

Advisory Board

Session 3, 25 November 2022

Note: we are publishing these slides consistent with the recommendation of the AER. The purpose of this document was to promote discussion and engagement.

Acknowledgement of Country

We acknowledge the Traditional Owners of the lands upon which we operate and recognise their continuing connection to land, waters, and culture.

We pay our respects to their Elders past, present, and emerging.

Pictured: artwork by Aboriginal artist Chern'ee Sutton from Mount Isa for our Group's Reflect Reconciliation Action Plan



Welcome

01

Reflections from session 2

02

Develop a common understanding of each response area

03

Understand initial any views:

- Pre-conditions and interdependencies
- Prioritisation
- Reasonable response range
- Any further work

Your Advisory Board Chair



Rosemary Sinclair AM

CEO
auDA

Your facilitator



Dr Matt Pearce

Partner
KPMG National Lead for Energy & Utilities

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Agenda for today

Topics we will cover

Section 1: Welcome

Acknowledgement of Country

Introduction & agenda for today

Reflections from Session 2

Section 2: Our asset management approach

Asset life expectations

Asset scale expectations

Break

Section 3: Facilitating renewable gases in our network

Pace of biogas preparation in our network assets

Pace of hydrogen preparation in our network assets

Section 4: Session wrap-up and close

Feedback and reflection from today's session

Duration

5

5

20

40

40

5

20

40

5

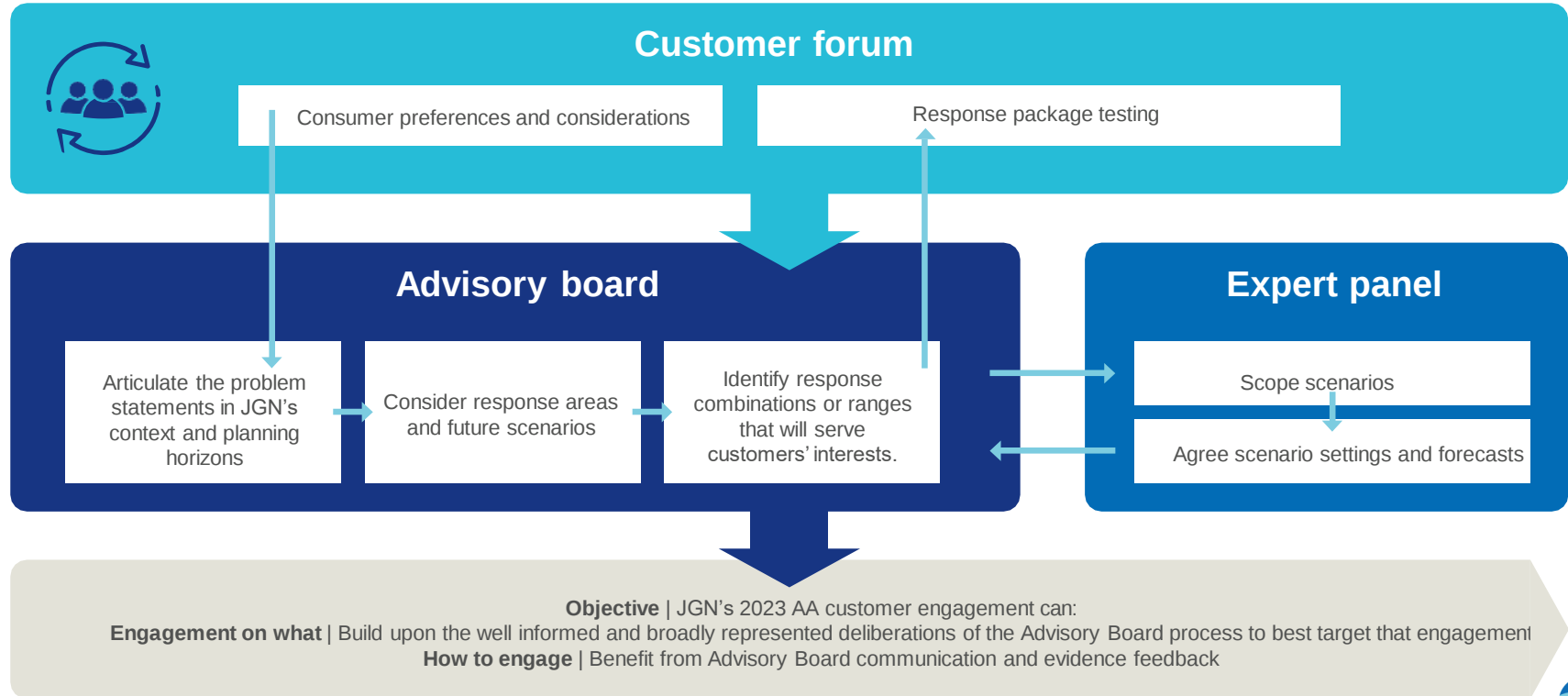
In order to...

- 01 Develop a common understanding of each response area
- 02 Understand initial any views (which will be revisited in our February, March and April 2023 meetings with the scenario outcomes), or feedback on:
 - a. Pre-conditions and interdependencies
 - b. Prioritisation
 - c. Reasonable response range
 - d. Any further work

Reminder: This session is being recorded

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Recap: Broader stakeholder engagement program



Report back: Gas Networks 2050 Customer Forum – 12 November 2022



Deliberative engagement

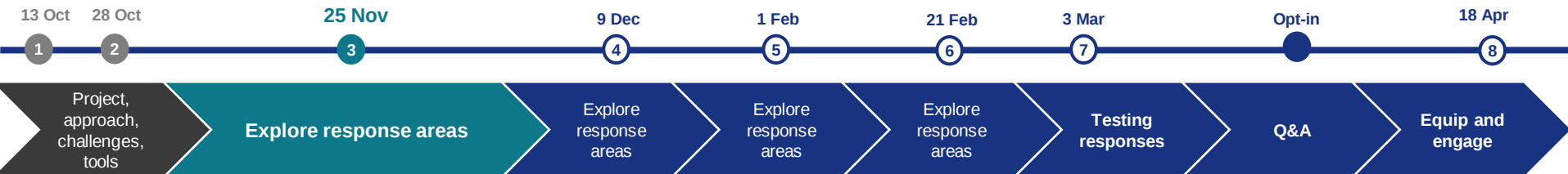
A deliberative process brings participants together as a group to **discuss complex problems, discuss information, identify and weigh up options and come to agreement.**



This next section of the Advisory Board series – the deep dive sessions – are aimed to share information early to build suitably *informed views* so that we can *collaborate later*



Recap: Advisory Board series overview



Discussing the project and approach Co design engagement principles What success looks like Defining the problem statement, challenge and the tools Discussion an approach to the deep dives	Deep dive 1 Adjusting our asset management approach - Asset service life assumption - Asset scale assumption	Deep dive 2 Facilitating renewable gases - Pace of hydrogen preparation in our network assets - Pace of biogas preparation in our network assets	Deep dive 3 Investing in renewable gases Market transition Support for renewable gas generation and demand Adjusting our connections approach	Deep dive 4 Addressing capital recovering (i.e. depreciation profile over time) Compensating capital recovery risk Adjusting our pricing for different customers	Deep dive 5 Adjusting our pricing for different customers Prioritising and packaging potential responses	- Expert Panel Scenario insights of potential responses outcomes - Prioritising and packaging potential responses	Optional session (tbc) - Expert panel report - Reflect on scenarios - UK experiences	- Review final thinking on potential responses - Discuss what should Jemena engage on and how.
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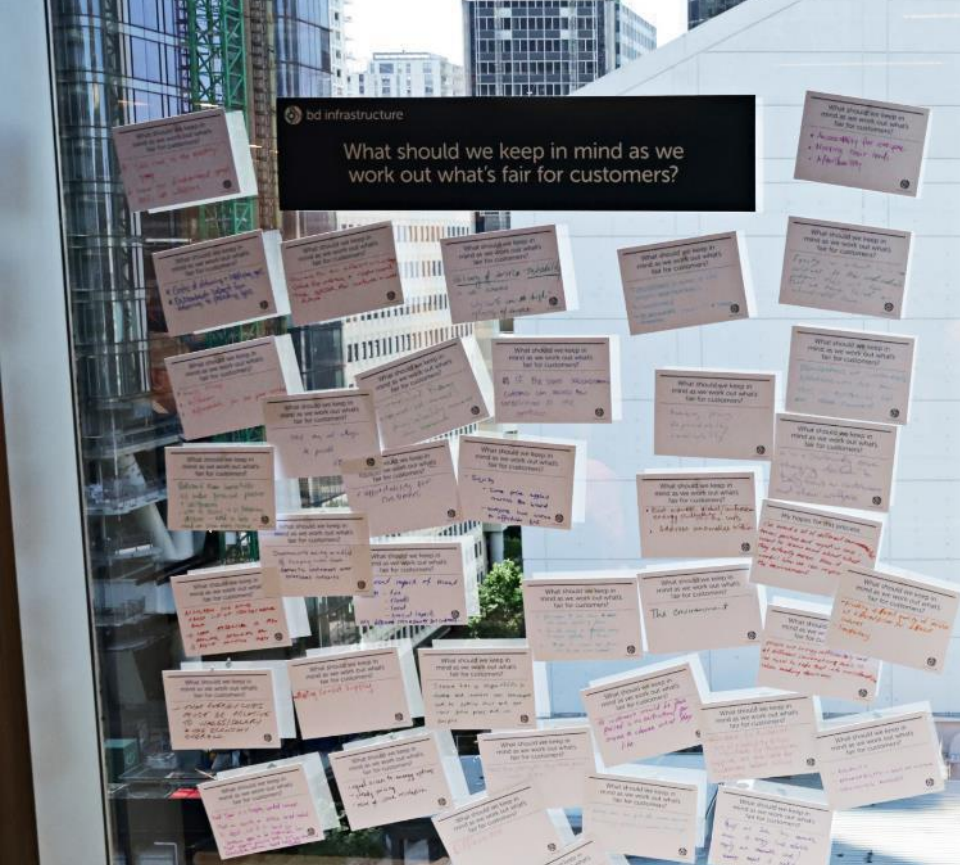
Co-design & Empower

Inform & Consult

Involve & Collaborate

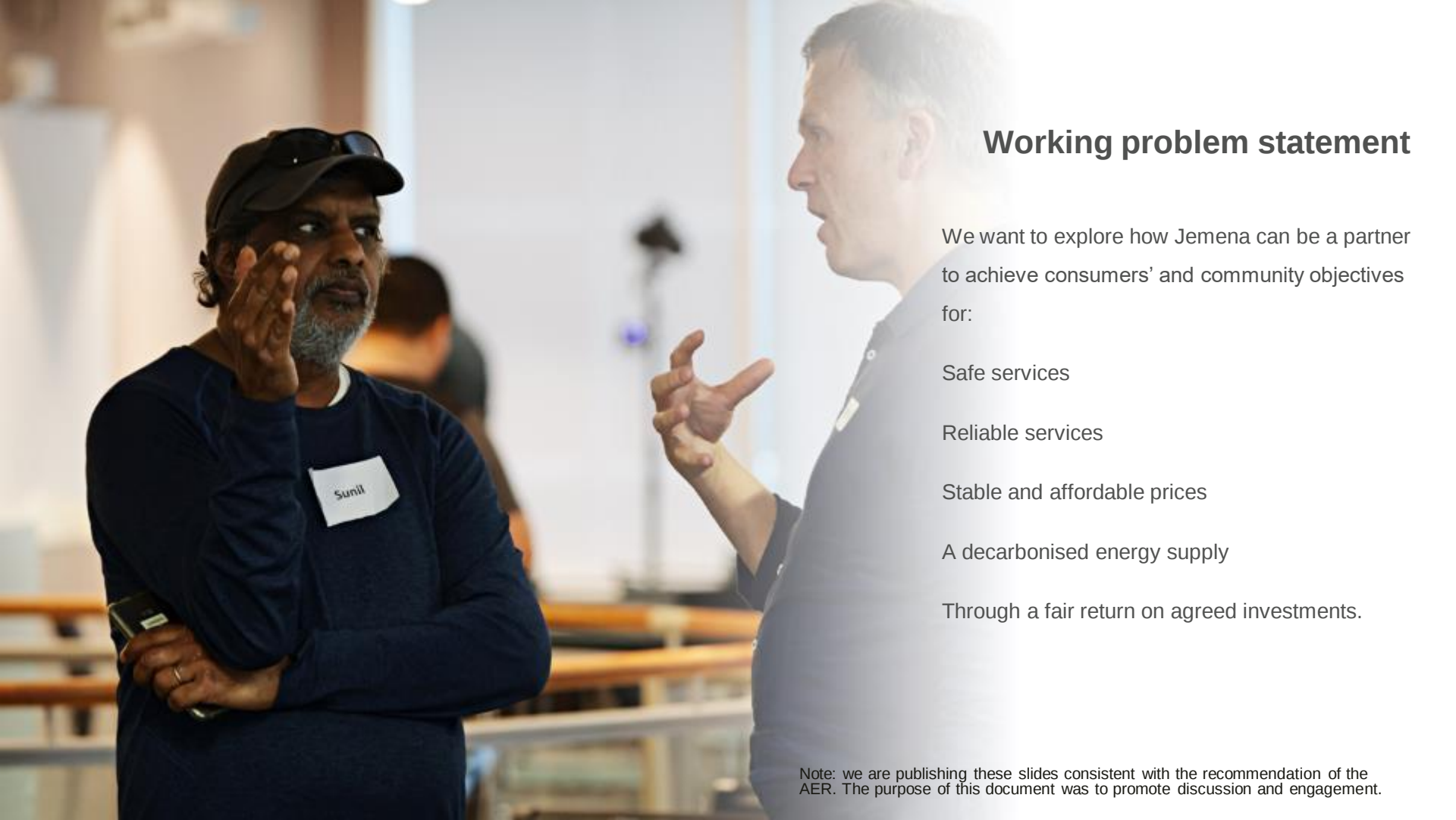


Note: we are publishing these slides consistent with the recommendation of the Jemena Net Zero Strategy. The purpose of this document was to promote discussion and engagement.



Reflections from Session 2

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Working problem statement

We want to explore how Jemena can be a partner to achieve consumers' and community objectives for:

Safe services

Reliable services

Stable and affordable prices

A decarbonised energy supply

Through a fair return on agreed investments.

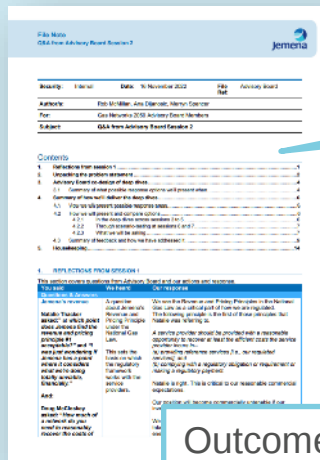
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Session 2 playback

What we have heard

- General questions about Jemena customers
- The problem statement
- Approach for the deep dives
- Response areas we are looking at and how we are reviewing the responses.

How we have responded



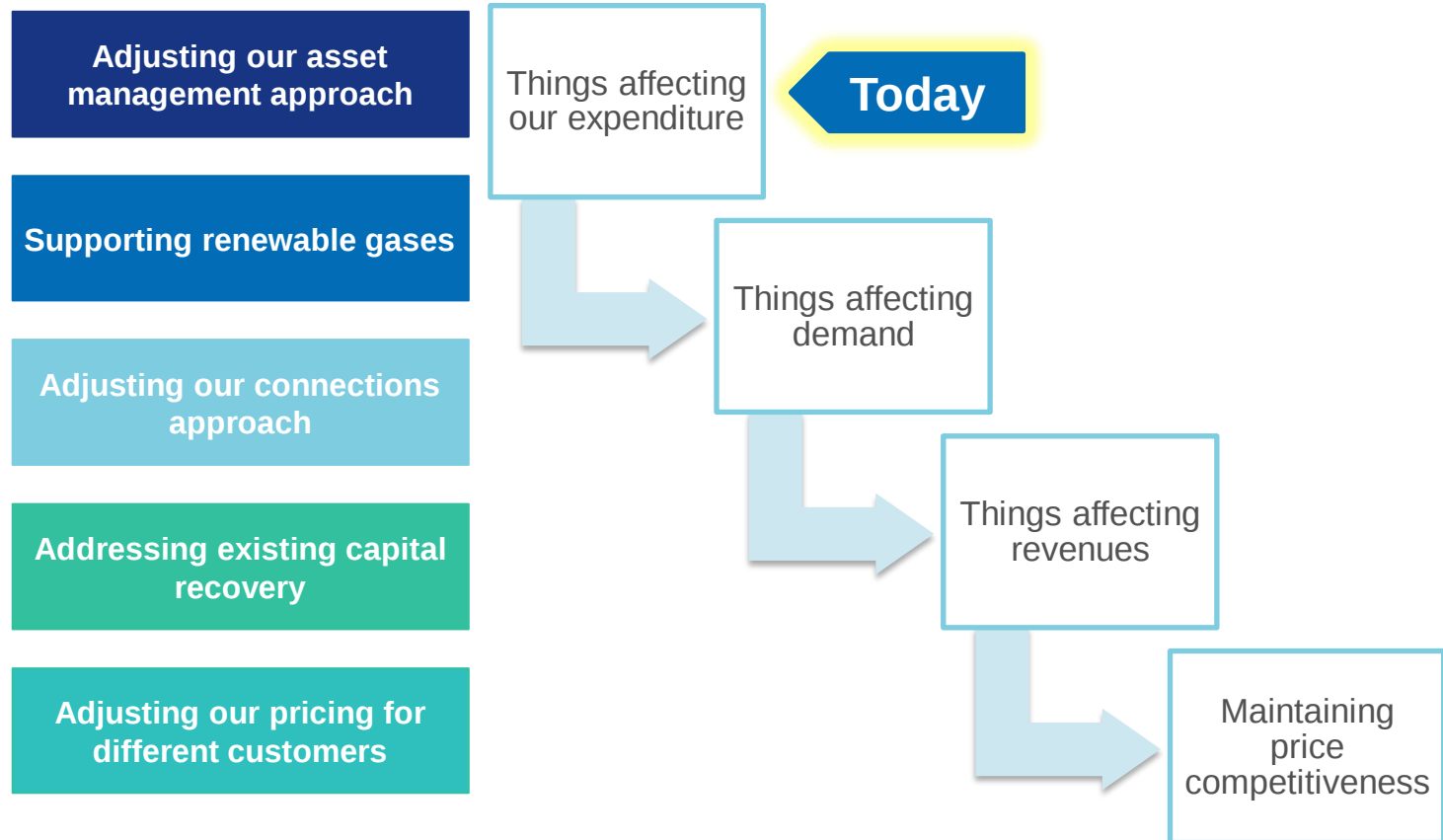
Q&A Document circulated
Wednesday 16 November 2022

Outcomes in problem
statement used to assess
possible responses

Desired outcomes	Outcome compared to status quo
Safe services	unchanged →
Reliable services	unchanged →
Stable and affordable prices	worse ↓
Decarbonised energy supply	improved ↑
Fair return	improved ↑

Do you have any questions or comments you want to raise?

Deep dive response areas



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What we need from the deep dives



Inform and consult on available responses

Qualitatively and directionally examine:

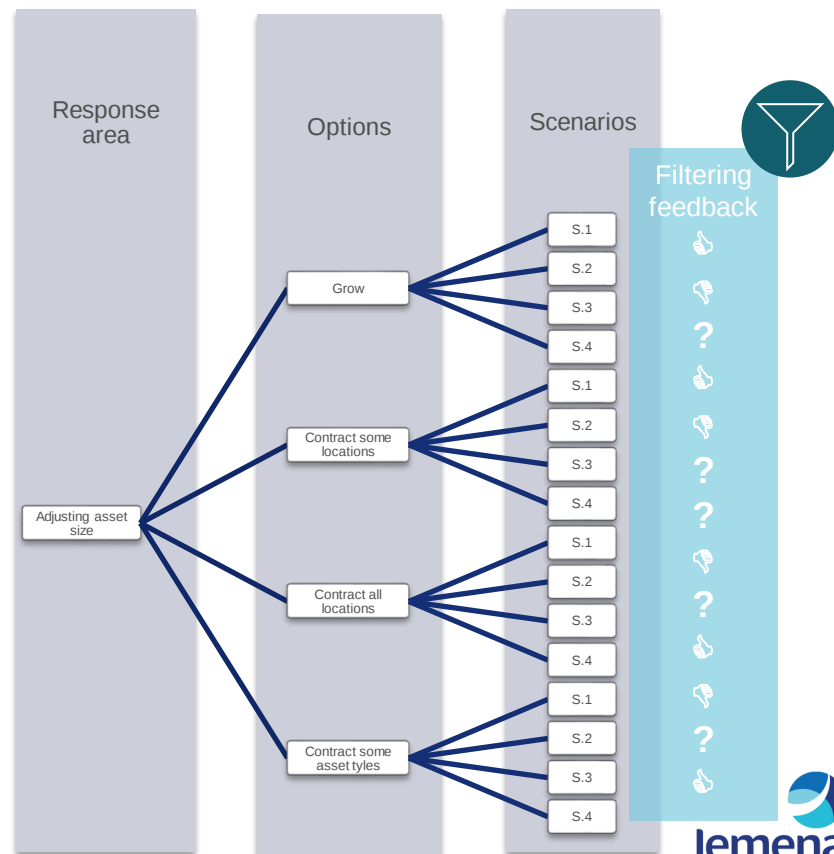
- What are the responses
- Where are we now and what next
- Any required preconditions for these options
- Customer impacts
- Performance against desired outcomes from the problem statement.



Scope and filter viable options

What options will we quantitatively examine with scenario analysis in sessions 6 and 7?

- Are there any commonly supported actions or mutually agreed unviable ones?
- Are there any matters for Jemena to further examine before our sessions 6 and 7?
- What information you want on this topic?



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Adjusting our asset management approach

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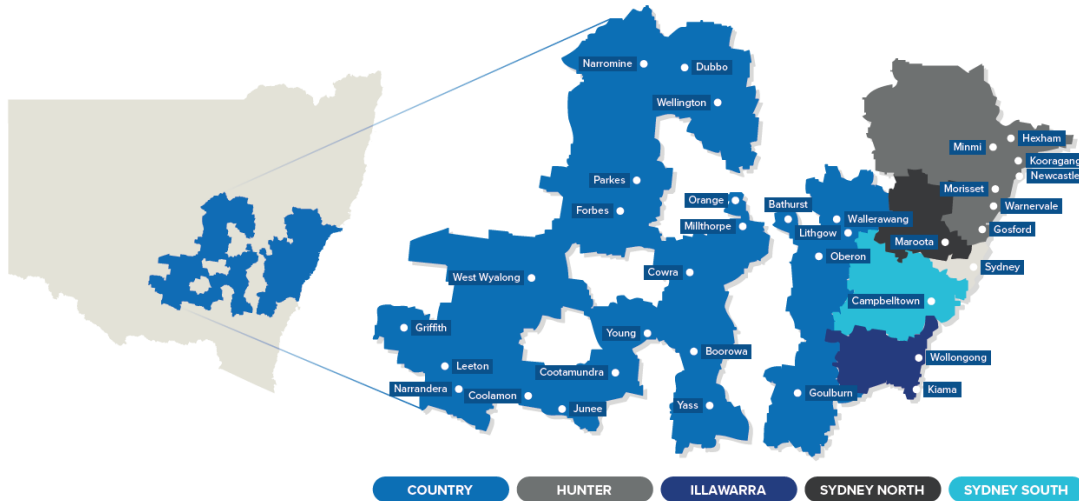
Adjusting our asset management approach

3 asset management response areas to discuss today

Adjusting our asset management approach for:

1. Changing asset service life expectations
2. Changing asset size expectations
3. Readiness for renewable gas
 - Biomethane readiness in our network
 - Pace of hydrogen preparation in our network.

Recap of our network



Legend:
Asset type (new asset life, average remaining life)

Asset life = how often it needs replacing

Average remaining life = how long on average until we need to replace these current assets

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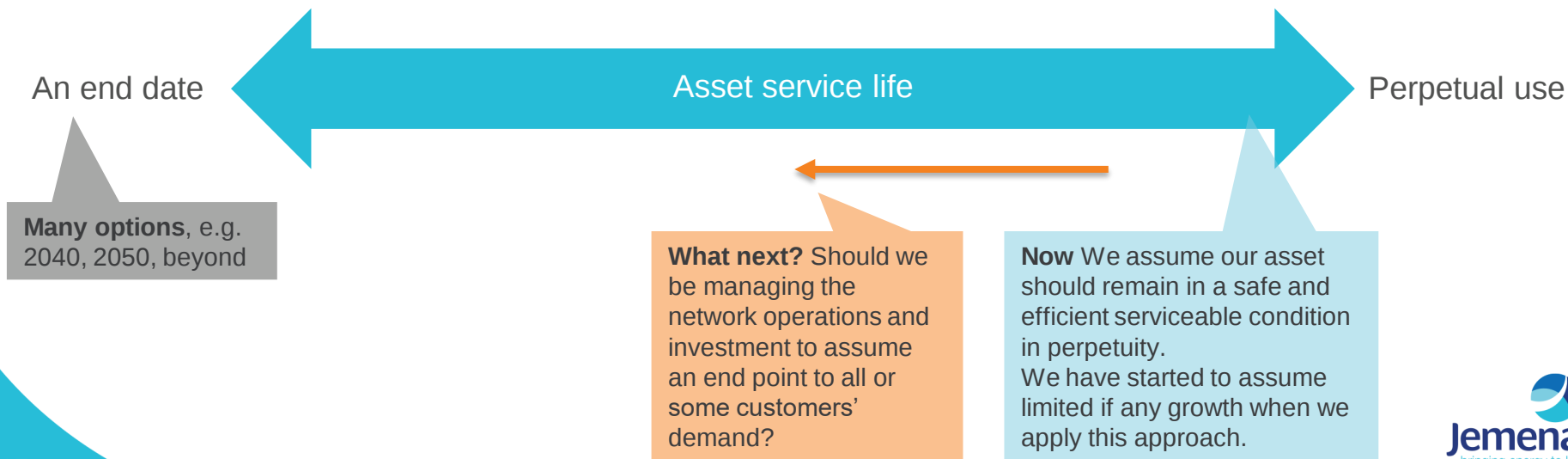
Expected asset service life

What is the response area?

How long should we maintain and operate our assets to service customers?

To reduce or remove the prospect of under-recovering our costs (i.e. stranding risk), we could consider changing the time horizon over which we are investing to maintain our pipelines' service life.

What is the option range and where are we now?

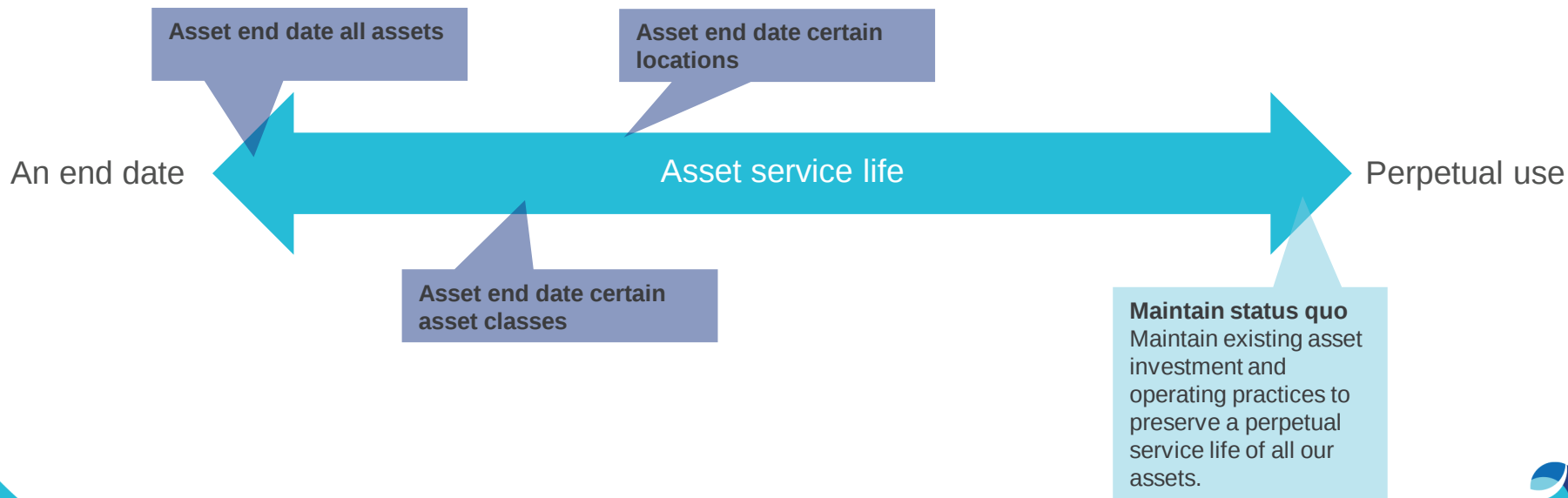


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Possible options

What affects the range of options?

- investment (capex) versus increased inspections and testing (opex)
- asset scope
- lower operating pressure (derating pipelines)



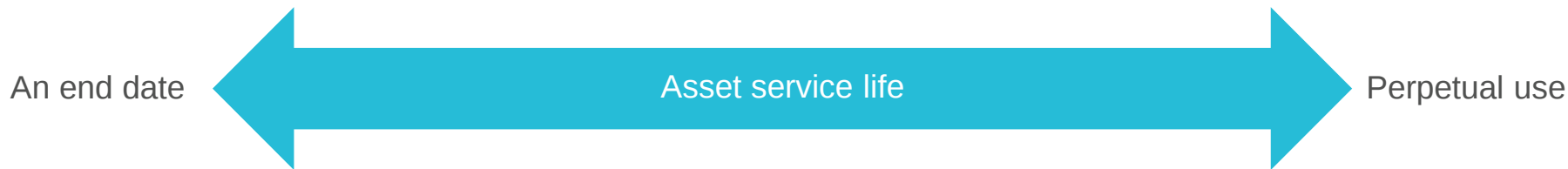
Conditional use

Are there any preconditions for this response?

This response only works if the changes are reflected in our regulated revenues, e.g. the AER would need to:

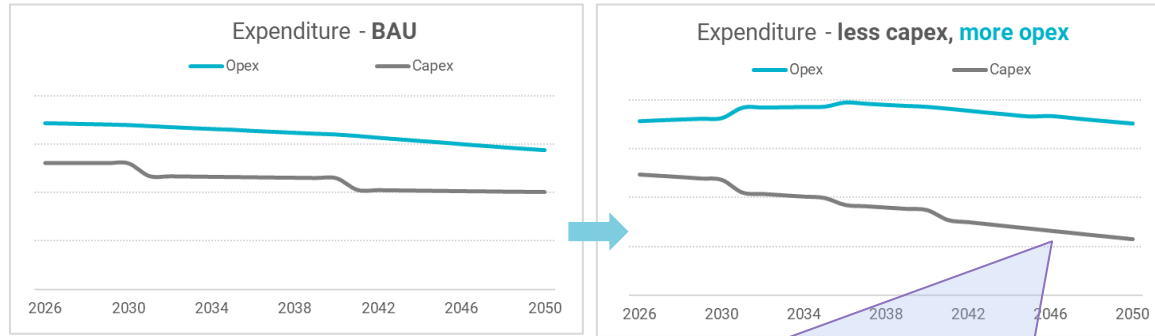
- agree that changing opex and capex mix for a shorter life is prudent and efficient
- align asset lives with the new asset life assumption (as it did for EvoEnergy)

Regulatory decisions will need to recognise customer preferences for possible gas sunset date.



Impacts of changing expected asset service life

Shortening asset service life means spending less on replacing assets (capex) and more on inspections and repairs (opex)



Shorter expected service life

Desired outcomes

Safe services

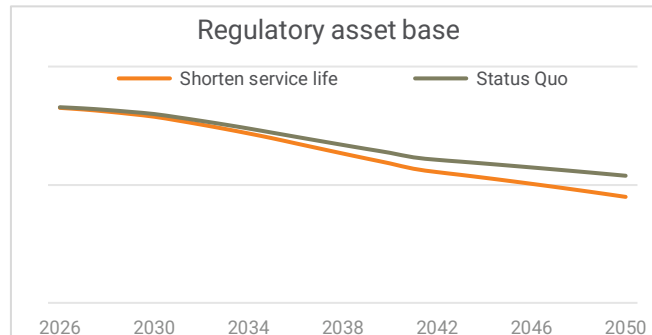
Reliable services

Stable and affordable prices

Decarbonised energy supply

Fair return

Outcome



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Expected asset service life

Initial Advisory Board feedback:

- Are there any commonly supported actions or mutually agreed unviable ones?
- Are there any matters for Jemena to further examine before our sessions 6 and 7?
- What information you want on this topic?

Use the 'raise your hand' button or Teams chat function to share your reflections – KPMG will capture all your comments

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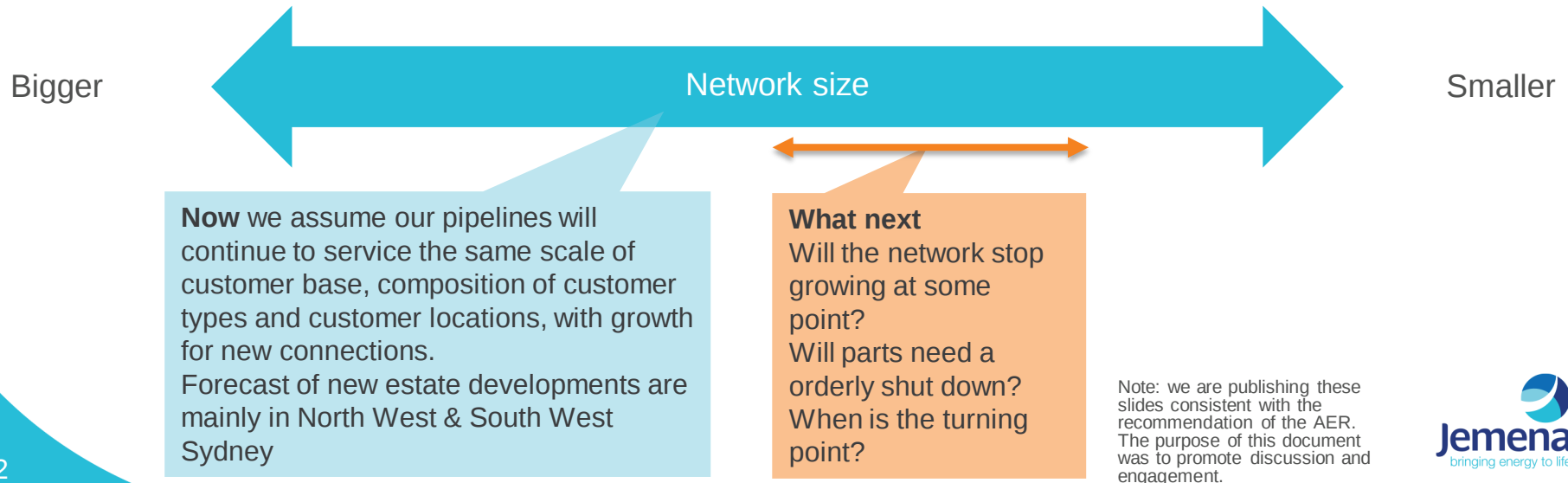
Expected asset size

What is the response area?

How big should our asset be in future (i.e. what size/capacity and what locations)?

To reduce or remove the prospect of under-recovering our costs (i.e. stranding risk), we could consider changing the future size of our network.

What is the option range and where are we now?

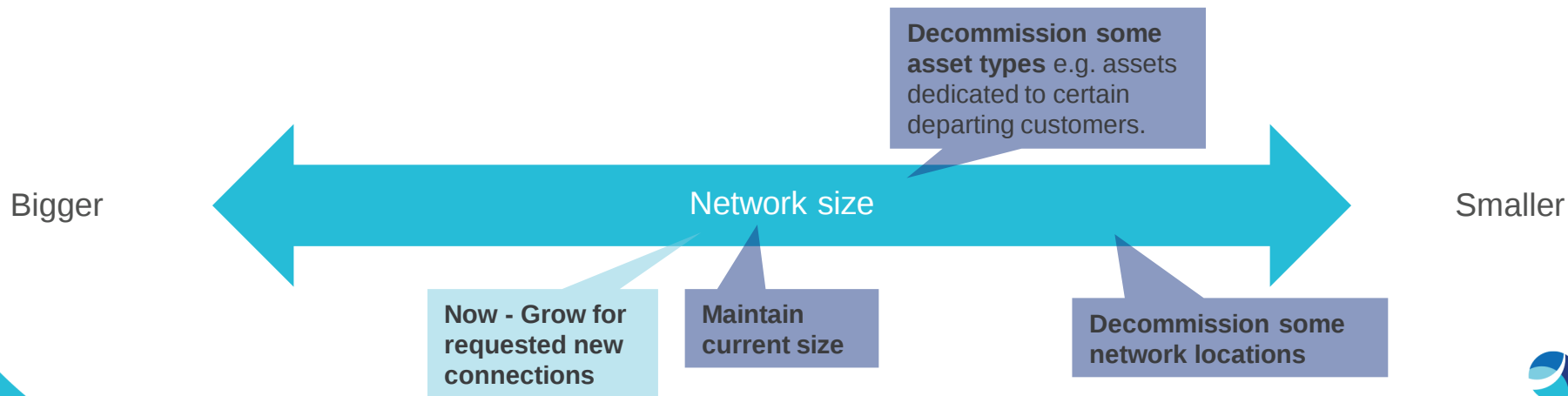


Possible options

What affects the range of options?

Decisions about orderly shutdown of parts of our network may be required due to:

- No or unsustainably low customer demand in certain locations
- Decommissioning of APA's Moomba to Sydney gas pipeline or laterals that feed our regional networks
- Decommissioning networks that cannot be cost effectively transitioned onto renewable gas supplies.



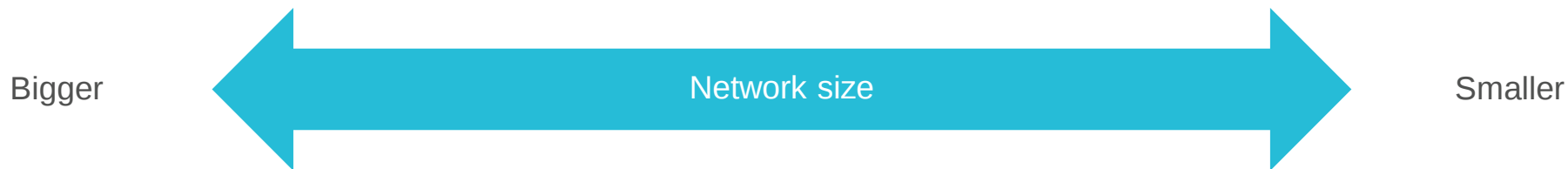
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Conditional use

Are there any preconditions for this response?

- Requires NSW and national regulatory change
 - National Energy Retail Law (NERL) requires JGN to provide customer connection services to premises connected, or proposed to be connected, to our distribution system (s.66)
- Orderly shut down would require:
 - Extensive community and customer consultation
 - Customer appliance changeover
 - Sufficient available energy substitutes (e.g. electricity system capacity)
 - Asset rehabilitation

In short, the regulatory regime doesn't support managed exit, and it currently mandates continuation. This must be reviewed.



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Impacts of changing asset size

How can this response impact customer outcomes?

Decreasing the asset size can affect:

- Customers' access to gas services
- Lower prices in future through less need for capital recovery

Decreasing asset size

Desired outcomes

Safe services

Reliable services

Stable and affordable prices

Decarbonised energy supply

Fair return

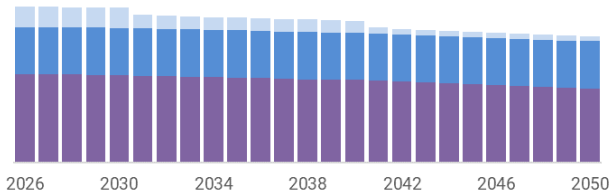
Outcome



Status quo

Expenditure

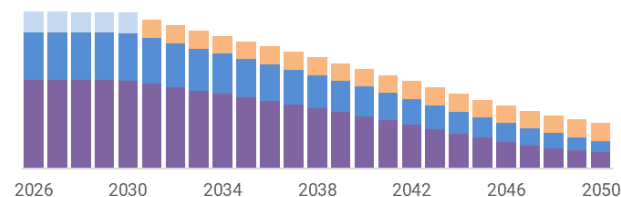
Capex - Connecting new customers
Capex - Stay in business
Opex - BAU



Reduce asset size (from 2031)

Expenditure

Opex - Decommission
Capex - Connecting new customers
Capex - Stay in business
Opex - BAU



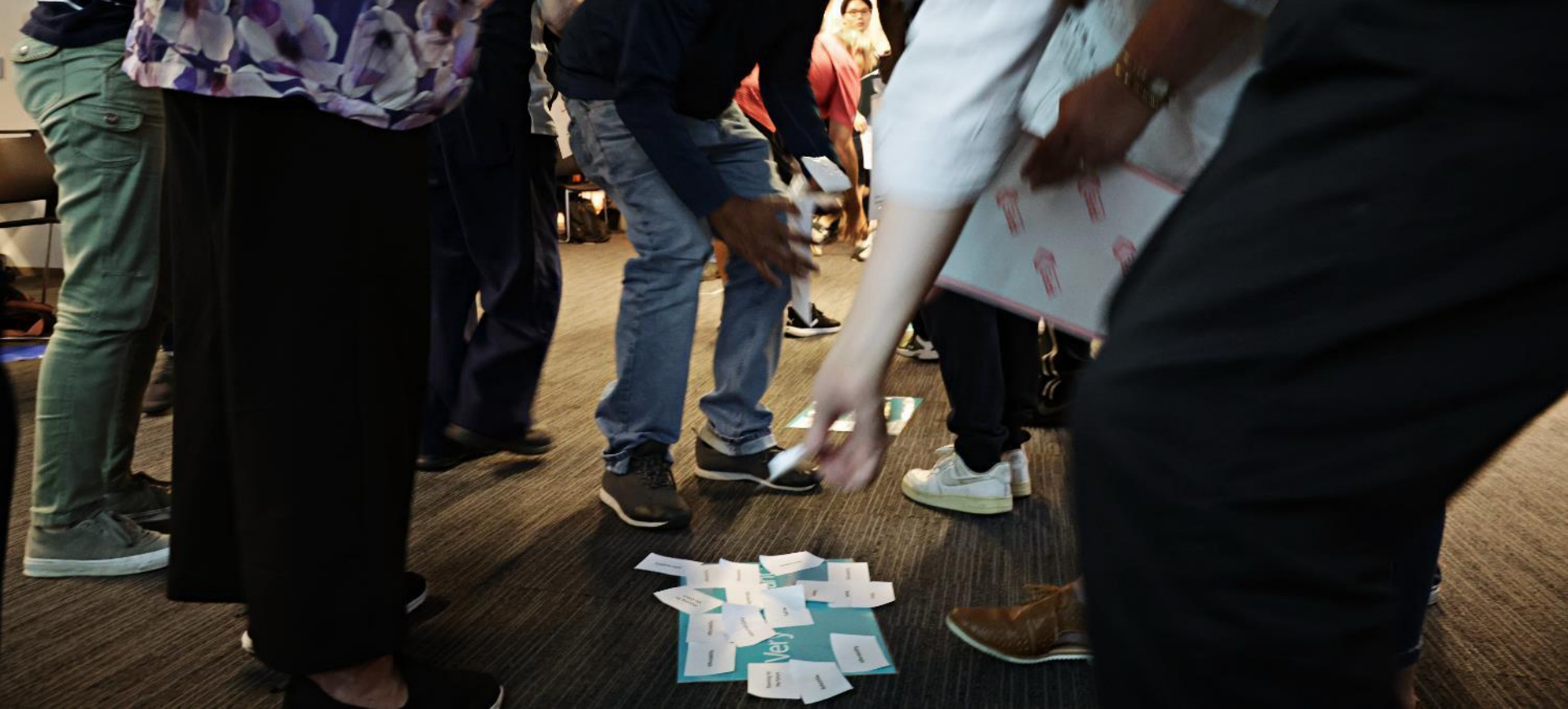
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Network transition for renewable gases

v1.1

Recap of renewable gases

About renewable methane

- It has the same specification as natural gas
- It requires no customer appliance changes
- Biomethane is a carbon neutral gas which harnesses the energy potential from organic materials such as landfill gas, agricultural waste and sewage
- Synthetic methane is made from hydrogen and CO₂ captured from the air or from exhaust gases

About renewable hydrogen

- Hydrogen can be made using renewable electricity (electrolysis process) to split water into hydrogen and oxygen
- It can either be burnt (producing water vapor) or used in fuel cells which transform hydrogen back into electricity.

What we're doing now

Demonstration Project: **Western Sydney Green Gas Project**

Trial power-to-gas facility to transform (surplus) renewable electricity into hydrogen gas



Demonstration Project: **Malabar Biomethane Project**

Gas is generated by anerobic digestion of sewage sludge at Malabar, Sydney.

Port Kembla Pipeline*

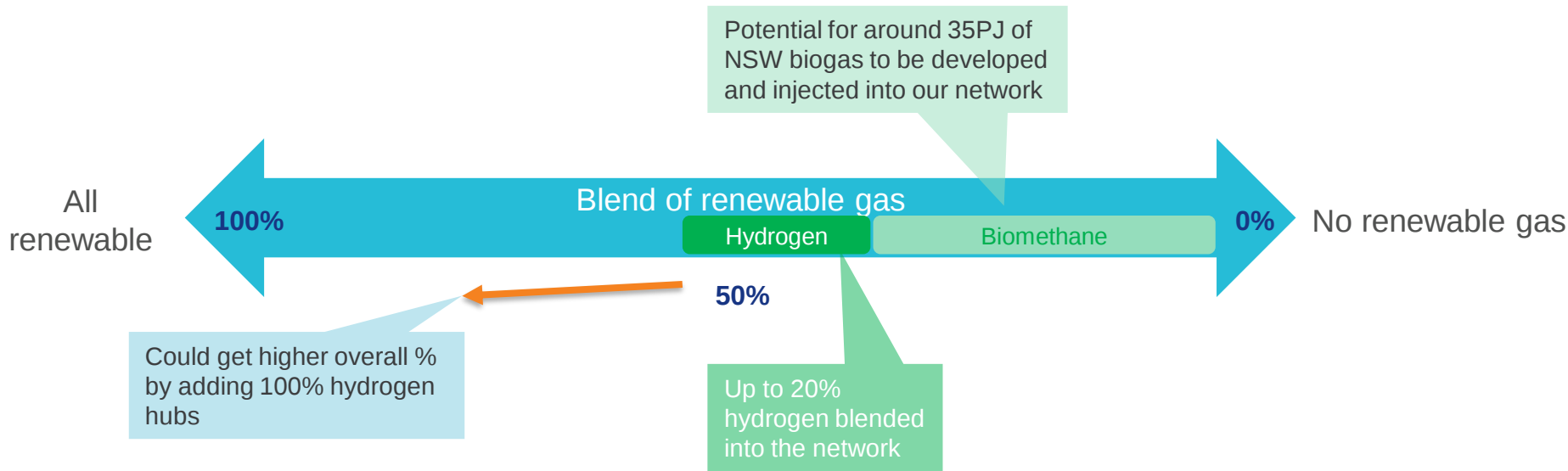
Designed to meet immediate energy needs for more gas and will be capable of handling hydrogen



*Construction of a 12km underground pipeline has started. When operational, gas from the terminal will be fed into the Eastern Gas Pipeline (EGP) via the new pipe. (Note, the EGP does not form part of the JGN network)

Possible blending options

Blending hydrogen, biomethane and natural gas could decarbonise >50% of the supply without affecting appliances



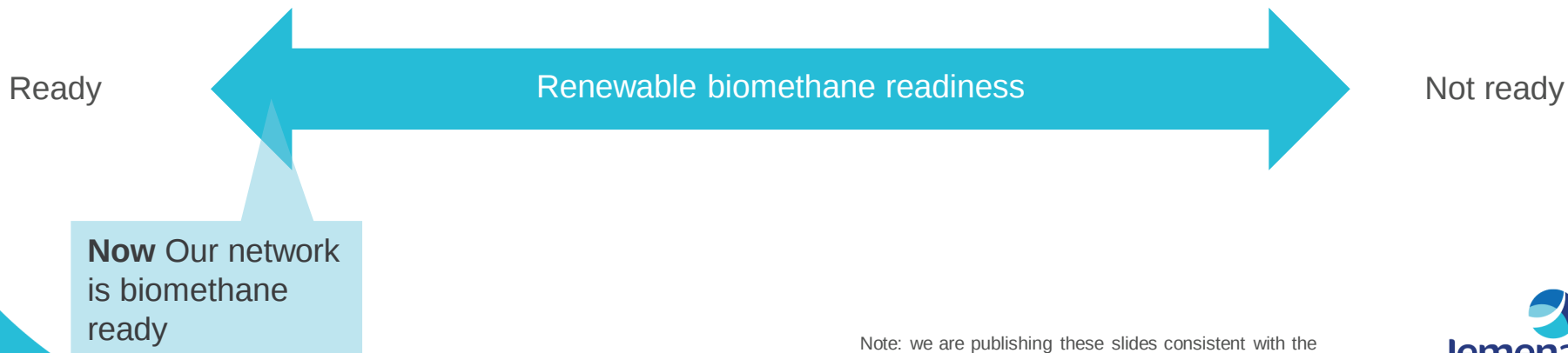
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Biomethane network readiness

What is the response area?

Readying our network to distribute renewable biogas can prolong our asset's useful life and support customer demand by making gas renewable.

What is the option range and where are we now?



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Impacts of biomethane readiness

How can this response impact customer outcomes?

- require no change to customer appliances
- require no additional cost to reconfigure our network
- supports retaining customer demand via decarbonised gas

Distributing as much biomethane as market supplies

Desired outcomes	Outcome
Safe services	→
Reliable services	↑
Stable and affordable prices	↑
Decarbonised energy supply	↑
Fair return	↑

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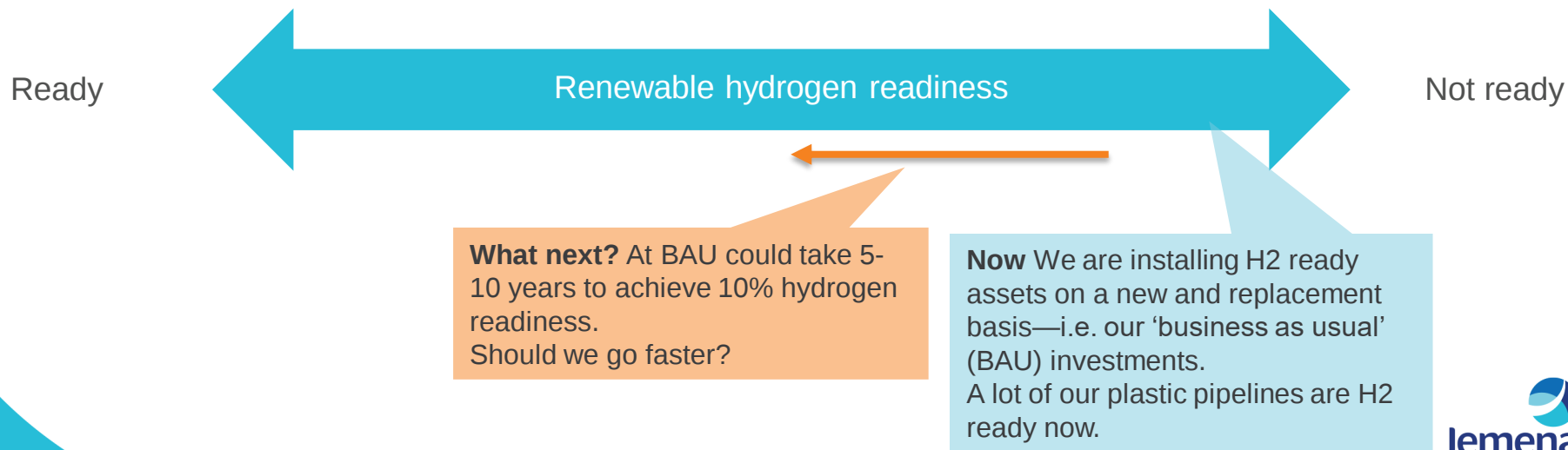
Pace of hydrogen network preparation

What is the response area?

Readying our network to distribute renewable hydrogen (H₂) can prolong our asset's useful life and support customer demand by making gas renewable.

We can vary the pace and extent of our asset transition to hydrogen readiness.

What is the option range and where are we now?



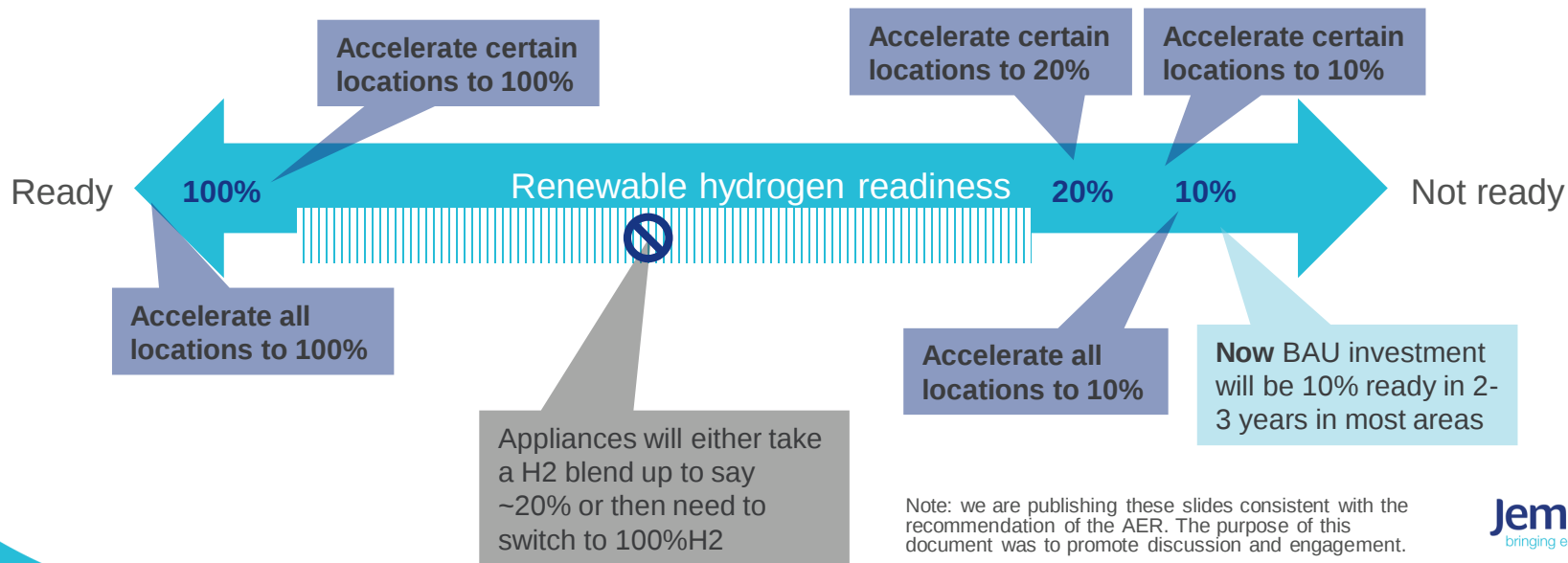
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Possible options

What affects the range of options?

Varying the pace and extent of our transition to hydrogen readiness would affect:

- Our choice of investment materials and components for new and replacement assets (e.g. meters, pipe materials)
- Network configuration decisions (e.g. to support differential blending by location and customer uses)



Conditional use

Are there any preconditions for this response?

- Requires a sufficiently large market of H2 producers
- Customer appliance changes for H2 > ~20%
- Policy measures could speed this transition up:
 - A Federal renewable gas certification scheme
 - A renewable gas target set by NSW and/or Federal government (could include biomethane and H2)
 - Adding emissions reduction to the National Gas Objective from Aug 2022 Energy Ministers' statement
- Regulatory barriers:
 - Requires a hydrogen pipeline licence from IPART (NSW) to convert a pipeline to 100% H2
 - Energy Minister's and AEMC's 2022 renewable gas rule changes support hydrogen blending



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Impacts of hydrogen readiness

How can this response impact customer outcomes?

Higher percentage of hydrogen blends will require upgrades to existing appliances with additional costs to customers

Changing the pace of hydrogen can affect:

- Renewable gas availability (timing and location)
- Achieving NSW emission reductions
- Customer demand and therefore average prices in light of more renewable gas availability
- Prices through varying the pace of investment

JGN accelerates 10% hydrogen readiness

Desired outcomes	Outcome
Safe services	➡
Reliable services	➡
Stable and affordable prices	⬇
Decarbonised energy supply	⬆
Fair return	⬆

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Readiness for renewable gases

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Session wrap-up and close

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Rosemary's playback

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Thank you!



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Thank you

Please contact us if something comes up, you didn't get a chance to raise an issue, or you just don't feel heard.

GasNetworks2050@jemena.com.au

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