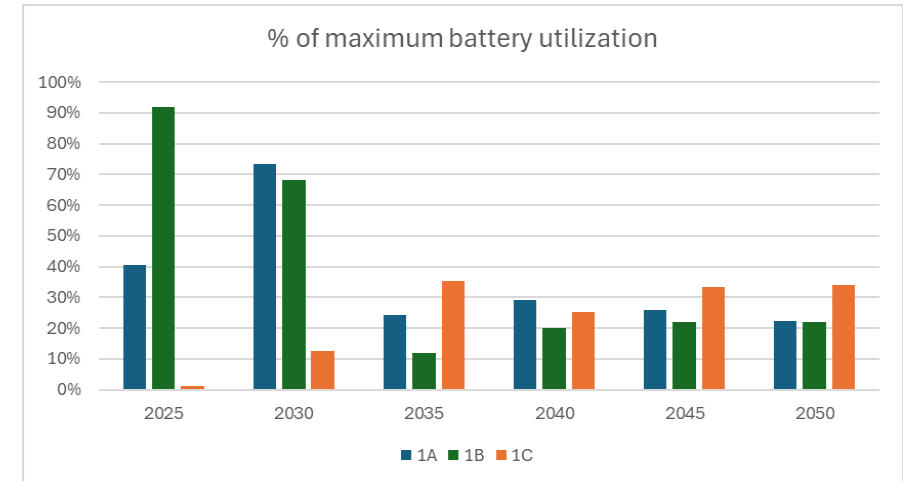
Generation dispatch

- Thermal generation drops steadily to meet the assumed emission targets
- Batteries remain integral to meeting load when the intermittent generation is low
- Higher installed wind capacity in 2x when compared to 1x leads to two outcomes:
 - Contribution of wind is higher in 2x because wind is available through out the day and can contribute during peak periods (evening)
 - Battery contribution is lower in 2x since wind can provide when solar cannot (evening and overnight)



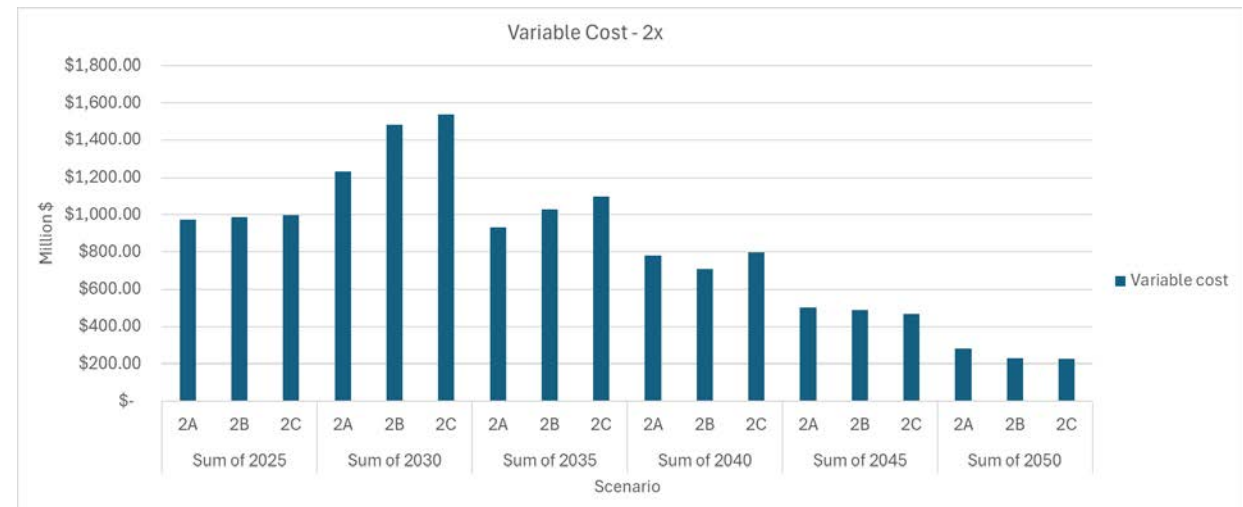
Battery utilization

- The battery utilization depends on the capacity mix for the battery to charge effectively during off-peak periods and discharge during peak periods
- In early years, scenario 1A makes heavy use of a small amount of storage. In later years, storage is needed more sparingly (as renewable overbuild increases). Scenario 1C makes better use of a smaller quantity of storage to deliver a smaller overall quantity of energy
- In scenario 2x, battery is used less since the amount of wind in the fleet is high.



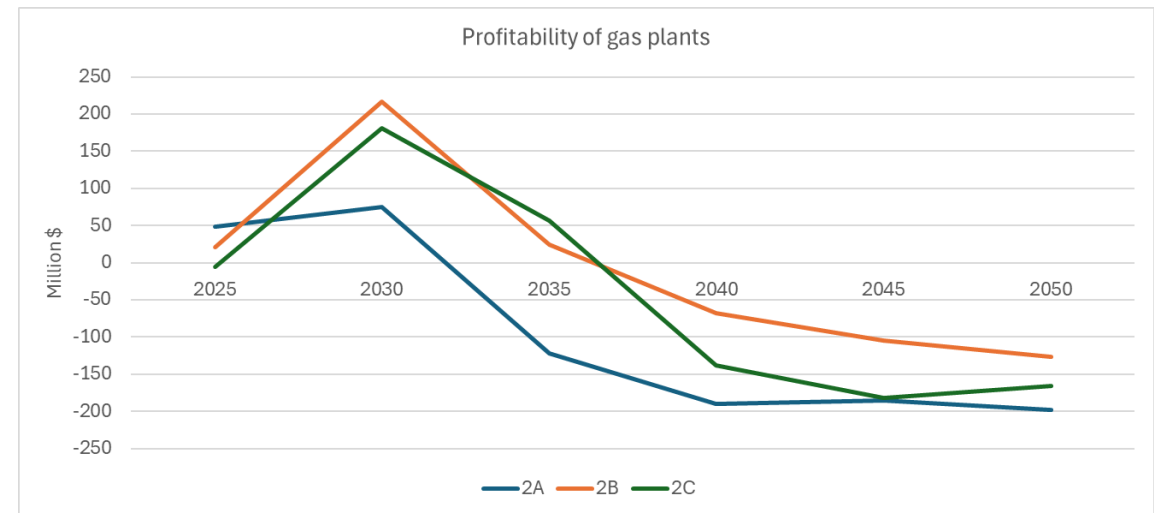
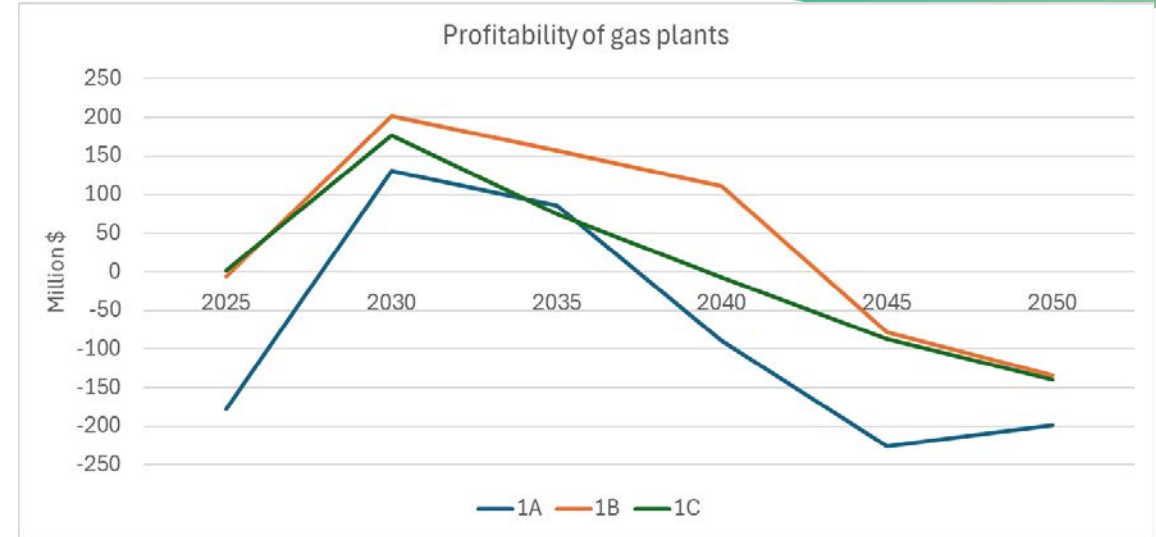
Generation Cost

- Variable cost tracks with gas usage. Storage and variable renewables run at \$0 variable cost, so variable costs closely relate to gas generation
- In later years, scenarios 1B and 1C have slightly higher variable cost, matching the slightly higher gas usage. Less overbuild translates to greater profitability
- In 2x scenarios, as the contribution of wind increases, the amount of overbuild is less and replaces gas usage.



Gas build profitability

- In all scenarios, gas profitability drops from 2030 as the transmission lines are built leading to delivery of wind and solar facilities from the Renewable Generation Hubs.
- By 2040/2045, gas facilities become unprofitable in all scenarios.

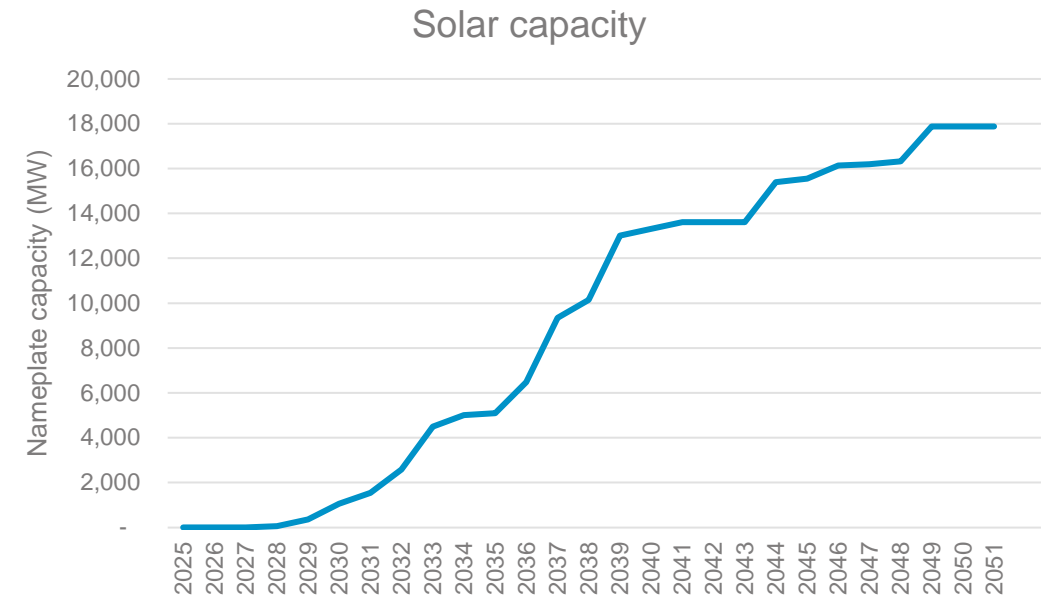


The largest contingency will be intermittent volatility

The largest credible contingency in the NWIS today is around 60MW.

In the future, the largest contingency on the system will be sudden loss of output from intermittent renewable facilities.

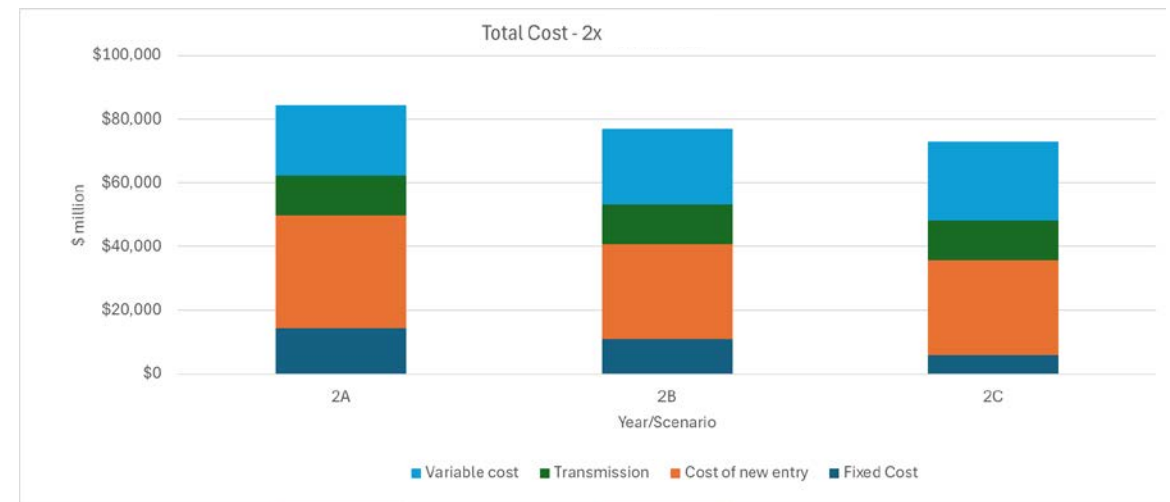
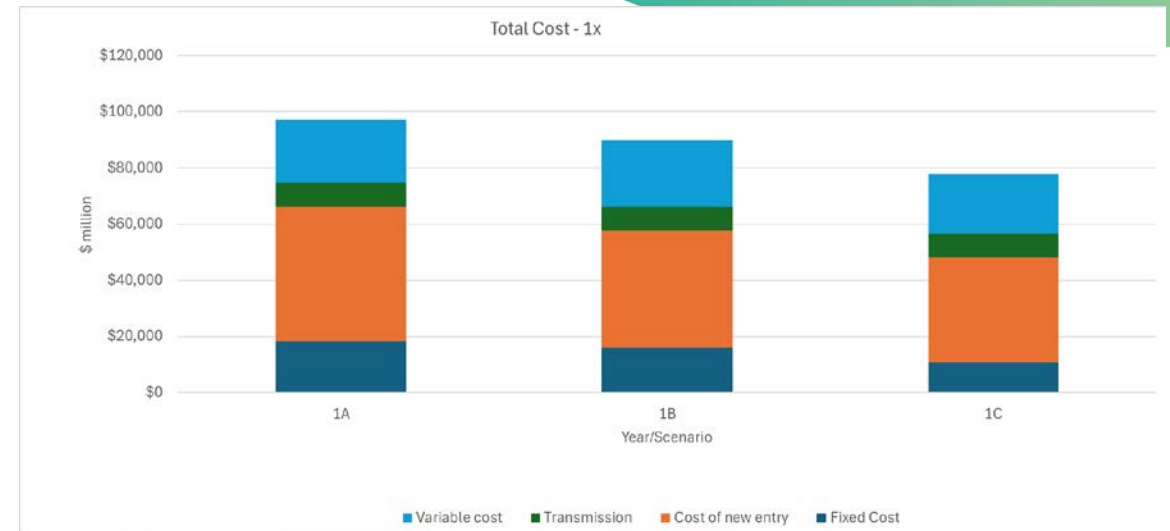
In the SWIS, over a half hour trading interval, unpredictable output changes have reached 20% of installed solar capacity.



6. Overall costs

Total cost

- Scenario nC has overall cost around 17% less than scenario nA including capacity build to 2050, and operational costs for the six years modelled
- The total cost of 2x is less than 1x because of higher wind build.
- System-wide capacity procurement provides substantial savings when compared to current practices of self procurement
- Scenario nB indicates that a large centralised balancing service would bring substantial savings when compared to self-procurement
- In later years, generation costs are slightly higher with system-wide capacity procurement, but this is outweighed by the reduced capacity investment cost



Modelling outcomes

Modelling indicates that:

- High renewable penetrations are achievable once transmission investment unlocks access to renewable energy zones
- With high penetration of variable renewables:
 - The current approach to assessing system reliability will no longer be effective
 - Generation volatility means ancillary services must be revisited
 - Electricity users in the Pilbara will see significant cost efficiencies from more integrated operations
- Changes can be delivered incrementally rather than a completely new paradigm

The Pilbara Network Rules need to start describing requirements and obligations for a power system with more participants and more contracting between parties, to give confidence that all parties will meet their obligations to maintain power system security and reliability

Implications for the PNR

The largest benefits come from:

- Having more centralised services – starting with balancing, and potentially moving to full merit-order dispatch later
- Applying reliability standards on a whole-of-system basis, where individual network owners still have the option to build or contract dedicated capacity

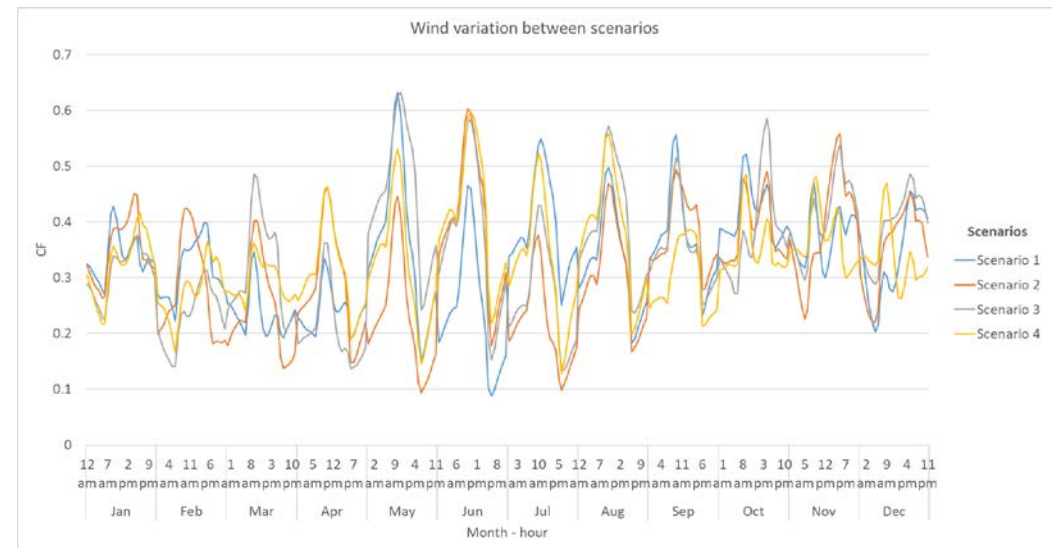
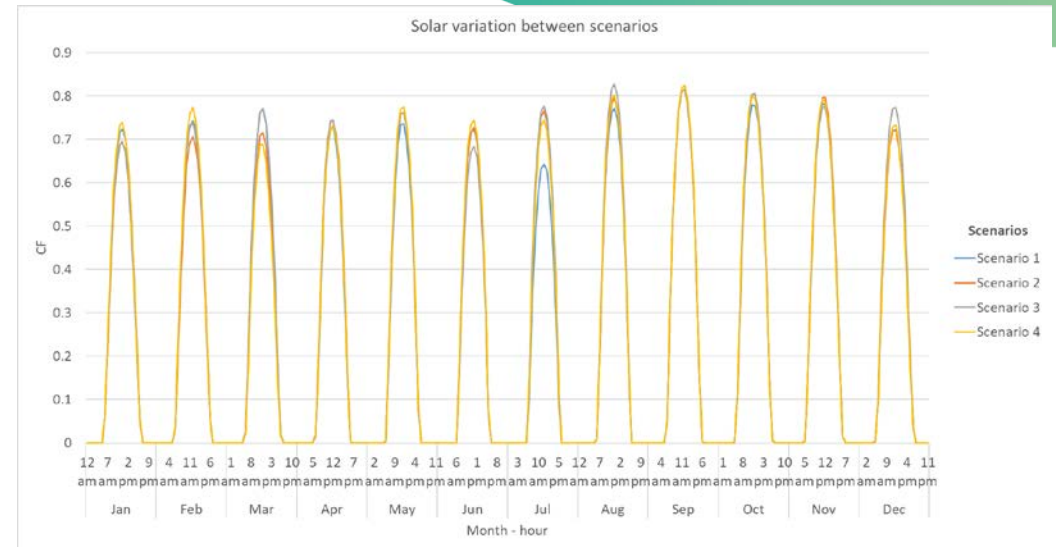
To unlock these benefits, the PNR need to:

1. Provide a mechanism for greater operational integration, timed to commence alongside the transmission investment that enables renewable investment. This includes:
 - Monitoring and intervention power for the ISO
 - Amended load following rules
 - Adjustments to ESS definitions to manage reduced load-following requirements and increased renewable energy penetration
2. Include a formal reliability definition and target (whether for individual networks or for the system as a whole)
3. Provide a transparent mechanism for collaborative long-term planning

7. Sensitivity Analysis

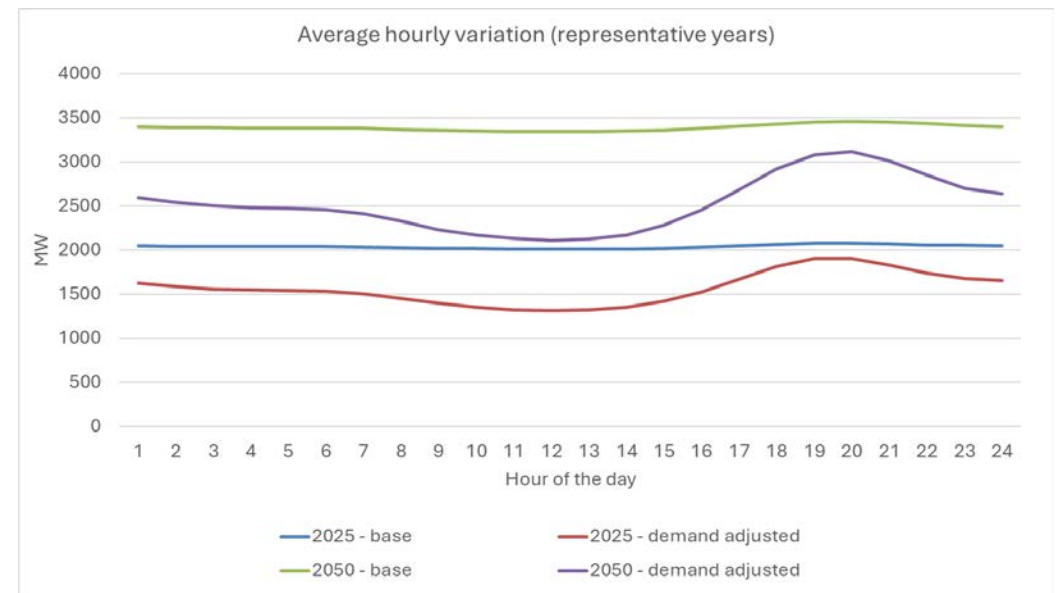
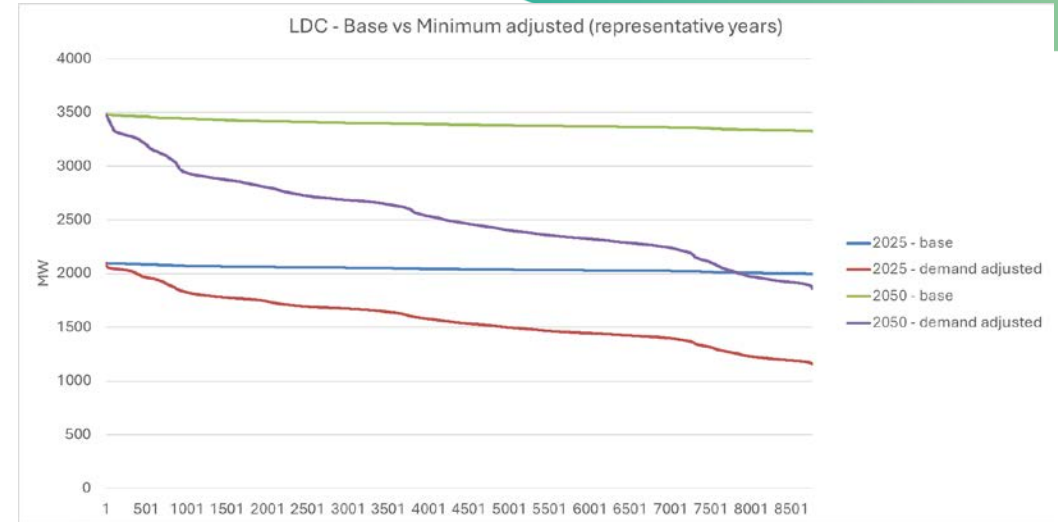
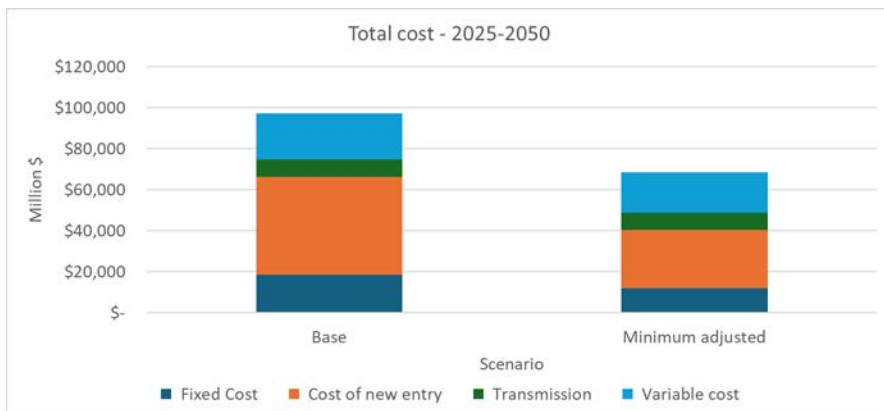
Sensitivity 1 – Intermittent variation

- Based on the data provided, the intermittent pattern cycles every four years to account for the El Nina phenomenon.
- This sensitivity run is to analyse the effects of variation in the intermittent pattern (the base model – 1A uses the average).
- There is very little variation in the solar profile, but wind is more widely dispersed.
- Since the capacity of wind in the fleet is much lesser compared to solar, the capacity needed to meet in the demand in each of the scenarios do not make a substantial difference.



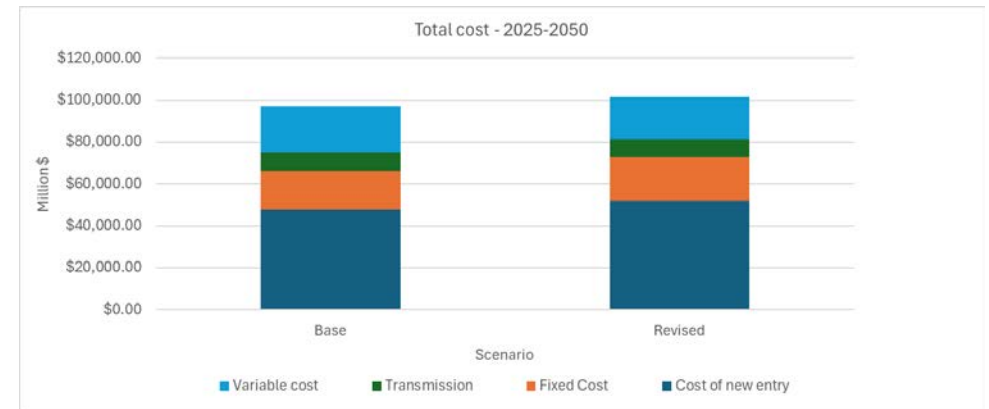
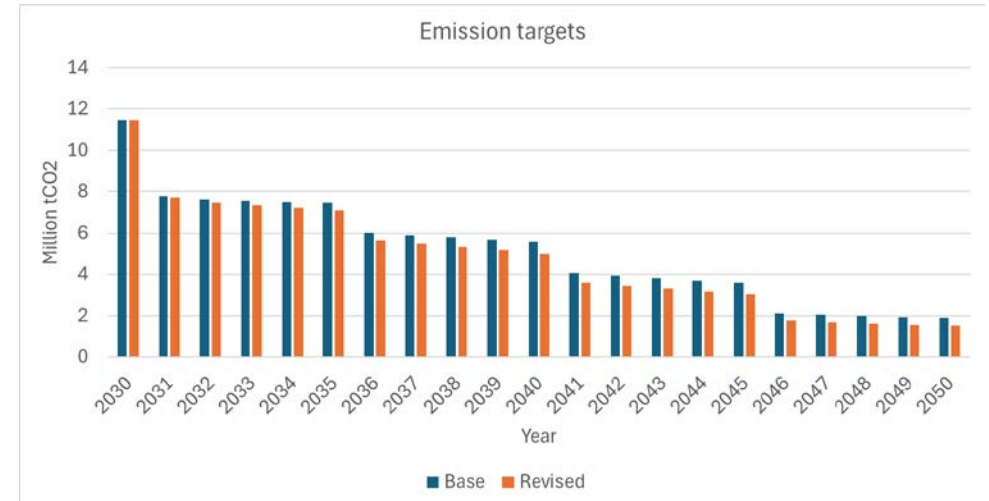
Sensitivity 2 – Demand variation

- The base demand (1A) profile is flat because most of the load is industrial.
- This sensitivity explores load profile with more variation in the load. The minimum demand is adjusted to be around 50% of the maximum demand for every year modelled.
- The capacity required to meet demand is much lower than the base case because of the drop in demand (mainly during off peak hours) when batteries are needed.
- The total cost reduces by 30% when the demand drops.



Sensitivity 3 – Emissions limits

- This sensitivity explores effect on the total cost if more stringent emission targets are imposed. The targets remain the same until 2030 and the revised target gradually reduces to 20% of the base by 2050.
- This limits the use of gas and diesel in the market necessitating the requirement of more alternative sources.
- The comparison provides two observations:
 - the system makes efficient use of batteries but still requires more solar and wind to charge up the batteries to make up for the lost gas capacity.
 - The variable cost drops because of less gas usage.
- The total cost increases by 5% when the targets are tighter because of higher installed capacity.



Appendix B. Issue prioritisation and descriptions

	PSSR	Emissions	Timing	Value	Size	Other activity
Reliability standard and supply adequacy	Yes	Direct	Short term	Med	Med	No
Long term planning	Yes	Direct	Medium term	High	Small	No
Outage planning	Yes	Indirect	Short	Low	Medium	Yes
ESS definitions and procurement	Yes	Direct	Short	High	Large	Partially
ESS cost allocation	No	Direct	Short	High	Medium	Partially
Responsibility for setting system strength requirements	Yes	Indirect	Med	Low	Small	No
Balancing service	No	Direct	Med	High	Large	No
Metering obligations	No	Indirect	Med	Med	Small	No
Load shedding arrangements	No	No	Med	Low	Small	No
Fee allocation	No	Indirect	Short	Med	Medium	No

	PSSR	Emissions	Timing	Value	Size	Other activity
NSP to NSP connections, incl constrained access	No	Direct	Med	High	Large	No
Transmission build process, incl transmission pricing and constrained access	No	Direct	Med	High	Large	Yes
Registration category and requirements for storage facilities	No	Direct	Short	Med	Medium	No
Registration category and requirements for DSR	No	Direct	Long	Med	Large	No
Exemptions and derogations from the HTR	No	No	Medium	Med	Medium	No
Registration constructs – definition of “NSP”	No	No	Medium	Med	Medium	No
Definition and use of “energisation” and “commercial operations”	No	No	Short	Low	Small	No
Terminology consistency between PNR and HTR	No	No	Short	Med	Small	No

	PSSR	Emissions	Timing	Value	Size	Other activity
Board composition	No	Direct	Short	High	Small	No
Resourcing and budget	No	Direct	Short	High	Small	No
Ringfencing	No	Direct	Medium	Med	Medium	Partially
Confidentiality regime	No	Direct	Medium	Med	Medium	No
Responsibilities and process for compliance monitoring	No	Direct	Medium	Med	Medium	No
Enforcement options	No	Direct	Medium	High	Large	No

1. Power system security and reliability

Reliability Standard

Chapter 6 of the PNR provides for:

- The ISO to publish peak demand or a method for determining peak demand
- Exit Users to forecast their own peak demand and nominate a Demand Cap
- Generators to self-certify the capacity they provide
- Exit Users to provide generation adequacy certificates
- Exit Users to be restricted to withdrawing their Demand Cap

The chapter is currently suspended, and no methods have been published.

The regime needs to evolve to include a reliability standard:

- include a method for determining the overall capacity requirement
- include intermittent renewables, storage, and demand side response
- account for correlation (or lack thereof) in the output of intermittent renewable generation (which is likely to require centralised capacity certification)
- allow different standards in different parts of the network
- while maintaining opt out for behind the meter activity where loss of generation is tied to load reduction

Long term planning

The ISO must prepare and publish two long term planning reports every two years:

- A Transmission Development Plan
- The Pilbara GenSOO

The Transmission Development Plan is focused on the Covered Networks in the NWIS, but can include “possible opportunities for new, extended or expanded Pilbara networks which may Interconnect with the NWIS”.

The Pilbara GenSOO is also focused on the NWIS, but can “include information ... in respect of existing, or potential new, extended or expanded, Non-Covered Networks which do not form part of the NWIS”. The ISO has limited powers to seek information from parties not connected to the NWIS.

The Pilbara networks (including the NWIS) are expected to see significant growth (both in demand and in geographical size) over the next decade, with significant uncertainty over where and when large investments will be made. Long term planning arrangements need to be strengthened to allow stakeholders (particularly those making large investments) to efficiently coordinate their efforts.

Outage planning

The PNR require Registered NSPs to notify:

- Planned outages to other NSPs orally in the system coordination meeting
- Planned outages to the ISO by providing a copy of internal outage planning reports
- Forced outages only if they may affect system security or ESS provision.

There is no minimum advance notification requirement, and no central outage register.

If outages clash, and consensus cannot be reached on revised plans, the ISO can direct an NSP not to take the outage.

A more integrated system requires a more structured approach to generation and network outages.

The ISO's review of sections 7.3 and 7.4 may deal with some of these issues, and the EPNR work needs to extend from that starting point.

Essential System Services definition and procurement

The current PNR includes two frequency management services:

- “FCESS”, a regulation service to manage frequency fluctuations occurring in the normal course of operations. Separate raise and lower components are defined, but procured as a single product. A single primary provider is designated for the power system as a whole, but the ISO also designates providers for each potential island.
- “SRESS”, a spinning reserve service to cover larger contingency events. There is no load rejection reserve service to manage a significant drop in load.

Intermittent volatility will come to be the largest contingency on the power system, both upwards and downwards. At the same time, the expected intermittent generation overbuild means significant intermittent curtailment will occur much of the time, and could support both regulation and contingency response.

The ESS definitions need to evolve to suit a future with high renewable penetration, including making use of storage and curtailed renewables, and allowing more dynamic procurement to reduce costs. We also have the opportunity to standardise terminology with other Australian jurisdictions.

ESS cost allocation

Regulation costs are currently recovered from participants based on the size of the difference between their maximum load and their minimum load for the entire three year reference period.

Spinning Reserve costs are currently recovered from participants based on the size of their largest generation unit, regardless of how many other units they have, or whether that unit actually ran.

These arrangements are not unreasonable if participants have similarly sized generation portfolios, and large generation units run at high capacity factors. In future, neither of these will be the case.

The cost allocation approach needs to ensure that participants have opportunity to reduce their exposure to the costs in a way that reduces the need for the service.

The ISO's current review may deal with some of these issues, and the EPNR work needs to extend from that starting point.

Responsibility for setting system strength requirements

The Pilbara Networks comprise several interconnected networks with different owners. Optimum (or “automatic”) technical standards are best specified system-wide, in which case they will be specified in the HTR. Any negotiation around the technical standards is better specified on a network by network basis, in which case the PNR should ensure that powers and responsibilities are clearly specified.

The HTR do not currently specify system strength requirements, and the PNR do not allocate responsibility for which party is empowered to set the requirements. Its addition to the HTR is being considered by Workstream 2.

2. Scheduling, dispatch and settlement

Balancing service with (optional) reduced load following requirements

Currently, Balancing Nominees must maintain an Imbalance as close to zero as possible within each Trading Interval, and in real time. Consumers can source energy from outside their portfolio, but this must be nominated before the start of the relevant settlement period unless the ISO approves.

Any mismatch between real-time supply and demand is met by ESS providers, or by ISO direction if ESS is insufficient to meet the gap. Sometimes there can be payment shortfalls or surpluses.

A key finding of the modelling was that there is benefit from having more flexible balancing arrangements.

The EPNR project needs to explore design for a balancing service procured by the ISO, allowing:

- participants to avoid increasingly complex multi-party nominations
- centrally procured balancing energy to be determined closer to real time
- the ISO to manage expected intermittent volatility

A broader centralised balancing service will require review of the dispatch arrangements, nomination rules, and imbalance tolerances.

Metering obligations

Covered NSPs are responsible for metering at connection and interconnection points on their networks. This includes a metering database which records how metered quantities are to be allocated at points with more than one Network User.

The ISO Energy Balancing and Settlement Procedure sets out the timing and content required for meter data submissions.

The basic metering rules should continue to work with a centralised balancing service, but it may be prudent to move timing and content descriptions into the rules rather than a procedure.

Load shedding arrangements

In situations where there is insufficient energy available to meet load, some load will not be served.

The HTR include provisions for automated underfrequency load shedding. If energy shortfall is forecast, it is not good practice to wait for the frequency to fall enough to trigger AUFLS.

Whichever participant is unable to balance (due to an allocation shortfall) should turn down, but there is a general obligation for the ISO to use load shedding as a last resort only.

Neither the HTR nor the PNR include provisions for manual load shedding, other than by direction from the ISO or its delegate. The Loss of Generation Protocol covers the response to a contingency event, but otherwise there is no guidance on what load to shed first, allocation of load shedding to participants or networks, or timeframes for forecasts or notifications.

These matters need to be added to the PNR.

Fee allocation

The ISO, ERA, and Coordinator of Energy incur costs to administer and operate the PNR. These costs are currently divided equally between Registered NSPs, regardless of their size, energy use, level of participation in settlement, or other participation metrics. No costs are allocated directly to generators or large consumers.

As connections to the NWIS increase, and the mix of connected parties changes, this basis for allocating fees will no longer be appropriate.

The EPNR project needs to consider alternative methods of allocating administration and operation costs in the form of market fees.

3. New connections

NSP to NSP connection arrangements, including constrained access

The PNR and HTR include connection requirements for new facilities. They include minimum performance standards, operating requirements, and requirements for commissioning tests.

These connection requirements are largely to do with connection of new generating units, and not to new connections of networks to the NWIS.

The connection arrangements in the PNR and HTR need to be expanded to cover new network connections. This could be by:

- Amending the existing framework to clarify roles, responsibilities, and connection process when an access seeker is an NSP rather than a generator or load; or
- Creating of a new interconnection framework for NSP to NSP connections

The connection rules also need to address:

- whether and how constrained access rules would apply to new connected networks, and
- required timeframes for each step of the connection process.

Process for new transmission build, including cost allocation

Significant transmission investment is needed to enable the transition to renewables in the Pilbara. It is not yet clear who will make that investment, and how they will charge for access.

The PNR deal with network access rights for the two covered networks, but do not deal with investment decisions, and do not set transmission pricing arrangements.

The two covered networks are subject to some oversight by the Economic Regulation Authority, which approves ringfencing rules and the initial WACC.

The EPNR project needs to consider how new transmission build is likely to be managed and funded, interaction between the PNR and the PNAC, application of constrained access to new build, and whether the PNR should include rules for transmission planning, approval, and pricing.

Registration category and requirements for storage facilities

The PNR includes the concept of Storage Works. Storage Works must be registered, and Standing Data maintained for that facility.

However, the PNR place many requirements on Generation Facilities which are not placed on Storage Works. For example:

- Storage Works cannot provide ESS
- Storage Works cannot contribute to generation adequacy
- The HTR treats storage as a combination of a generation unit and consumer equipment
- The definition of the Technical Envelope considers Generation Facilities but not Storage Works
- The ISO can require information about Generation Facilities outside the NWIS for the purposes of long term planning, but not Storage Works.

The PNR need to expand to include relevant concepts for storage as it does for generation.

Registration category and requirements for demand side participation

One potentially significant component of demand growth in the Pilbara is consumer sites which can flexibly ramp their load up and down to match the availability of intermittent generation. Examples cited include hydrogen, ammonia, and green steel production.

Modelling indicates that there will be significant quantities of renewable generation that will be curtailed unless flexible demand is able to use it.

To be used efficiently, this load will need to be scheduled or dispatched close to real time. The PNR do not currently have a mechanism to do this efficiently.

The PNR need to include a mechanism to register and manage demand side participation loads.

Any central balancing needs to include either a signal of available volumes or actual dispatch of flexible load as part of balancing out potential overgeneration.

Exemptions and derogations from the HTR

Historically, different networks in the Pilbara have had different technical standards. The HTR is intended to function as a single, end-to-end technical power system standard for all networks and equipment connected to the NWIS.

While compliance with the HTR is sufficient for connection, sometimes a prospective connection or a network may wish to depart from the standard. For example, a new connection may wish to not comply with some portion of the HTR, or a network may prefer compliance with a higher standard than required in the HTR. In either case, the relevant parties would need to agree to negotiate such a departure.

The EPNR needs to include a mechanism for negotiation, formalisation, and ongoing monitoring of departures from the HTR, including supporting dispute resolution process.

4. Governance of the ISO

Summary Overview of Pilbara ISO Governance

Pilbara ISO Limited (Pilbara ISOCO) has been appointed to the ISO role. As well as the Pilbara regulatory regime (including the PNR), a number of instruments are relevant including the Pilbara ISOCO's Constitution, internal policies and controls.

Features of the current governance arrangement include:

- Participant-led company including board composition
- Key system operations functions (delegated to participants)
- Collaborative and informal approach to PNR functions (i.e. fortnightly system coordination meetings, including outage scheduling)
- Administered ISO funding/resourcing
- Reliance on non-PNR instruments (i.e. Internal company controls)
- Lack of effective enforcement mechanism

Board composition

Pilbara ISOCo Limited has been appointed to the ISO role.

In line with Pilbara ISOCo's constitution, the current board consists of an Independent Chair, a government appointed Director, APA member director, Horizon Power member director and Rio Tinto member director.

Strict protocols are in place in order to manage director conflicts of interest. An expanded NWIS and ISO role in the future warrant close consideration of:

- whether the current composition of the board is able to provide suitable oversight and insight into the operations of the ISO, and execution of its functions in achievement of the Pilbara electricity objectives
- whether the participation of registered NSPs on the board raises perception concerns relating to the independence of the ISO.

ISO resourcing and budgets

The ISO currently delegates performance of real-time system operations functions to Horizon Power.

Pilbara ISOCO's authorisation application to the ACCC also highlights the design of ISO functions under the foundational Pilbara regime prioritise efficiency, leveraging NSP input and expertise in decision-making processes (in order to avoid duplicating technical resources within the ISO).

As more parties join the NWIS, real time system operations will need to deal with more generators, more loads, and more complex decisions about operation of storage, intermittent curtailment, and other matters.

Reforms need to consider how the ISO delivers its real-time functions, and ensure suitable arrangements are reflected in the PNR to ensure that the ISO budget is prudent and efficient, and determined through an independent process.

Ringfencing and confidentiality regime

The PNAC contains rules regarding ringfencing, with a focus on vertically integrated NSPs. The ringfencing rules are applied only to some NSPs.

The PNR does include a confidentiality regime which limits the use of Confidential Information (as defined in the PNR) and disclosure to third parties.

The PNR may also specify further restrictions on confidential information in the delivery or participation in certain functions (for example, see Rule 176 for system coordination meetings).

Ringfencing arrangements and the treatment of confidential information is critical for reducing the perception and potential for anti-competitive behaviour to occur.

The Pilbara regime needs to ensure that ringfencing arrangements are fit-for-purpose and captures all relevant parties, and that further restrictions specified in the PNR are properly scoped to capture, and provide confidence, that all intended conduct is captured.

5. Compliance and enforcement

Responsibilities and process for compliance monitoring

The ISO is responsible for monitoring compliance with the PNR, including its own compliance. It must do so with “as little formality and as much expedition as reasonably practicable”. The ISO is subject to audit, and breaches by the ISO are referred to the ERA.

The ISO is also required to monitor the operation and effectiveness of the PNR in “maintaining and improving Security and Reliability and the Pilbara Electricity Objective”.

There is no explicit list of matters that the ISO must focus its compliance on, and there is no explicit requirement for the ERA or anyone to monitor market behaviour.

In the future, if participants are to rely on each other’s compliance to ensure power system reliability, the compliance regime must give confidence that all parties are compliant with their important obligations.

The role for monitoring of compliance may also need to be transferred to the ERA to ensure transparency and independence of the monitoring function, including with respect to the ISO compliance (especially if its functions are expanded).

Enforcement options

Participants who fail to balance their energy face penalty rates for the imbalance (beyond tolerance margins). For all other non-compliance, the current PNR have only two remedies: publication of the non-compliance, or disconnection. There is currently no provision for civil penalties in the regulations.

Disconnection is not a practical response in most situations. This means that in many cases, non-complying participants will face no sanctions, and no incentive to remedy their actions.

To be effective, the PNR needs to include a range of options to respond to non-compliance. These could include warnings, monetary penalties, temporary suspension from some or all aspects of participation, or increased compliance attention.

6. Terminology

Registration categories – definition of NSP

The current PNR are built on the basis that the NWIS is a collection of networks, each of which has a responsible Network Service Provider. NSPs are the core entities on which responsibilities are placed, and the predominant model is vertically integrated companies (or groups) responsible for generation, transmission, distribution, and consumption.

In future, as more network users of different types (direct consumers, large users with behind the meter generation, large users with remote generation, transmission owners, pure-play generators) join the Pilbara networks, it may make sense to revise the entity types to put more focus on the individual parts of vertically integrated participants.

The Pilbara will continue to need to manage multiple network owners and vertical integration, so network participant constructs are unlikely to be the same as the WEM or the NEM.

The EPNR project needs to ensure the entity constructs in the rules allow effective regulation of all types of market participant.

Minutes

Meeting Title:	Evolution of the Pilbara Network Rules (EPNR) Working Group
Date:	29 July 2024
Time:	9:30 AM – 11:30 AM
Location:	Online, via TEAMS

Attendees	Company	Comment
Dora Guzeleva	Chair, Energy Policy WA	
Rebecca White	BHP	
Nathan Kirby	BHP	
Lekshmi Jaya Mohan	BP	
Anthony Guevarra	CITIC Pacific Mining	
Aditi Varma	Economic Regulation Authority	
Guy Tan	Horizon Power – Pilbara Network	
Herman Prinsloo	Horizon Power – Pilbara Network	
Jaden Williamson	Horizon Power – Pilbara Network	
Sandy Morgan	Horizon Power – Pilbara Network	
Rebecca Mason	APA	
James Campbell-Everden	ISOC	
Noel Michelson	Rio Tinto	
Reece Tonkin	Woodside Energy	
Rudi Strobel	Yindjibarndi Energy Corporation	
Thomas Tedeschi	Energy Policy WA	
Tom Coates	Energy Policy WA	
Laura Koziol	Energy Policy WA	
Ajith Viswanath Sreenivasan	RBP	
Eija Samson	RBP	
James Seidelin	RBP	
Tim Robinson	RBP	

Item	Subject	Action
1	<p>Welcome and Agenda</p> <p>The Chair opened the meeting with an Acknowledgement of Country.</p> <p>The Chair noted the Competition Law Statement, reminded members of their obligations and encouraged them to bring any Competition Law issues to her attention as they may arise.</p>	
2	<p>Meeting Attendance</p> <p>The Chair noted the attendance as listed above.</p>	
3	<p>Action Items</p> <p>All action items from the previous Pilbara Networks Rules (PNR) Workstream meeting have been completed.</p>	
4	<p>Project Scope</p> <p>The Chair provided a recap of the project scope and staging, and the workplan for stages 3 and 4, referencing slides 4-5.</p> <p>The Chair reminded members that the next PNR Workstream meeting has been postponed to 22 August 2024 to avoid a clash with the Energy in WA Conference. She advised that the September and October meetings of the workstream would also be rescheduled.</p> <p>The Chair noted that stage 2 modelling outputs, updated with scenario 2A, 2B and 2C outputs and sensitivity analysis, would be circulated in advance of the 22 August meeting.</p>	
5	<p>List of EPNR Initiatives</p> <p>Mr Robinson introduced the list of EPNR initiatives on slide 7. He noted that the initiatives were drawn from a range of sources, including the initial Pilbara Industry Roundtable (Roundtable) review, EPNR working group discussions, and the modelling outcomes.</p> <p>Mr Robinson invited stakeholders to provide feedback on this list, particularly regarding the priority and framing of the issues and whether any issues were missing. He reiterated the intention for members to finalise the list of PNR issues at the next meeting and begin discussion on the priority issues.</p> <ul style="list-style-type: none"> Ms White asked how the modelling outputs informed the list of PNR issues. <p>Mr Robinson noted that the two main initiatives identified by the modeling were the introduction of a reliability standard and a balancing service to reduce load following requirements.</p>	
6	<p>Power system security and reliability (PSSR)</p> <p>Mr Robinson provided an overview of the PSSR initiatives identified, referencing slides 9 to 14.</p> <p>Mr Robinson acknowledged the interaction of the review of outage planning being conducted in the EPNR Project and the ISO's consideration of similar issues as part of its review of Subchapters 7.3 and 7.4 of the PNR. He stated that the EPNR Project would focus on developing a more structured and formal outage process that integrates generation and network outages, while dovetailing with the ISO's review.</p> <ul style="list-style-type: none"> Mr Campbell-Everden explained that the ISO's review aimed to address current issues, rather than considering the future reform and design of the system. 	

Item	Subject	Action
	<ul style="list-style-type: none"> Mr Tonkin asked for clarification as to which issues were being addressed by each of the respective reviews. <p>Mr Robinson agreed to take this as an action.</p> <ul style="list-style-type: none"> Ms White recommended that EPWA liaise with the ISO to ensure the EPNR Review outcomes build upon any changes arising from the ISO's review, rather than overriding them. <p>The Chair agreed with Ms White and indicated that EPWA would continue to coordinate closely with the ISO to avoid duplication of effort, ensure no issues were missed and that any proposed changes between the reviews were congruent.</p> <ul style="list-style-type: none"> Ms White agreed with the identification of Essential System Services (ESS) cost allocation as an important issue to address and noted that ESS costs had been rising. She asked whether any consideration had been given to an inertia service for the Pilbara system similar to that of the Wholesale Electricity Market (WEM). <p>Mr Robinson acknowledged that it was not explicitly mentioned in the slides but noted that this may fit within ESS or broader system strength considerations, and an inertia service was an option the working group could consider.</p> <p>The Chair reflected on the issue of who should be responsible for setting system strength requirements stating that, depending on how system strength was defined, it could potentially cover inertia in addition to fault level management.</p> <p>The Chair acknowledged the need to have a clearly defined set of roles and responsibilities, including who is responsible for making sure the system strength standards are met and who is responsible for covering the cost of system strength services.</p> <ul style="list-style-type: none"> Mr Strobel suggested that any definition of system strength services that was developed should aim to adopt a similar definition to that of the National Electricity Market (NEM) to create consistency across Australian jurisdictions. <p>The Chair agreed, and noted that similar efforts were underway in the WEM to align to the extent possible.</p> <p>Mr Robinson confirmed that throughout the EPNR Project, there was an intention to align with definitions and approaches used in other Australian markets to the extent practicable and appropriate.</p> <ul style="list-style-type: none"> Mr Tonkin noted the potential impact of this project on any investment criteria that government might develop as part of any new market and industry models to facilitate the build-out of new transmission in the Pilbara. <p>Mr Robinson noted that rules and standards that are put in place during this review, would be expected to apply to new transmission builds in the Pilbara.</p>	
	<p>ACTION: Provide an outline of which PSSR issues are being addressed by the EPNR Review and the ISO's review of Subchapters 7.3 and 7.4 respectively.</p>	<p>EPWA</p>
<p>7</p>	<p>Scheduling, dispatch and settlement</p> <p>Mr Robinson provided an overview of the scheduling, dispatch and settlement initiatives identified, referencing slides 16 to 19.</p> <ul style="list-style-type: none"> Ms White asked whether a capacity regime similar to that of the WEM would be considered for the Pilbara. <p>Mr Robinson noted that the current approach to generation adequacy has some hallmarks of a capacity regime, without (explicit) payments. He emphasised that no answers are being presumed, but noted that the types of loads, consumers and participants in the Pilbara are different from those in the WEM. Therefore, the present</p>	

Item	Subject	Action
	<p>non-centralised approach for certifying capacity might be more suitable than introducing a centrally procured capacity product.</p> <p>The Chair reiterated that no options were off the table, and noted the embryonic aspects in the current rules, which envision that those who use the system must ensure they are covered by capacity with some reserve. She noted that even though the WEM has centralised procurement, in practice, participants in the WEM contract bilaterally to cover obligations.</p>	
<p>8</p>	<p>New connections</p> <p>Mr Robinson provided an overview of the ‘new connections’ initiatives identified, referencing slides 21 to 25.</p> <ul style="list-style-type: none"> Ms White suggested that grandfathering arrangements should be considered in circumstances where an existing network interconnects with the NWIS. Ms Morgan noted that grandfathering arrangements are in place for existing networks and any proposed changes would need to carefully consider the impact that they may have (on existing grandfathering arrangements). <p>The Chair acknowledged that the rules will need to consider and differentiate between network interconnection and generator connections.</p> <ul style="list-style-type: none"> Mr Williamson agreed with the importance of distinguishing the NSP to NSP scenario, versus a user to NSP connection. He cited the example of an NSP applying its own modelling guidelines to assess a connecting NSP’s model, who would have their own modelling guidelines. He suggested that NSPs may need to develop interconnection frameworks to manage this. Mr Tonkin asked if the review of the rules around new connections would include a harmonisation of the HTR with Horizon Power’s technical rules. <p>The Chair noted that this issue was being addressed in the HTR Workstream and summarised the intention for the HTR to provide a single, end-to-end standard for automatic connection, with a negotiation framework for parties to agree alternative standards.</p> <ul style="list-style-type: none"> Ms Morgan noted that while planning, compliance and connection are dealt with in the PNR, many matters related to new transmission and cost allocation are addressed in the Pilbara Networks Access Code (PNAC). She indicated that the relevant provisions of the PNAC and PNR should be considered together in respect of a new connection framework, particularly in respect of access arrangements. <p>The Chair agreed that these matters should be considered holistically, and indicated that this was an internal focus for the relevant project teams within EPWA.</p> <ul style="list-style-type: none"> Mr Tonkin suggested considering the process for new transmission builds in combination with the issue of transmission planning. He emphasised that a key challenge in transmission planning is the need to build not only for what the initial customer may require, but the extent of overbuild needed in a high-renewables future. He expressed the view that the way (initially) unused capacity would be funded represented a key opportunity for transmission planners. <p>The Chair reflected that there were three distinct focuses within the current EPWA work program relevant to this discussion: firstly, transmission priority projects and financing; secondly, how the PNAC may need to evolve in the presence of more privately owned networks; and thirdly, the long term (transmission) planning function in the PNR.</p> <p>The Chair noted that the broader EPWA work program would more or less address these in that order and, accordingly, that the EPNR project proposed to prioritise the development of options for the first two initiatives in the short term (before dealing with transmission planning).</p>	

Item	Subject	Action
	<ul style="list-style-type: none"> Ms White noted that the group may benefit from APA's recent experience connecting its Port Hedland solar and battery project. Mr Tonkin highlighted the potential for demand side participation to reduce ESS costs and suggested that it should be prioritised in this workstream. <p>Mr Robinson agreed, and suggested that this could be considered within the broader ESS procurement initiative.</p> <p>The Chair noted that EPWA was undertaking urgent work on the potential impact of large storage facilities (which are akin to a demand side resource when charging) may be having on level and cost of contingency lower service required in the WEM. She noted that, for the NWIS, it will be relevant to consider what services storage and demand side response can provide, as well as ensuring suitable provisions are in place for these facilities. She also noted that there is currently no contingency reserve lower service in the NWIS (while there is one in the WEM).</p>	
	<p>ACTION: Share reflections and insights from recent experience connecting its Port Hedland battery and storage project.</p>	APA
9	<p>Governance of the ISO</p> <p>The Chair provided an overview of the 'governance of the ISO' initiatives identified, referencing slides 27 to 30.</p> <p>The Chair noted that the current Pilbara regime was implemented as a low cost, flexible and light-handed model, which did not require sophisticated governance structures and compliance regimes. She highlighted the importance of reviewing whether such a governance framework remains fit-for-purpose as new participants, transmission operators, storage and generation providers connect.</p> <p>The Chair emphasised the value of a governance regime that operates primarily through rules design, rather than relying on enforcement mechanisms.</p>	
10	<p>Compliance and enforcement</p> <p>The Chair provided an overview of the compliance and enforcement initiatives identified, referencing slides 32 and 33.</p> <ul style="list-style-type: none"> Ms Morgan raised the importance of distinguishing compliance under the PNR from compliance under the PNAC. Mr Prinsloo emphasised that rules establishing penalties for parties not managing their load within tolerances should consider arrangements between parties for generation support. <p>The Chair clarified that the suggested balancing penalties concerned participants accruing imbalance penalties, and agreed that this would depend on what participants have already set up to balance their loads.</p>	
11	<p>Prioritisation</p> <p>Mr Robinson noted that there would not be time to consider and discuss options for each of the initiatives identified before the consultation paper is published. He presented slide 35, which proposed issues (in green text) to focus on in advance of the consultation paper.</p> <p>Mr Robinson invited members to provide feedback on the suggested priorities.</p> <ul style="list-style-type: none"> Ms Mason recommended focusing on PSSR and technical considerations for scheduling and dispatch, noting that it would be important to get those settings right in the context of new builds. Mr Tonkin acknowledged the merit of all of the initiatives raised. He suggested that it may be helpful if EPWA could share the criteria used to select priority issues. 	

Item	Subject	Action
	<p>Mr Robinson agreed to take this an action item and present the criteria at the next meeting. He noted that one key consideration had been which initiatives would have an impact sooner than others.</p> <ul style="list-style-type: none"> Mr Prinsloo suggested prioritising ESS definitions, procurement and cost allocation. Mr Williamson highlighted the importance of considering whether the current definitions and categorisations of NSPs would continue to apply, as that may determine the priority of other items. <p>Mr Robinson acknowledged the merit of Mr Williamson’s point and confirmed that EPWA would add his suggestion to the list of PNR initiatives.</p> <ul style="list-style-type: none"> Ms White agreed with the focus on PSSR but emphasised the importance of governance, compliance, enforcement and connection processes as priorities. Ms White asked if all of the PNR issues that had been identified would be covered in the Consultation Paper for the EPNR project. <p>Mr Robinson answered there is not enough time before the Consultation Paper is developed for options analysis and design for all areas, but that issues not workshopped by then will at least be flagged and important interlinkages between issues identified.</p> <p>The Chair stated that the EPNR Project would develop an implementation plan covering issues with the existing PNR at a high level. She explained that once the Implementation Plan was published there would be further work to consider design issues and draft rules.</p> <ul style="list-style-type: none"> Ms Jaya Mohan asked how stakeholders should align their feedback on the EPNR Review and the parallel processes being undertaken with EPWA’s review of the PNAC and the ISO’s review of Subchapters 7.3 and 7.4 of the PNR. <p>Mr Robinson requested that members provide feedback in the next one to two weeks to enable the PNR initiatives list to be finalised at the next PNR Workstream meeting and work to commence on the prioritised initiatives.</p> <p>The Chair acknowledged EPWA’s busy and broad Pilbara work program, and advised that an Industry Liaison Committee meeting on 30 July 2024 would provide an update on this work program. She noted that representatives from each of the members organisations would be attending.</p>	
	<p>ACTION: Provide criteria used to inform the prioritisation of issues at the 22 August 2024 EPNRWG meeting.</p>	<p>EPWA</p>
	<p>ACTION: Add categorisations and definitions of NSPs and other entities under the PNR to the list of PNR issues.</p>	<p>EPWA</p>
<p>12</p>	<p>Next Steps</p> <p>The Chair again invited members who wished to provide EPWA with further feedback on any issue to do so outside of the working group meetings.</p> <p>The Chair closed the meeting.</p>	

The meeting closed at 11:30 am.



Agenda Item 7: Pre-development of Rule Change Proposal consultation: Deferral of long-term planning requirements

Pilbara Advisory Committee (PAC) Meeting 2024_08_29

1. Purpose

The purpose of this agenda item is for the ISO to consult the PAC, under Rule A2.5.1A of the Pilbara Networks Rules (PNR), prior to commencing the development of a Rule Change Proposal to defer delivery of the ISO long-term planning and coordination functions under Chapter 10 of the PNR (Rule 279).

2. Recommendation

That the PAC:

- (1) notes the information provided in the Concept Paper (**Attachment 1**); and
- (2) provides feedback prior to the ISO commencing the development of a Rule Change Proposal.

3. Background

- Under Chapter 10 of the PNR (Rule 279), every two years the ISO must prepare and publish the following network coordination and planning reports:
 - a Transmission Development Plan, under Rule 281, and
 - a Pilbara GenSOO, under Rule 282.
- Under Rule 286 of the Rules, from time to time, on the first occasion within two years after the Rules commencement date (1 July 2023) and thereafter at least once every five years, the ISO must conduct a review of the processes and reports set out in Subchapter 10.1 against the objective in Rule 276 and the Pilbara electricity objective and publish a report on the subject.
- The ISO is due to prepare and publish these first reports and review by 1 July 2025.
- The ISO is considering developing a Rule Change Proposal to amend the PNR to extend the initial two-year requirement by 12 months. This is because the activities of EPWA's current Pilbara work program may amend the scope of ISO's Subchapter 10.1 functions.
- Before commencing the development of a Rule Change Proposal, the ISO must consult with the PAC on:
 - the matters to be addressed by the Rule Change Proposal and, if applicable, the nature and scope of the support or assistance requested by another party;
 - what options exist to resolve the matters to be addressed by the Rule Change Proposal;
 - the ISO's estimated costs to be recovered through fees of developing the Rule Change Proposal or providing the support or assistance requested by the other party;

- whether and when the ISO should develop the Rule Change Proposal or if the ISO should provide the support or assistance requested by another party; and
- whether and how the Pilbara Advisory Committee will be consulted during the development of the Rule Change Proposal,
- The ISO must take account of any feedback the PAC may provide in deciding whether, when and how to develop the Rule Change Proposal (A2.5.1A of the PNR).
- Details of the ISO's proposed changes to its Chapter 10 long-term planning obligations are to be provided in the PAC meeting, with reference to the materials in **Attachment 1**.

4. Next Steps

- Taking account of any matters raised by the PAC in the meeting, the ISO may develop a Rule Change Proposal to defer its Chapter 10 long-term planning obligations and submit a Rule Change Proposal for consideration by the PAC.

5. Attachments

- (1) Concept paper – Pilbara ISOCO's Subchapter 10.1 functions – long term coordination and planning

29 August 2024

CONCEPT PAPER – PILBARA ISOCO’S SUBCHAPTER 10.1 FUNCTIONS – LONG TERM COORDINATION AND PLANNING

Introduction

Subchapter 10.1 of the Pilbara Networks Rules (Rules) provides for the Pilbara ISOCO’s (ISO) long term coordination and planning functions.

Under Rule 279 of the Rules, the ISO must prepare and publish network coordination and planning reports (NCP Reports) every two years¹, this includes:

- A transmission development plan under Rule 281;
- A Pilbara GenSOO under Rule 282.

Under Rule 286 of the Rules, from time to time, on the first occasion within two years after the Rules commencement date and thereafter at least once every five years, the ISO must conduct a review of the processes and reports set out in Subchapter 10.1 against the objective in Rule 276 and the Pilbara electricity objective and publish a report on the subject.

These reports are due July 2025².

Energy Policy WA (EPWA) is currently using techno-economic modelling to develop a 2024 Pilbara Electricity Transition Plan and undertaking a review of the Rules to ensure they are fit for purpose for a low carbon future. The activities being undertaken by EPWA will overlap with the scope of ISO’s Subchapter 10.1 functions.

This Concept Paper identifies the extent of overlap in scope between the EPWA work and ISO long term coordination and planning functions and options considered to address the identified issues. This paper provides a proposed process to resolve the issues for consideration of the Pilbara Advisory Committee (PAC).

This Concept Paper is provided to PAC under Rule A2.5.1A of the Rules. The ISO will consider any advice, comments or objections provided by any member or observer of PAC in deciding whether, when and how to develop a rule change proposal.

Background

Below outlines the extent to which the work being undertaken by EPWA overlaps with the scope of the ISOs functions under the Rules.

Transmission Development Plan – NWIS

Rule 281 of the Rules provides the scope of the NWIS Transmission Development Plan as follows:

- a) a description of the NWIS’s current Covered Transmission Elements; and

¹ The language “every 2 years” is less specific than other timing requirements in the Rules. Utilising the *Interpretation Act 1984*, it is taken to mean “within every 24-month period from the commencement of this Rule”, which means the plans need to be completed by July 2025.

² As per Rule 3(4), Chapter 10 of the Rules commenced on 1 July 2023

- b) a range of credible scenarios for the locations and quantities of electricity supply and demand in NWIS Covered Networks (including locations which the NWIS is reasonably capable of servicing if it is suitably augmented); and
- c) for each Covered Network in the NWIS, a consolidated summary of the Covered NSP's most-recently-published proposed and contemplated augmentations; and
- d) having regard to the supply and demand scenarios developed under (b) and augmentation information published under (c) —
 - i) current and projected areas of Network Constraint in the NWIS Covered Networks; and
 - ii) possible efficient development strategies for extension or expansion of the NWIS Covered Networks including opportunities for co-optimisation of Network and non-Network investment, and opportunities for private investment; and
 - iii) possible opportunities for new, extended or expanded Pilbara networks which may Interconnect with the NWIS;
 and
- e) any other information required by the Planning and Reporting Procedure or which the ISO considers appropriate.

Pilbara GenSOO

Rule 282 provides for the scope of the Pilbara GenSOO as:

- a) possible efficient investment opportunities in new or expanded generation facilities and (if applicable) storage works for supply into the NWIS Covered Networks (including from locations which could supply into the NWIS if it is suitably augmented) over the NCP planning horizon; and
- b) the ISO's projections of generator fuel availability, new fuel sources, and renewable and intermittent energy developments over the NCP Reports planning horizon; and
- c) a report on Essential System Services acquired by the ISO for the NWIS since the last NCP Reports publication date; and
- d) an assessment of the adequacy of system capacity in the NWIS Covered Networks over the NCP planning horizon, having regard to the Generation Adequacy Objective; and
- e) any other information required by the Planning and Reporting Procedure or which the ISO considers appropriate.

Review of Subchapter 10.1's scope and objective

- 1) From time to time, on the first occasion within 2 years after the Rules Commencement Date and thereafter at least once every 5 years, the ISO must conduct a review of the processes and reports set out in this Subchapter 10.1 against the objective in rule 276 and the Pilbara Electricity Objective, and Publish a report on the subject.
- 2) The review must include consultation with Registered NSPs and Public consultation following at least the Expedited Consultation Process.
- 3) If the ISO recommends any changes to these Rules or a Procedure in the report, it must either submit a Rule Change Proposal or initiate a Procedure Change Process, as the case may be.

- 4) Nothing in this rule 286 limits a person’s right to submit a Rule Change Proposal or Procedure Change Proposal in respect of a matter relating to this Subchapter 10.1 at any time.

EPWA – 2024 Pilbara Energy Transition Plan

EPWA is currently undertaking techno-economic modelling to develop and publish a 2024 Pilbara Energy Transition Plan by end-2024.

Two scenarios have been identified for investigation:

- Current trajectories – demand assumptions are aligned with stakeholders current commitments. Minimal developments in new industries, with economic and population growth in line with current WA Government projections;
- Current trajectories plus loads – Additional new industry development including at the Strategic Industrial Areas (SIAs) identified by the WA government.

The model takes inputs from a wide range of sources, including: demand for electricity; existing generation, storage and transmission infrastructure; potential new generation, storage and transmission infrastructure; renewable profiles; cost; geospatial data and generator and storage dispatch properties.

Technical and emission constraints are applied, including: balance supply and demand; reserves; generator outages; generator heat rates; transmission limits; and carbon constraints.

The model produces results for each scenario modelled to minimize whole of system costs for: new generation and storage; new transmission; cost; carbon emissions, generator dispatch behavior, transmission usage, unserved energy and technical outputs (i.e. spinning reserve).

EPWA – Evolution of the Pilbara Networks Rules

EPWA has recently completed scenario development and dispatch modelling to consider whether the Pilbara Networks Rules and the Pilbara Harmonised Technical Rules are fit for purpose in a low carbon future.

Modelling results found that significant system and operational savings can be achieved through increased integration.

One of the priority reforms identified is for a transparent mechanism for long-term planning.

Pilbara networks (including the NWIS) are expected to see significant growth (both in demand and in geographical size) over the next decade, with significant uncertainty over where and when large investments will be made. Long term planning arrangements need to be strengthened to allow stakeholders (particularly those making large investments) to efficiently coordinate their efforts.

EPWA is intending on publishing an implementation plan for these reports in February 2024.

Overlap of ISO functions and other sources of information

The below table provides an overview of the expected overlap between ISO Subchapter 10.1 functions and the work being completed by EPWA:

ISO Function	EPWA	Other sources of information
Transmission Development Plan		
a) a description of the NWIS's current Covered Transmission Elements;	✓	<ul style="list-style-type: none"> • Available on ISO website (System Map; network elements) • Available on Covered NSP websites (System Description).
b) a range of credible scenarios for the locations and quantities of electricity supply and demand in NWIS Covered Networks (including locations which the NWIS is reasonably capable of servicing if it is suitably augmented); and	✓	
c) for each Covered Network in the NWIS, a consolidated summary of the Covered NSP's most-recently-published proposed and contemplated augmentations; and	*	<ul style="list-style-type: none"> • Some information available on Covered NSP websites (capital expenditure in service and pricing policies)
<p>d) having regard to the supply and demand scenarios developed under (b) and augmentation information published under (c) –</p> <p>i) current and projected areas of Network Constraint in the NWIS Covered Networks; and</p>	*	<ul style="list-style-type: none"> • Some information available, under Rule 256 the ISO must publish constraint Rules, covered network's limit rules and network constraints; • No information available on projected areas of network constraint.
<p>ii) possible efficient development strategies for extension or expansion of the NWIS Covered Networks including opportunities for co-optimisation of Network and non-Network investment, and opportunities for private investment; and</p>	✓	
<p>iii) possible opportunities for new, extended or expanded Pilbara networks which may Interconnect with the NWIS;</p>	✓	
e) any other information required by the Planning and Reporting Procedure or which the ISO considers appropriate.	✓	<ul style="list-style-type: none"> • EPWA transition plan will also model projected carbon emissions

ISO Function	EPWA	Other sources of information
Pilbara GenSOO		
a) possible efficient investment opportunities in new or expanded generation facilities and (if applicable) storage works for supply into the NWIS Covered Networks (including from locations which could supply into the NWIS if it is suitably augmented) over the NCP planning horizon; and	✓	
b) the ISO's projections of generator fuel availability, new fuel sources, and renewable and intermittent energy developments over the NCP Reports planning horizon; and	✗	<ul style="list-style-type: none"> • EPWA will provide information on renewable and intermittent energy developments. • No published information on thermal generator fuel availability (i.e. gas)
c) a report on Essential System Services acquired by the ISO for the NWIS since the last NCP Reports publication date; and	✗	<ul style="list-style-type: none"> • Available on ISO website
d) an assessment of the adequacy of system capacity in the NWIS Covered Networks over the NCP planning horizon, having regard to the Generation Adequacy Objective; and	✗	<ul style="list-style-type: none"> • Chapter 6 currently turned off. • ISO will be reviewing whether this remains appropriate in 2024-25, and will publish an updated notice on its website.
e) any other information required by the Planning and Reporting Procedure or which the ISO considers appropriate.	✓	
Review of Subchapter 10.1		
1) From time to time, on the first occasion within 2 years after the Rules Commencement Date and thereafter at least once every 5 years, the ISO must conduct a review of the processes and reports set out in this Subchapter 10.1 against the objective in rule 276 and the Pilbara Electricity Objective, and Publish a report on the subject.	✓	<ul style="list-style-type: none"> • Indications are that EPWA will review the scope of ISO's chapter 10.1 functions, both to broaden to a Pilbara-wide focus and the scope of the Transmission Development Plan and Pilbara GenSoo.

Implications

The ISO is resourced and has budget to be able to fulfil its Subchapter 10.1 functions by July 2025. However, it would be duplicative for ISO to undertake work that is already being undertaken by EPWA. This would not meet the secondary objective of Subchapter 10.1, to minimise cost and disruption to Pilbara participants.

Given the timing of when EPWA intends to publish its work (late-2024) and ISO's Rules-based timelines (July 2025), the work would have to be completed simultaneously. This has the potential to create inconsistent outcomes, which may not further the Pilbara electricity objective.

Options considered

The options which were considered by the ISO to delay the Subchapter 10.1 planning requirements:

Rule Change

- The ISO's preferred option is for the ISO to propose a rule change delaying the timing of the publication of these reports by 12 months. There is no mechanism in the Rules other than a rule change whereby ISO can delay or avoid these functions.
- The ISO considered shifting the timing of the reports by a longer period of two years. Given Rule 279 provides that the reports must be prepared every two years, and EPWA is substantially preparing these reports, a two-year delay might be appropriate. However, given EPWA is not covering the entire scope of each of the reports, and the current pace of change in the Pilbara, the ISO considered a 12-month deferral to be more appropriate.

New Procedure

- The ISO may also develop a Planning and Reporting Procedure under Rule 289. The purpose of the Planning and Reporting Procedure amongst other things is to set the planning horizon under Rule 280. The ISO considered setting a short planning horizon, which would reduce the task ISO needs to undertake and potential for duplication with EPWA's longer-term reporting. However, there is a risk that this does not meet the objective under Rule 277(1)(a) which refers to "substantial forecast periods". A short planning horizon and reduced scope may also reduce the usefulness of these reports to Pilbara electricity system participants.

Costs, Benefits and Risks

The ISO has a notional amount of \$600,000 in its 2024-25 Budget to undertake its long-term planning functions. This cost would be deferred with this rule change.

It is expected the drafting to implement a delay ISO's subchapter 10.1 functions would be minimal. The cost of developing a rule change proposal is negligible and undertaken by existing internal resources.

The majority of the scope of the information to be contained in the Transmission Development Plan and Pilbara GenSoo will still be available to market participants, as EPWA intends to publish the 2024 Pilbara Transition Plan.

Proposed Process

This concept paper is provided to PAC under Rule A2.5.1A of the Rules.

The ISO will consider any advice, comments or objectives by any member or observer of PAC in deciding whether, when and how to develop the rule change proposal.

It is considered that any Rule change proposal will follow a standard Rules change process under Appendix 2 of the Rules.

Item	Date
Concept paper considered by PAC	29 August 2024
Proposal submitted to PAC (if required)	5 December 2024

Recommendation

That the Pilbara Advisory Committee:

- Note the issues and options outlined in this paper; and
- Provide any advice, comments or objections to the ISO proposing a rule change delaying the ISO's Subchapter 10.1 functions by 12 months.



Agenda Item 8: Pre-development of Rule Change Proposal consultation: Review of PNR Subchapters 7.3 and 7.4

Pilbara Advisory Committee (PAC) Meeting 2024_08_29

1. Purpose

The purpose of this agenda item is for the ISO to consult with the PAC, under Rule A2.5.1A of the Pilbara Networks Rules (PNR), prior to commencing the development of a PNR Rule Change Proposal to implement any outcomes of the ISO's Review of the PNR Subchapters 7.3 and 7.4.

2. Recommendation

That the PAC:

1. notes the information provided in the Concept Paper (**Attachment 1**); and
2. provides feedback prior to the ISO commencing the development of a potential Rule Change Proposal.

3. Background

- Rule 178 of the PNR requires the ISO to periodically conduct a review of the processes set out in Subchapters 7.3 and 7.4 against the Pilbara Electricity Objective. Those Subchapters relate to system coordination, and the notification of planned and unplanned outages.
- On 19 July 2024, the ISO published an Issues Paper for its review. Informal consultation on the Issues Paper was held between 22 July 2024 and 9 August 2024.
- The ISO intends to publish a Draft Decision in August 2024, together with a notice inviting written submissions and comments in accordance with A1.3(b) of the PNR.
- It is likely that the ISO's Final Decision will recommend changes, requiring the development of a Rule Change Proposal.
- Before commencing the development of a Rule Change Proposal, the ISO must consult with the PAC on:
 - the matters to be addressed by the Rule Change Proposal and, if applicable, the nature and scope of the support or assistance requested by another party;
 - what options exist to resolve the matters to be addressed by the Rule Change Proposal;
 - the ISO's estimated costs to be recovered through fees of developing the Rule Change Proposal or providing the support or assistance requested by the other party;
 - whether and when the ISO should develop the Rule Change Proposal or if the ISO should provide the support or assistance requested by another party; and

- whether and how the Pilbara Advisory Committee will be consulted during the development of the Rule Change Proposal.
- The ISO must take account of any feedback the PAC may provide in deciding whether, when and how to develop the Rule Change Proposal (A2.5.1A of the PNR).
- Details of the ISO's review of Chapters 7.3 and 7.4 of the PNR, including likely proposed changes to those rules, are to be provided in the PAC meeting with reference to materials in **Attachment 1**.

4. Next Steps

- The ISO is undertaking public consultation on the Draft Decision. Any party who wishes to lodge a Formal Written Submission will be invited to do so through the ISO website: Review of the Subchapters 7.3 and 7.4 of the PNR.
- The ISO intends to publish its final report, which may include recommendations of changes to the PNR.
- Taking account of any matters raised by the PAC in the meeting, the ISO may develop a Rule Change Proposal to implement the outcomes of its review.

5. Attachments

- (1) Concept Paper – Review of Subchapters 7.3 and 7.4 of the PNR

29 August 2024

CONCEPT PAPER – REVIEW OF SUBCHAPTERS 7.3 AND 7.4 OF THE PILBARA NETWORKS RULES

Introduction

Rule 178 of the Pilbara Networks Rules (the Rules) requires the ISO to periodically conduct a review of the processes set out in Subchapters 7.3 and 7.4 against the Pilbara electricity objective. Subchapters 7.3 and 7.4 deal with system coordination and the notification of planned and unplanned outages.

This Concept Paper is provided for the consideration of the Pilbara Advisory Committee (PAC) under Rule A2.5.1A of the Rules. The ISO will consider any advice, comments or objections provided by any member or observer of PAC in deciding whether, when and how to develop the rule change proposal.

Background

Rule 178 of the Rules provides that:

- 1) From time to time, and at least once in every five year period starting from the Rules Commencement Date, the ISO must conduct a review of the processes set out in this Subchapter 7.3 and Subchapter 7.4 against the Pilbara Electricity Objective.
- 2) The review must include consultation with Registered NSPs and registered controllers and public consultation following the Expedited Consultation Process.
- 3) At the conclusion of a review, the ISO must Publish a report containing any recommended changes to this Subchapter 7.3 or Subchapter 7.4.
- 4) If the ISO recommends any Rules or Procedure changes in the report, it must either submit a Rule Change Proposal or initiate a Procedure Change Process, as the case may be.

On 24 May 2024, the ISO published a [Notice](#) that it was undertaking a Review of Subchapters 7.3 and 7.4 of the Rules. The ISO sought stakeholder input on the proposed scope of the Review, which included:

- the processes for identification, notification, assessment and approval of notifiable events;
- the process for determining how and by whom a notifiable event is to be managed or mitigated, including:
 - how the system is to be configured and operated, and how contingencies are to be identified and managed, during the notifiable event; and
 - the role and effectiveness of the protocol framework;
- the roles, responsibilities and accountability of registered NSPs, registered controllers, the ISO control desk and the ISO including transparency and confidentiality requirements; and
- the allocation of costs associated with the management and mitigation of notifiable events.

On 19 July 2024, the ISO published an Issues Paper, which can be found at attachment 1 for the consideration of PAC and on the ISO website: [Review of Subchapters 7.3 and 7.4 of the Pilbara Networks Rules - Pilbara ISOCO](#).

The ISO has individually met with interested stakeholders on the Issues Paper to seek their informal feedback on the issues.

The ISO intends to publish a Draft Decision, seeking formal written submissions, before a final report is published in late-September.

As per Rule 178(4), if the final report recommends any Rules or Procedure changes, the ISO will submit a Rule and/or Procedure change proposal to PAC.

Costs

The Subchapter 7.3 and 7.4 Review has been funded through the ISO's approved Budget.

As the Review is not yet finalised, the ISO cannot estimate the cost of any potential rule changes to Subchapter 7.3 and 7.4 of the Rules or associated Procedure changes.

One of the issues identified for stakeholder comment in the Issues Paper (Issue 26) is that if ISO is given an expanded role to address the issues identified in Subchapter 7.3 and 7.4, it would have resourcing implications and hence cost implications. This will be further explored through stakeholder consultation.

Proposed Process

This Concept Paper is provided to PAC under Rule A2.5.1A of the Rules.

The ISO will consider any advice, comments or objectives by any member or observer of PAC in deciding whether, when and how to develop the rule change proposal.

It is considered that any Rule change proposal will follow a standard Rules change process under Appendix 2 of the Rules.

Item	Date
Notice	24 May 2024
Issues Paper	19 July 2024
Informal Consultation	22 July 2024 – 9 August 2024
Draft Decision	August 2024
Formal Written Submissions	August 2024 – September 2024
Concept paper considered by PAC	29 August 2024
Final Decision and publication of Report	Late-September 2024
Proposal submitted to PAC (if required)	5 December 2024

Recommendation

That the Pilbara Advisory Committee:

- Note the issues outlined in this paper; and
- Provide any advice, comments or objections to the ISO's Review of Subchapters 7.3 and 7.4 of the Rules, noting that the ISO will undertake public consultation on the draft decision.