

Advisory Board

Session 6, 21 February 2023

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 5.



02

Explore the model.



03

Planning for the in-person session.



Your Advisory Board Chair



Rosemary Sinclair AM
CEO
auDA

Your facilitator



Dr Matt Pearce
Partner
KPMG National Lead for Energy & Utilities

Agenda for today

Topics we will cover

Section 1: Welcome

Acknowledgement of Country, introduction and agenda for today

Section 2: Reflections from Session 5

Discussion, feedback and responses

Section 3: Problem statement recap

Discussion, feedback and reflection

5 minute break

Section 4: Plausible future scenarios

Orientation of the four plausible future scenarios

Q&A

Section 5: Model and analysis

Presentation

Q&A

Section 6: Feedback on draft agenda for session 7 in March

Discussion, feedback and reflection

Section 7: Session wrap-up and close

Reflection on the session: what did we do well? What could we do even better? And overview of next steps.

Duration

5 total

5

10 total

10

45 total

45

35 total

20

15

60 total

30

30

15 total

15

10 total

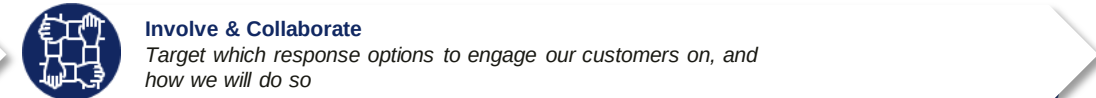
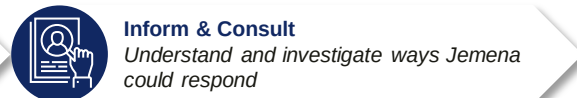
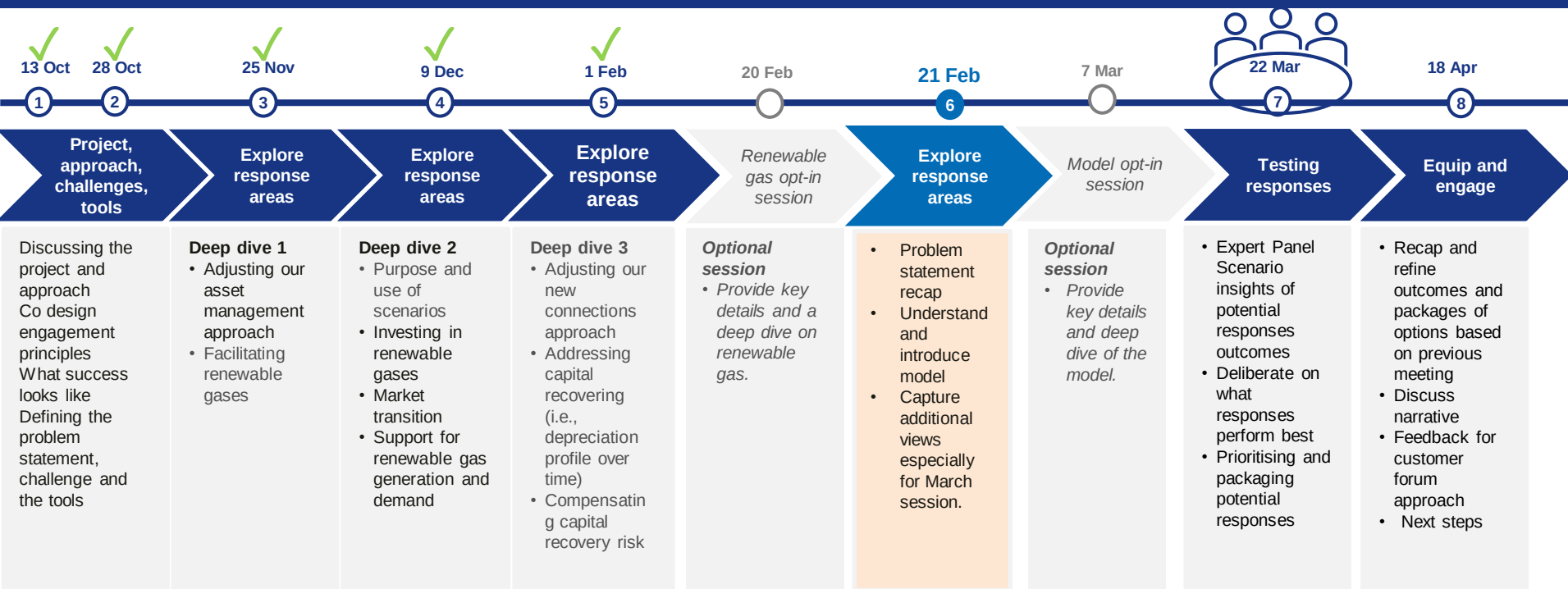
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In order to...

- 01** Recap and agree on the problem statement
- 02** Develop a common understanding of Gas Networks 2050 analysis approach and model
Capture perspectives, views and feedback for the March Advisory Board in-person agenda.

Reminder: This session is being recorded

Recap: Advisory Board series overview





Reflections from Session 5

Session 5 playback

What we have heard	How we have responded
Working problem statement feedback We talked about identifying and sharing risk and how this might be incorporated into the problem statement. Thinking about how the problem statement reflects the whole-of-energy system.	Problem statement included as agenda item for session 6 (today)
Data – delving into the data to really understand customer nuances and scenarios. We talked about a deeper understanding of demand and connections, segmentation, geospatial impacts and how they play out in different scenarios.	Opt in session being provided to understand the demand forecasts by customer segment and location with our scenario demand forecasters
Transition timeframes – incremental change is not the answer. We spoke about acting now, with several members stating they support the accelerated depreciation approach, rate of change, government to lean into risk of fundamental system changes ahead.	- Focus scenario and option deliberations in session 7 (in person, all day) on different action horizons e.g. both: - actions for now (2025-30) and - actions to start for next 2030+ because they may have long lead times or require regulatory or policy change
Fairness – process, outcomes, different aspects of fairness. We spoke about how fairness means different things to different people, and that government can shield both customers and investors to a degree.	Design scenario and option deliberations in session 7 (in person, all day) to ensure consideration of how different customer groups are affected and avoid generalisations when assessing and describing outcomes
Policy and regulation – whether the framework is suitable for the decarbonisation challenge ahead. We discussed how complicated this challenge is and how the industry needs to work together, how we keep the regulatory scope open and is regulation fit for purpose?	- Use the scenario approach to help identify actions that are robust to different policy settings. - Recognise that options are not mutually exclusive and can be pursued in packages and over different timeframes.

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

Deep dive response areas & action horizons

Response areas

Key response options

Adjusting our asset management approach

Stay in business



Shrink the business



Transition to renewable gases

Supporting renewable gases



Green gas policy

Market making

Supporting renewable connections

Adjusting our connections approach

Increase connection charges

Make connections contestable



Stop connections

Addressing existing capital recovery

Shorten asset lives

Change depreciation profile



Compensate recovery risk



Not permitted in regulation or policy not set



Some option variants would require regulatory change



Working problem statement recap

Reminder... Working problem statement

Additional comments:

- *Advisory Board (AB) member commented on capturing 'tipping points' and timing for taking action*
- *Another AB member suggested elements of the problem statement are tested with customers to help prioritise the objectives*
- *A further AB member said how we highlight the risk and keep it front of mind is really important*

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

1. **Safe services**
2. **Reliable and resilient services**
3. **Stable and affordable prices**
4. **A decarbonised energy supply**
5. **Through a fair return on agreed investments.**

An AB member suggested the addition of 'resilience' be included alongside 'reliable services'

Another AB member suggested 'holistic energy system' to capture the whole of energy system

AB member commented that the 'fair return on investment' should be achieved through 'agreed activities'

Another AB member spoke about 'fair and equitable treatment of risk'

Two AB members asked about who is carrying the risk and whose appetites for risk are we talking about?

An AB member commented that 'affordable' will mean something different to different customer segments

An AB member noted that 'environmental impacts and considerations' including the visual impact of decarbonisation should be included here, and Peta discussed environmental biodiversity.

An AB member commented that the 'fair return on investment' should be for both Jemena and customers

A further AB member suggested including 'efficiency' somewhere in the problem statement and Jemena noted this is captured in agreed investments

How we propose to apply the working problem statement



In our Advisory Board member discussions we heard:

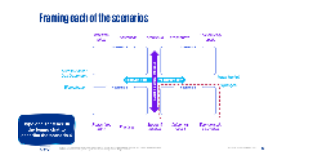
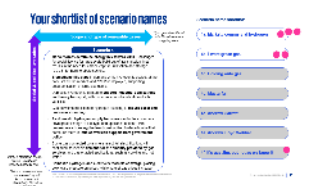
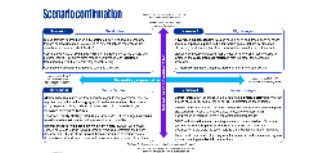
- **Horizon(s):** Assessment horizons should show initial action impacts (i.e. when action is taken during 2025-30, medium term impacts (2030-40), and impacts out to 2050.
- **Categorisation:** Assess scenarios with and without the response option to show the outcomes against our objectives as: improving, no change or getting worse. Don't use tariff lights, ticks and crosses or images.
- **Measurement and reasoning:** Provide shorthand reasoning for the outcome, including key the outcome drivers or 'points of no return' if these occur. Flag materiality where needed.
- **Customer impacts:** If impacts are materially different for different customers, note this.

Scenario			Option	Supporting renewable connections
Electric tortoise 				
Objective	2025-30	2030-40	2040-50	Commentary
Safe services	Neutral	Neutral	Neutral	Bullet point description of outcome drivers, relevant key assumptions, materiality, and variance in impacts different for some customer segments or in the pace of impact changes over time.
Reliable and resilient services	Improved	Improved	Improved	
Stable and affordable prices	Worse	Improved	Improved	
Decarbonised energy supply	Improved	Improved	Improved	
Through a fair return on agreed investments	Neutral	Improved	Improved	

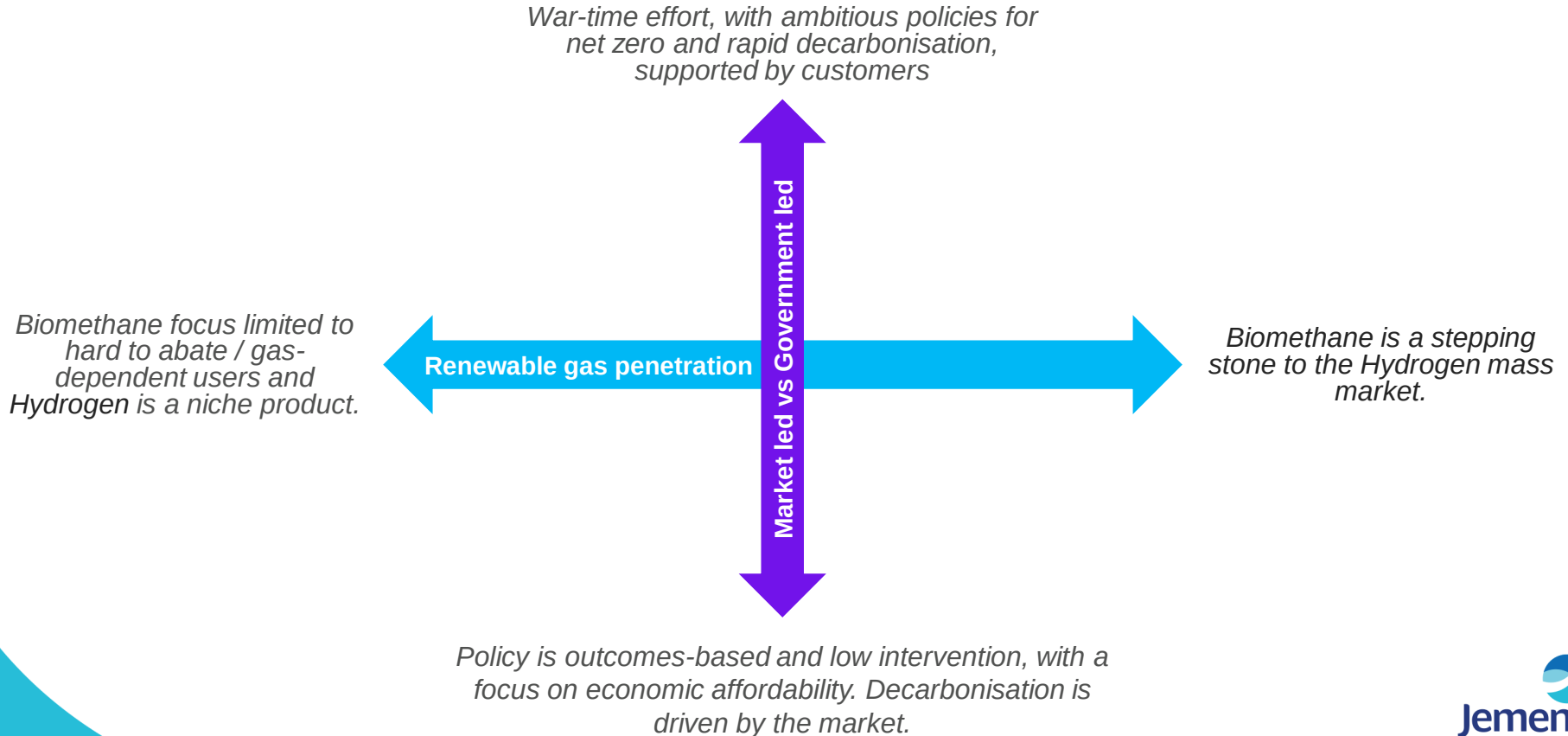
Plausible future scenarios



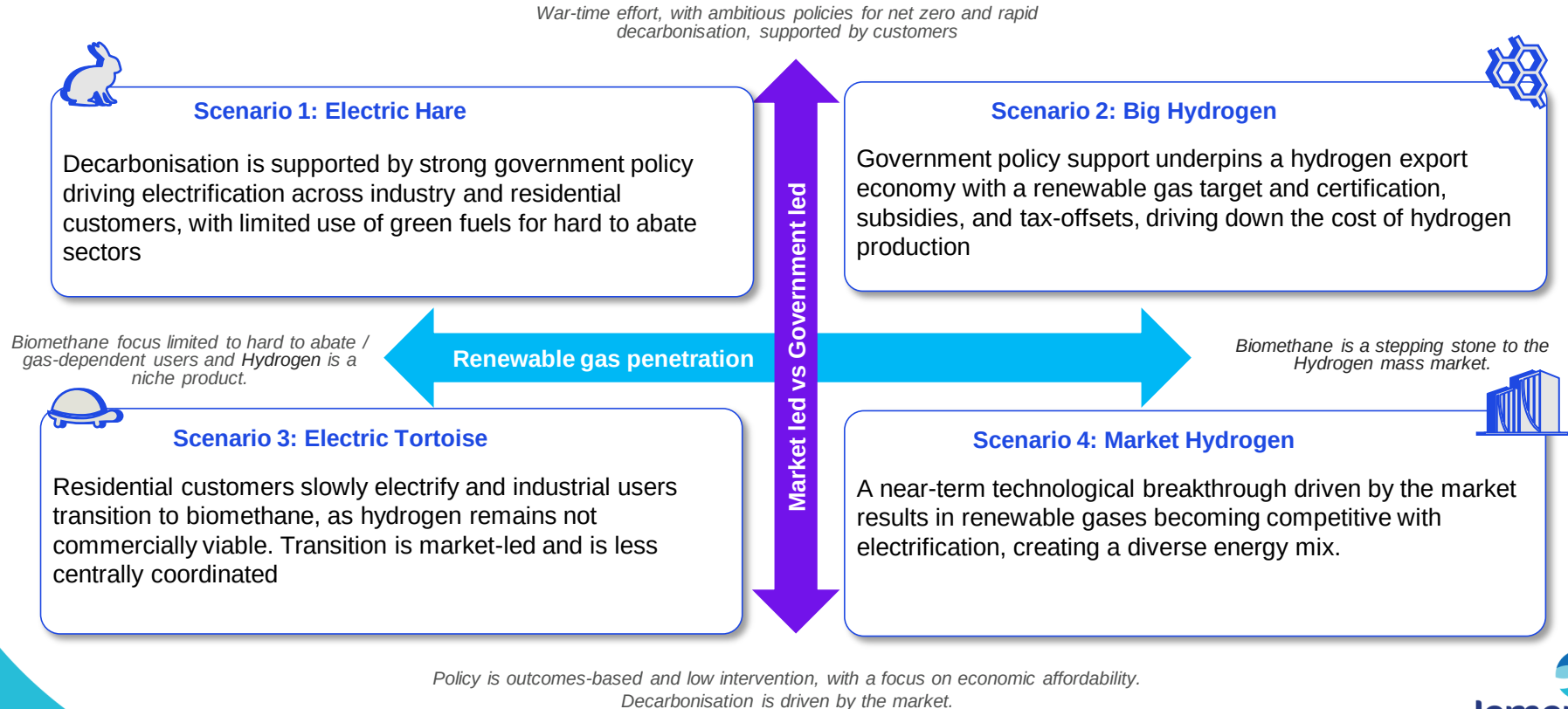
Overall process for scenario planning

Session	Objective	Output
Session 1: Introductions, Scenario Purpose & Drivers	- Facilitate stakeholder introductions and align on scope, project objectives, and establish guiding principles - Outline the process and purpose of plausible scenario development - Guest speaker presentation on energy system trends from Dr Alan Finkel - Shortlist of potential scenario drivers	
Session 2: Scenario Framing	- Select final driver combination - Begin developing scenario narratives and possible names for each - Discuss fixed and variable assumptions across the scenarios	
Session 3: Scenario Detailing & Enablers	- Shortlist potential scenario names - Relative scaling of each scenario - Generate assumptions & economic rationale relevant to Jemena's model - Articulate the trajectory of scenarios across 2030 and 2050 time horizons	
Session 4: Agree Scenarios & Review	- Review and finalise scenario narratives in detail including scenario names - Review assumptions and economic rationale - Consider relative likelihood of each scenario	

The scenario axes



High-level narrative overviews



Comparing key characteristics



Scenario 1: Electric Hare

War-time effort, with ambitious policies for net zero and rapid decarbonisation, supported by customers



Scenario 2: Big Hydrogen

Government	Social	Technology
Strong electrification policies	Community committed to decarbonisation	Slow technology development for H2 & biomethane
Economics	Customers	Decarbonisation
High energy prices leads to intervention	Rapid adoption of electrification	Rapid decarbonisation

Government	Social	Technology
Strong renewable fuel policies	Community committed to decarbonisation	Rapid technology development for H2 & biomethane
Economics	Customers	Decarbonisation
High costs initially, but rapidly fall	Some pay premium for renewable gas amenity	Rapid decarbonisation

Biomethane focus limited to hard to abate / gas-dependent users and Hydrogen is a niche product.

Renewable gas penetration

Biomethane is a stepping stone to the Hydrogen mass market.



Scenario 3: Electric Tortoise



Scenario 4: Market Hydrogen

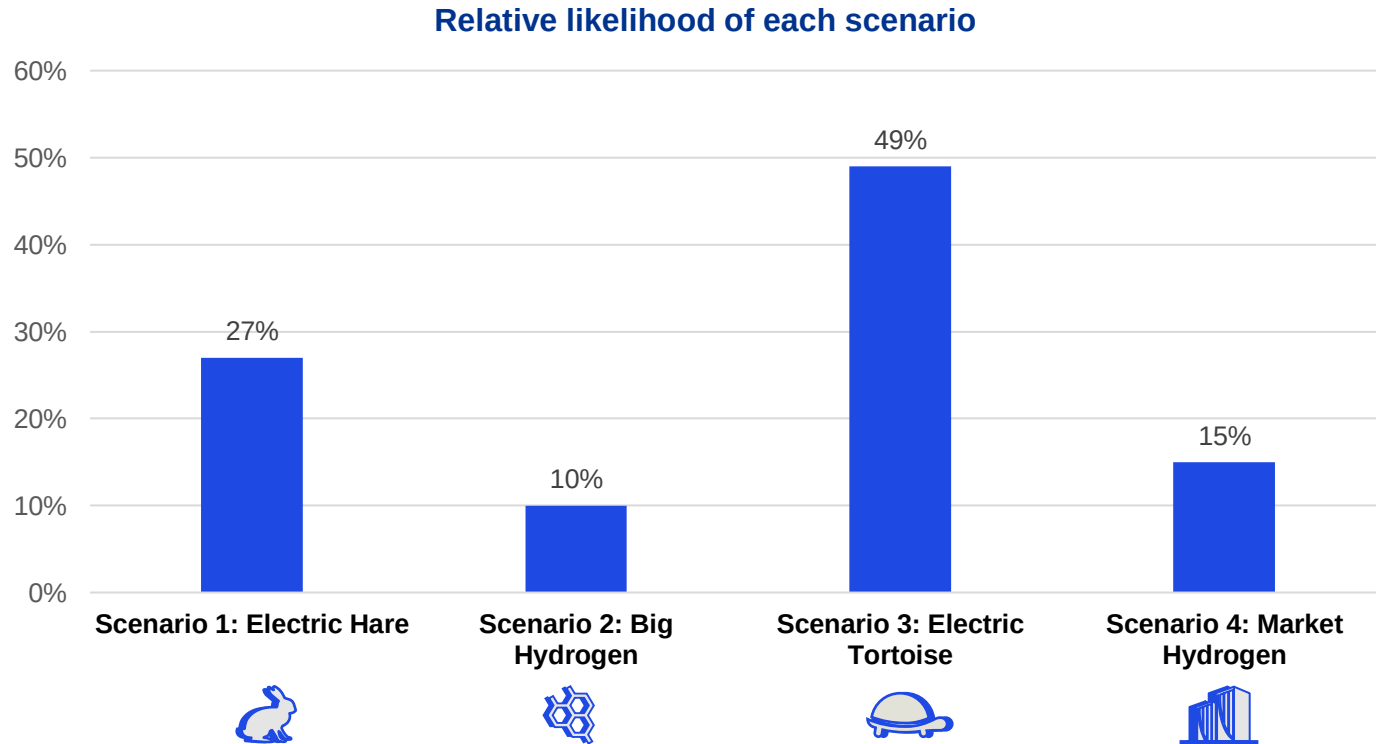
Government	Social	Technology
Policies reactive to price shocks	Community focus on affordability	Slow technology development for H2 & biomethane
Economics	Customers	Decarbonisation
High energy prices leads to intervention	Slow to convert	Slow decarbonisation

Government	Social	Technology
Policies based on incentives & price signals	Community focus on affordability	Rapid technology development for H2 & biomethane
Economics	Customers	Decarbonisation
Commercially competitive H2 market	Some pay premium for renewable gas amenity	Slow decarbonisation

Market led vs Government led

Policy is outcomes-based and low intervention, with a focus on economic affordability. Decarbonisation is driven by the market.

Relative likelihood as voted by the Expert Panellists



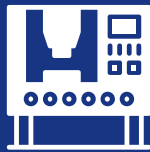
A group of people, including men and women of various ages, are gathered in a room with large windows. They are engaged in a community planning activity. Many are looking at and discussing documents and maps spread out on a large table. Some individuals are kneeling on the floor to get a closer look at the materials. The atmosphere appears collaborative and focused. A white podium with the 'Jemena' logo is visible on the right side of the frame.

Introducing our model and analysis approach



Today

- Objective of modelling tool
- Scope of responses that can be modelled
- Modelling approach
- User interface



Opt-in session (7 March)

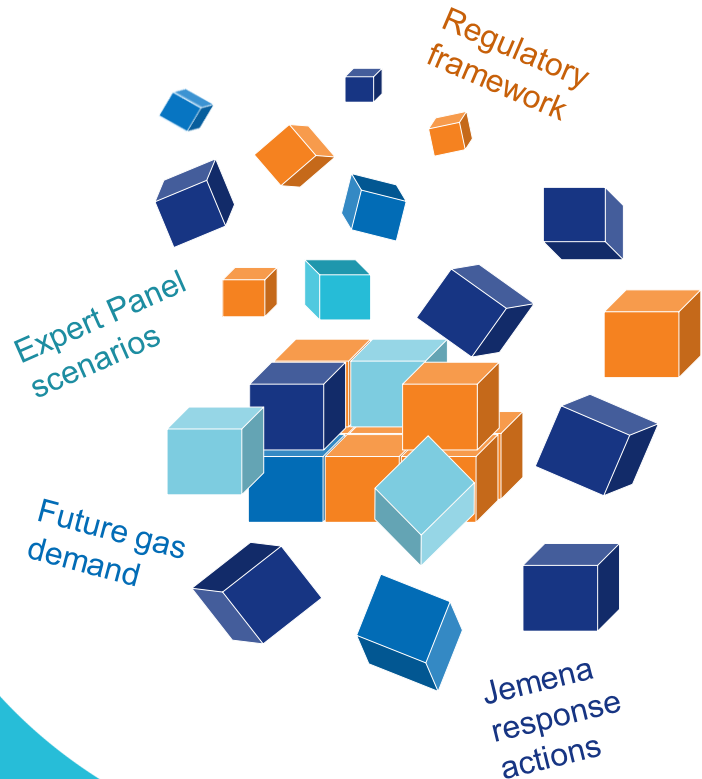
- Deep dive into modelling tool:
 - Scenario analysis
 - Customer impact measurement



Live demonstration (22 March)

- Walk through scenarios and response actions on live model
- Demonstrate customer impacts to help guide customer engagement

Why we need the modelling tool



Key questions to answer through modelling:

01

How our **actions now (2025-30)** impact **customers** over time (2025-50) in an uncertain future of gas

02

How does our **range of actions** interact with each other and impact customers and Jemena

Linking our actions to Expert Panel scenarios

Response areas

Key response options

Adjusting our asset management approach

Stay in business



Shrink the business



Transition to renewable gases

Supporting renewable gases



Green gas policy

Market making

Supporting renewable connections

Adjusting our connections approach

Increase connection charges

Make connections contestable



Stop connections

Addressing existing capital recovery

Shorten asset lives

Change depreciation profile



Compensate recovery risk

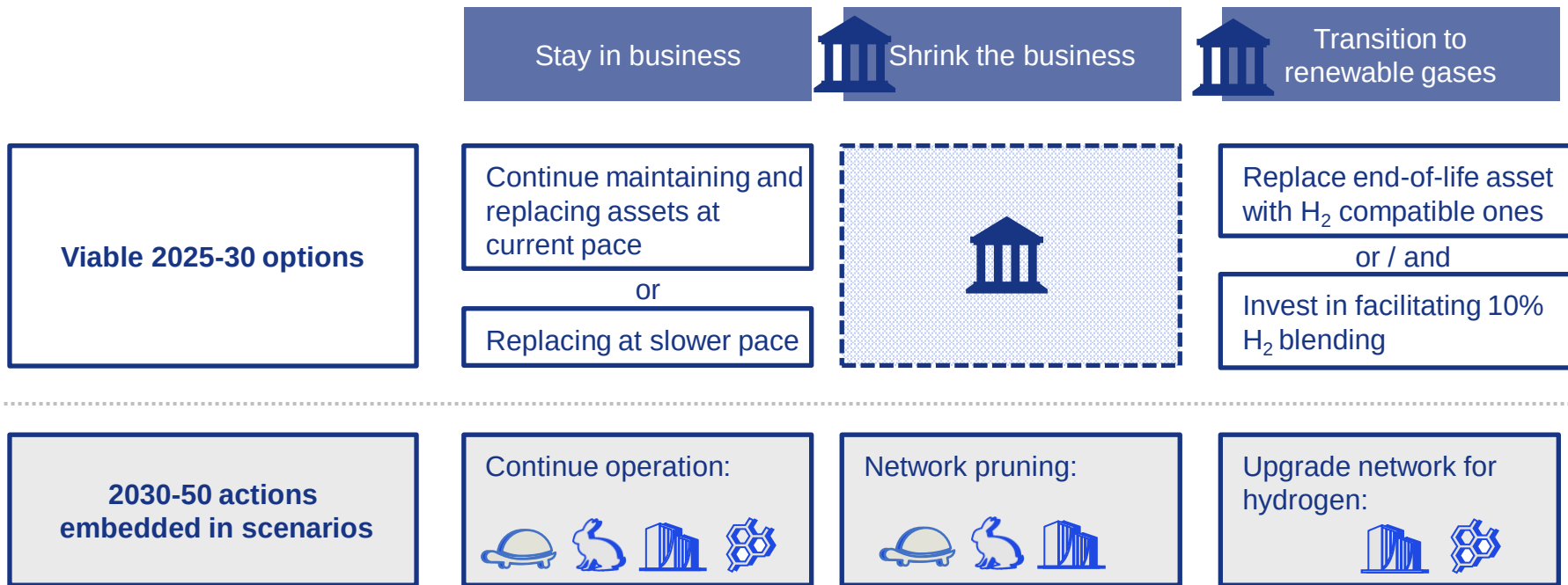


Not permitted in regulation or policy not set



Some option variants would require regulatory change

Response Area 1 | Adjusting asset management approach



Icon key:



Government or policy decision



Out of scope for Jemena because of rule or legislation change



Electric Tortoise



Electric Hare

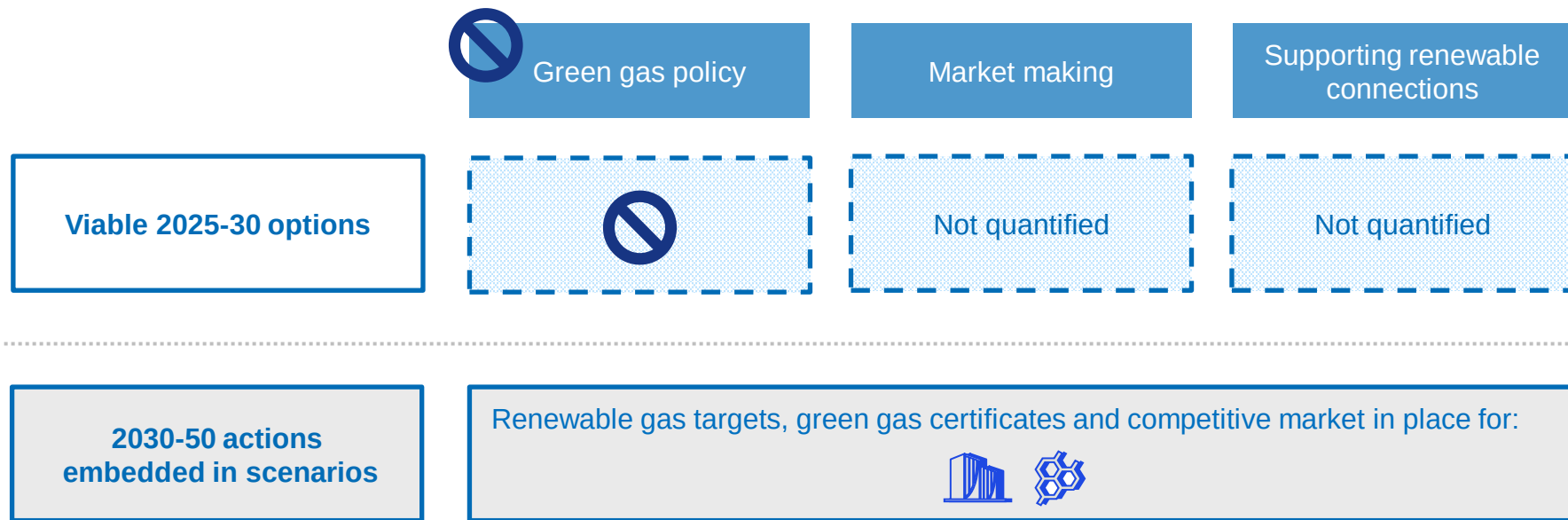


Market Hydrogen



Big Hydrogen

Response Area 2 | Supporting renewable gases



Icon key:

- Government or policy decision
- Out of scope for Jemena because of rule or legislation change

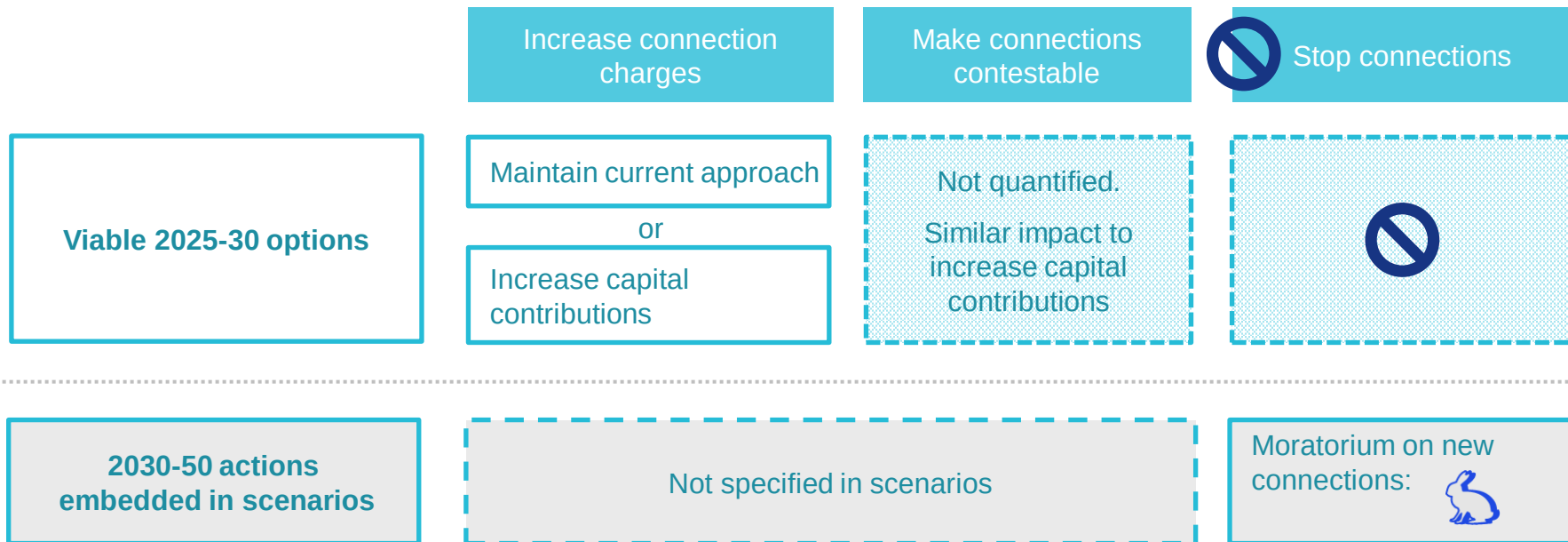
Electric Tortoise

Electric Hare

Market Hydrogen

Big Hydrogen

Response Area 3 | Adjusting connection approach



Icon key:

 Government or policy decision

 Out of scope for Jemena because of rule or legislation change

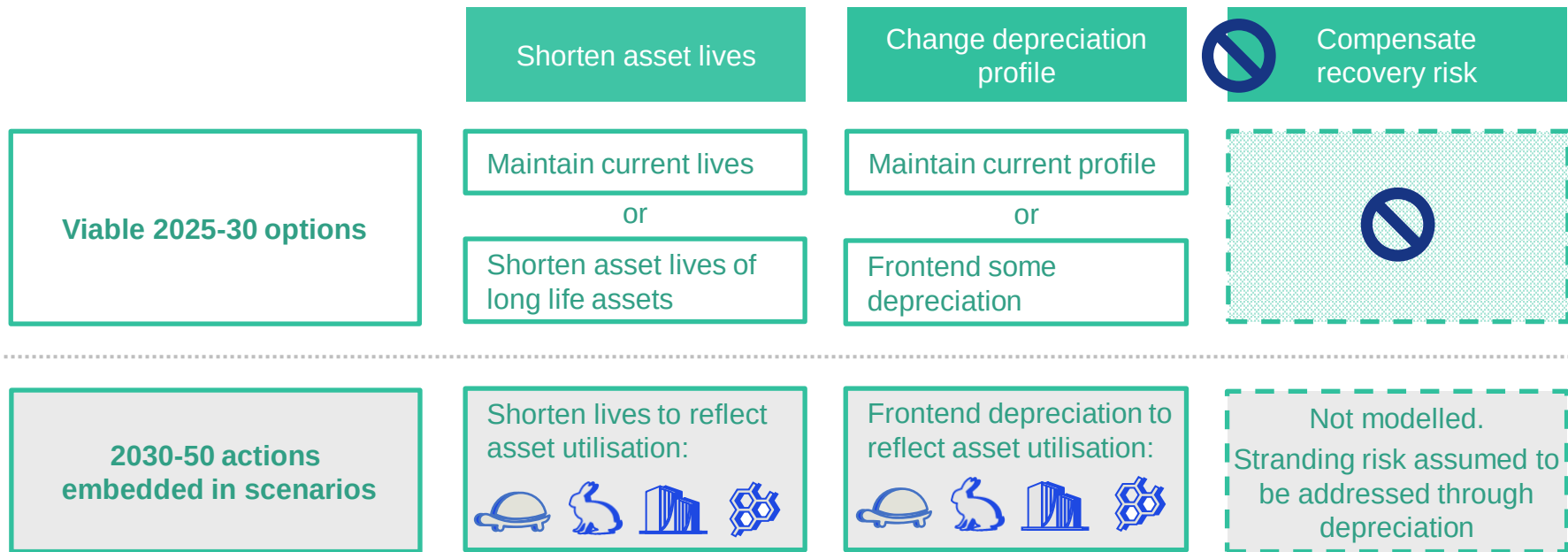
 Electric Tortoise

 Electric Hare

 Market Hydrogen

 Big Hydrogen

Response Area 4 | Accelerate capital recovery



Icon key:



Government or policy decision



Out of scope for Jemena because of rule or legislation change



Electric Tortoise



Electric Hare



Market Hydrogen



Big Hydrogen

Modelling framework

Inputs

- ❖ Forecast expenditure 
- ❖ Existing asset base
- ❖ Regulatory assumptions

- ❖ Expert Panel scenarios 
- ❖ Jemena gas network's characteristics

- ❖ Expert Panel scenarios 
- ❖ Plausible technological advancements 
- ❖ Available appliances
- ❖ Forecast gas and electricity demand 

Approach

Regulatory revenue 



Customer demand
(Independent expert's forecasts) 

Independent Expert's forecasts 

Customer impacts

Jemena network charges



Wholesale & other charges 

★ The focus is on Jemena's charges, but conscious of other factors impacting customers

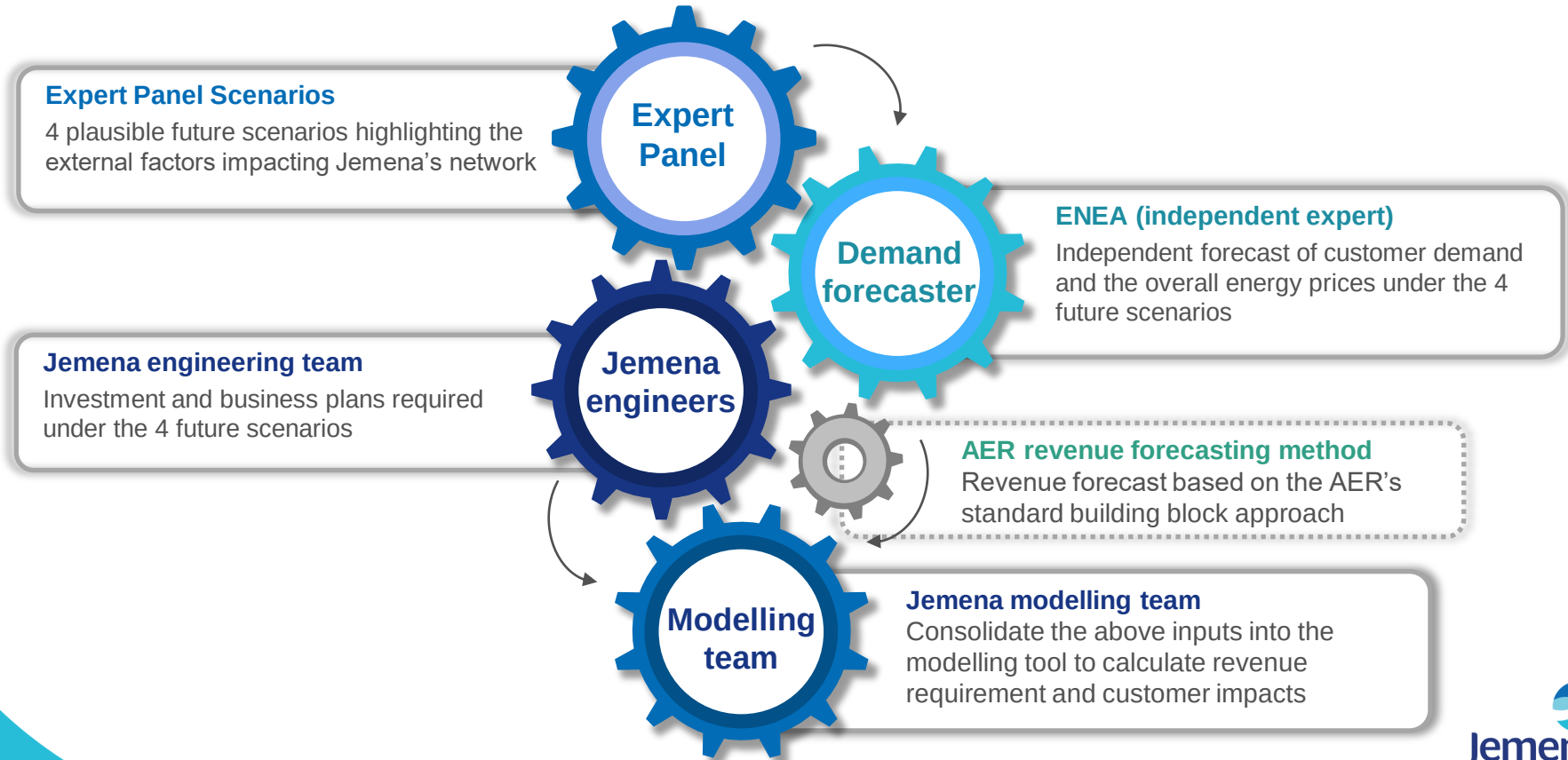
End-customer gas price



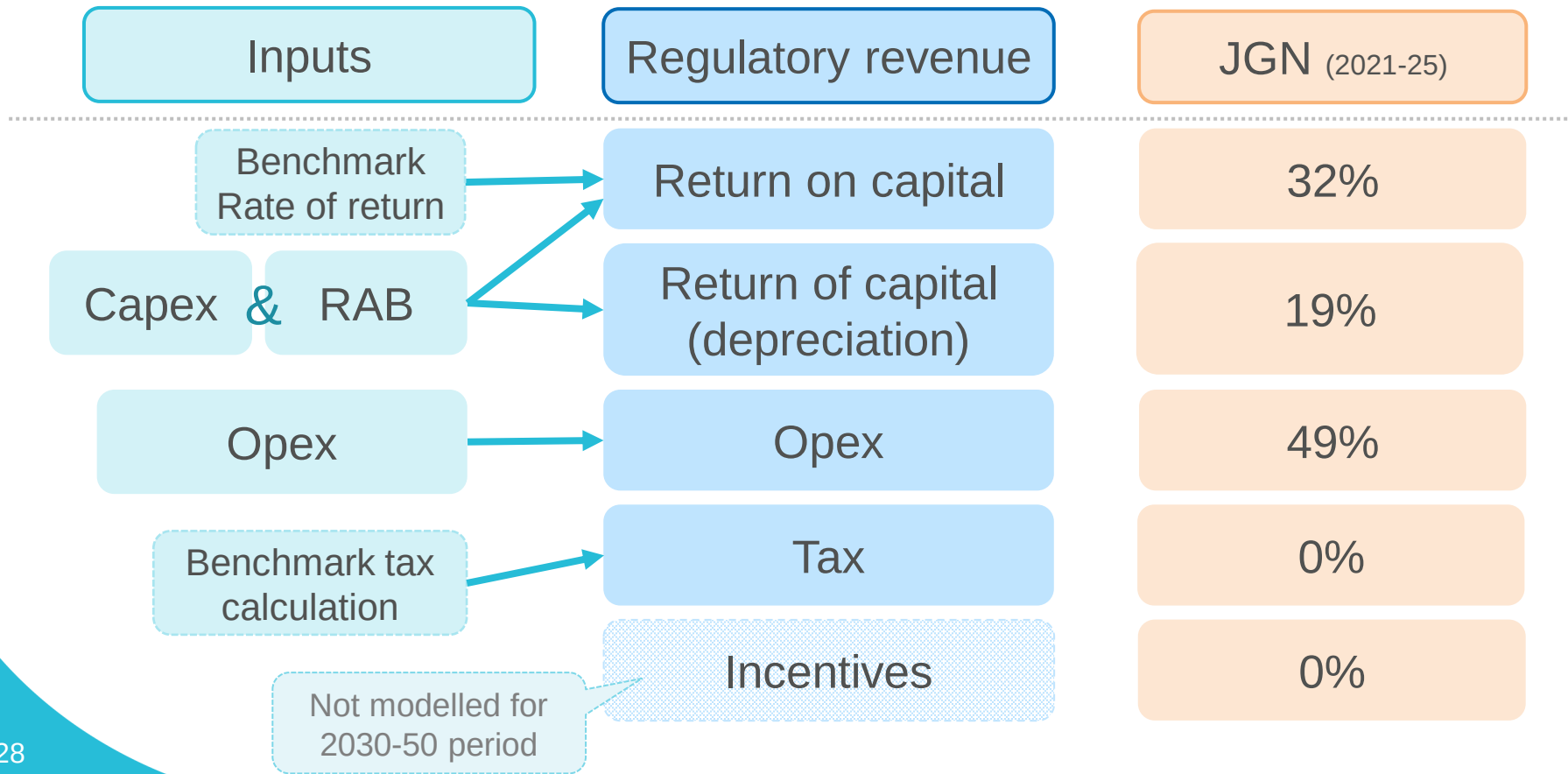
End-customer electricity price

if customers choose to electrify

Inputs | Where do we source our inputs?



Approach | Regulatory revenue



Approach | Customer demand

Forecast approach

Identify key drivers of demand for different type of customers

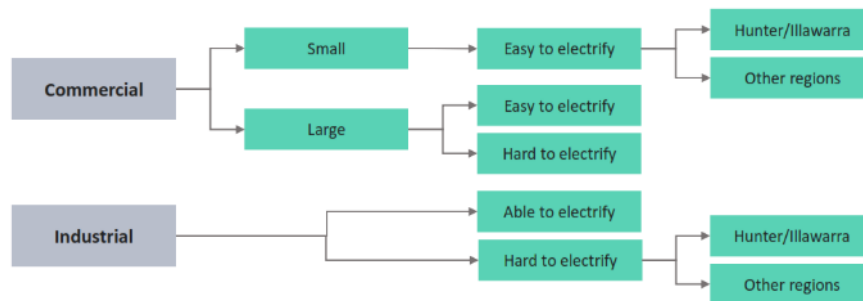
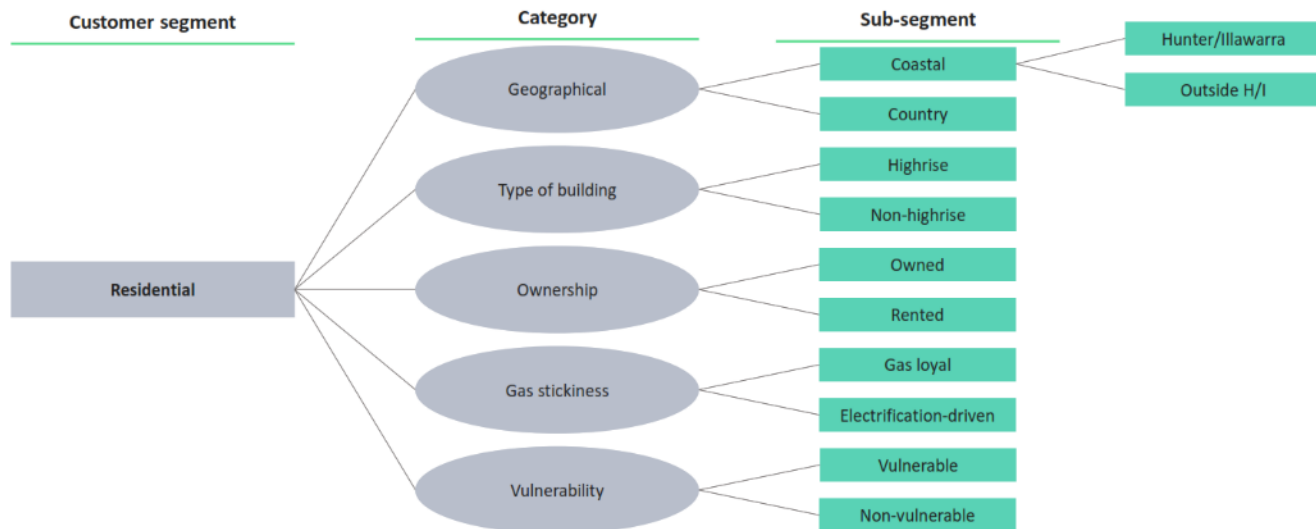


Segment customers based on the drivers identified

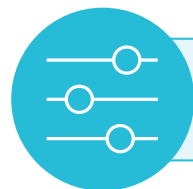
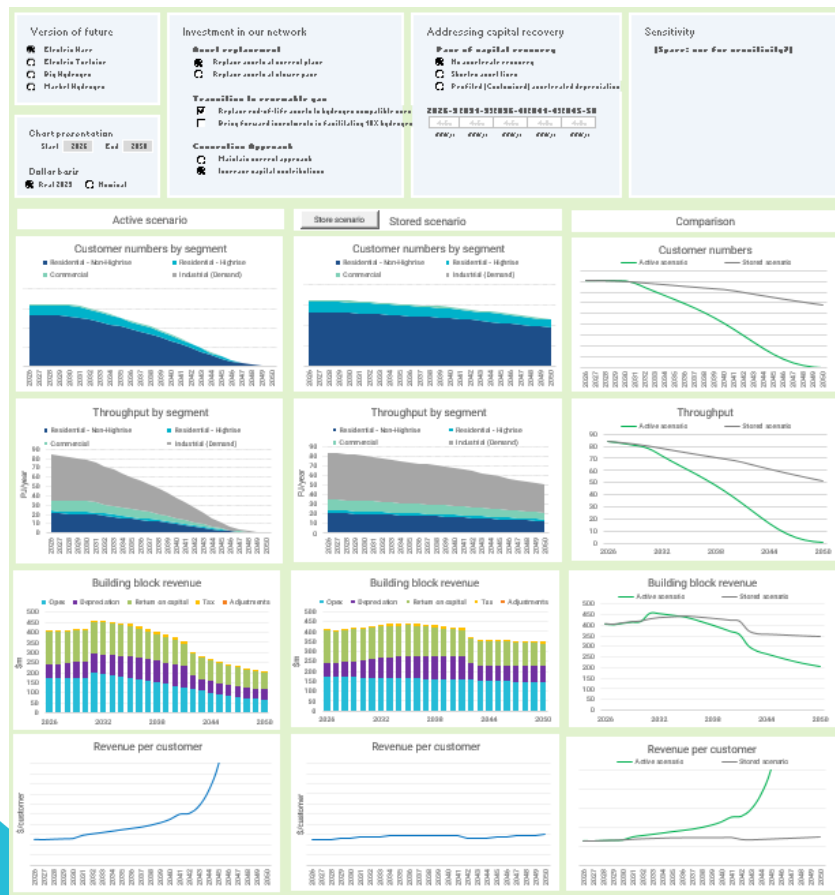


Forecast demand by customer segments according to:

- narratives in each Expert Panel scenario
- ability and willingness to electrify
- accessibility to renewable gas



Output | User interface



Flexibility to select and compare across options and scenarios



Charts to inform customer impacts and aid decision making

Is there anything else you would like to see on the dashboard?

Output | User interface - example user inputs

Choose future scenario

Version of future

- ☒ Electric Hare
- ☐ Electric Tortoise
- ☐ Big Hydrogen
- ☐ Market Hydrogen

Chart presentation

Start End

Dollar basis

- ☒ Real 2023
- ☐ Nominal

Choose 2025-30 response options

Investment in our network

Asset replacement

- ☒ Replace assets at current place
- ☐ Replace assets at slower pace

Transition to renewable gas

- ☒ Replace end-of-life assets to hydrogen compatible ones
- ☐ Bring forward investments in facilitating 10% hydrogen

Connection Approach

- ☐ Maintain current approach
- ☒ Increase capital contributions

Addressing capital recovery

Pace of capital recovery

- ☒ No accelerate recovery
- ☐ Shorten asset lives
- ☐ Profiled (Customised) accelerated depreciation

2026-30	2031-35	2036-40	2041-45	2045-50
4.5%	4.5%	4.5%	4.0%	4.0%
\$OM pa	\$OM pa	\$OM pa	\$OM pa	\$OM pa

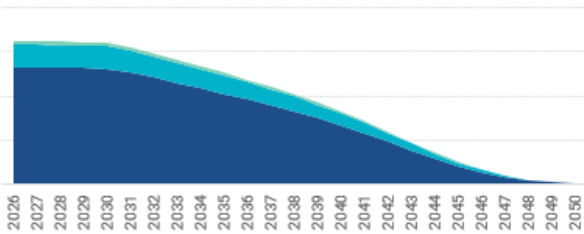
Output | User interface - example charts

Able to compare outcomes between different scenarios and response actions

Active scenario

Customer numbers by segment

■ Residential - Non-Highrise
■ Residential - Highrise
■ Commercial
■ Industrial (Demand)

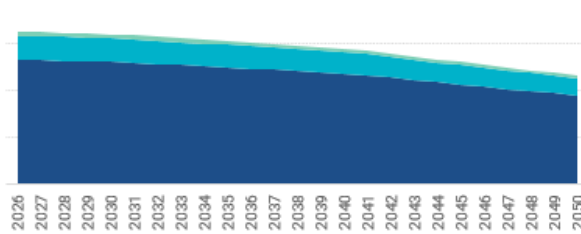


Store scenario

Stored scenario

Customer numbers by segment

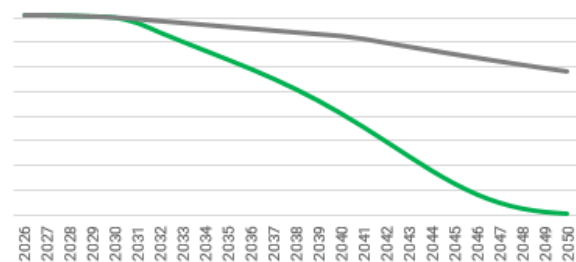
■ Residential - Non-Highrise
■ Residential - Highrise
■ Commercial
■ Industrial (Demand)



Comparison

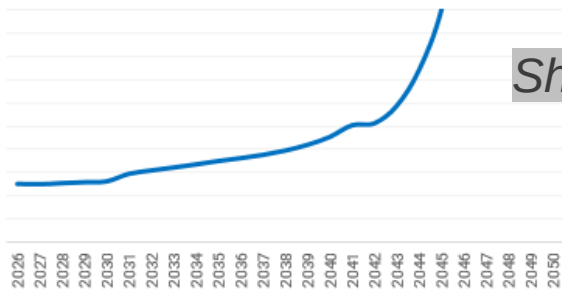
Customer numbers

— Active scenario
— Stored scenario



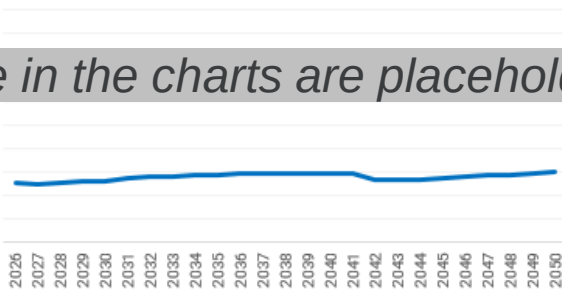
Revenue per customer

\$/customer



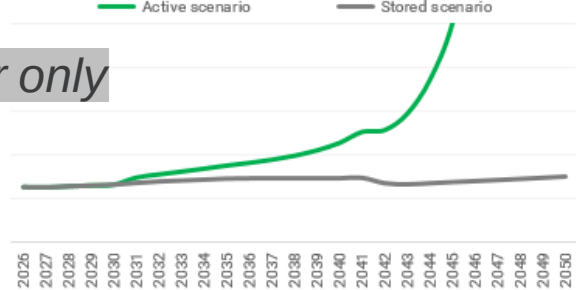
Revenue per customer

\$/customer



Revenue per customer

— Active scenario
— Stored scenario



Shape in the charts are placeholder only



Feedback on the draft agenda for session 7

Your insights from last session for the March workshop

"These are multifaceted options for a complicated challenge"

"Some options may warrant a joint gas network industry approach (e.g. rule changes) and others jurisdictional specific may be appropriate"

"Options are not mutually exclusive..."

"'Fairness' outcomes will be nuanced even within a given option..."

"Will need to consider customers being able to extract the full value from their gas appliance investments ..."

"Pricing, including locational, will be an overlay to all of these ..."

Other Advisory Board insights:

- How and when we act can send signals to the market that enhance or erode gas's future.
- Considering different customer segments will be important.
- Scenarios will be important as we need to act now even amid uncertainty.
- There are interdependencies and logical pairings.
- It's a complicated challenge.

We're taking your feedback into our planning for session 7 in March.

Draft high level agenda for session 7 morning

Topics we will cover

Section 1: Welcome & Introductions

Acknowledgement of Country, introduction and objectives for today

Section 2: Reflections from Session 6

Reflections from session 6, opt ins, and pre reading

Section 3: Agenda for Today

Build understanding of scenarios and the deliberative approach we'll take today

Section 4: Recap

Orientations and setting the scene

Morning Tea

Section 5: Exploration: Electric Tortoise

Consider which of the deep dive options are viable in 'Electric Tortoise' and how they perform

Section 6: Exploration: Electric Hare

Consider which of the deep dive options are viable in 'Electric Hare' and how they perform

Lunch

Duration

10 total

10

30 total

30

10 total

10

20 total

20

10 total

45 total

45

45 total

45

In order to...

- 01 Consider each Expert Panel scenario to examine what customer demand and gas service conditions arise in it, and how the available response options perform
- 02 Deliberate on what responses perform best across the range of scenarios and would be suitable to put forward to Jemena's Customer Forum for customer testing
- 03 Agree if there should be any packaging of options and any narratives to introduce what these packages have been shortlisted for customer testing

Draft high level agenda for session 7 afternoon

Topics we will cover

Duration

Lunch

Section 7: Exploration: Market Hydrogen

45 total

Consider which of the deep dive options are viable in Market Hydrogen' and how they perform

45

Section 7: Exploration: Big Hydrogen

45 total

Consider which of the deep dive options are viable in 'Electric Tortoise' and how they perform

45

Section 8: Consolidations: Deliberations – What to Engage On

75 total

Building a shared view of best performing responses and potential packaging for customer testing

75

Section 9: Session wrap up and close

15 total

Reflection on the session: what did we do well? What could we do even better? And overview of next steps with timelines

15

In order to...

- 01 Consider each Expert Panel scenario to examine what customer demand and gas service conditions arise in it, and how the available response options perform
- 02 Deliberate on what responses perform best across the range of scenarios and would be suitable to put forward to Jemena's Customer Forum for customer testing
- 03 Agree if there should be any packaging of options and any narratives to introduce what these packages have been shortlisted for customer testing



Session wrap up and close

Rosemary's playback

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.

E: GasNetworks2050@jemena.com.au