SA Power Networks Regulatory Proposal Engagement 2025-30

Focussed conversation – Energy Transition

Workshop 3 – 10 November 2022



Acknowledgement of Country

‘I would like to begin by acknowledging the multiple Traditional Owners of the lands on which we are joining from today, and those that host the South Australian electricity grid.

I would also like to pay my respects to Elders past and present and acknowledge that these are living cultures by paying respect to emerging leaders.’



Housekeeping

Diverse group of stakeholders, keen to hear all voices

Hybrid session

- Online: raise hand () or turn your camera on if want to speak
- Questions/ comments in chat function
- Mute if not talking
- Cameras on preferable (particularly when asking a question)
- Session will be recorded

Parking Bay

- Capture questions or ideas that we aren't able to cover during the session

Follow up

- Further opportunity before end November for those unable to attend today to vote and provide input

Stakeholder invitees

Workshop invitees

- Electricity & Water Ombudsman SA
- Department Energy & Mining
- Essential Services Commission South Australia
- Business SA
- Electric Vehicles Association
- SA Council of Social Services
- Uniting Communities
- Australian Electric Vehicle Association
- Australian Energy Regulator
- Consumers SA
- Service to Youth Council
- NRG Solar
- Central Irrigation Trust
- RAA
- Shine Hub
- 369 Labs
- Chargefox
- AGL
- Simply Energy
- SwitchDin
- Tesla
- Suntrix
- Intellihub
- The Energy Project
- Smart Energy
- Flow Power
- Yates Electrical
- SA Power Networks Community Advisory Board members
- Members of AER and AER’s Consumer Challenge Panel (CCP30)

SA Power Networks attendees

SA Power Networks staff presenting and listening:

In the room

- Mark Vincent – GM Strategy and Transformation
- Brendon Hampton – Head of Network Strategy
- Dan Popping – Head of Stakeholder Engagement
- Matthew Napolitano – Head of Network Planning
- Bryn Williams – Network Strategy Manager
- Liam Mallamo – Future Networks Engineer
- Amanda Hudson – Customer Consultation Lead

Online

- Steve Jolly – Head of Customer Solutions
- Bruno Coelho – Manager Regulatory Strategy
- Peter Chapman – Digital Technologies Manager
- Jordan Summers – Network Planning Engineer

Overview of the day

12.00pm	**Arrival, lunch (optional)**
12.30pm	**Welcome, introductions and background** • Recap – the reset process
12.45pm	**Refresh: Energy Transition topic**
1.00pm	**Enabling Clean Energy** • Recap – what we heard in Workshop 2 • DER integration expenditure & load flexibility – proposed options • Discuss and vote on preferred options
2.30pm	**Break**
2.45pm	**Electric Vehicles** • EV fleet transition • Discuss and vote on preferred options
4.15pm	**Wrap up & next steps**

Recap - Reset



The Price Reset process

As a monopoly service provider, our prices are approved by an independent regulator on a five-year cycle

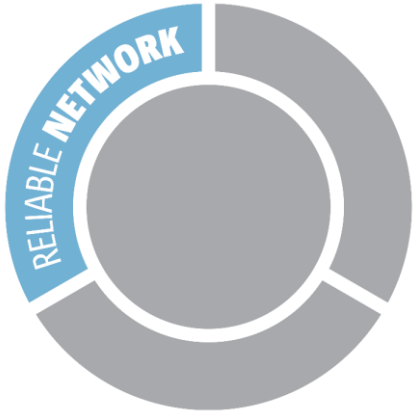
We are developing our **Regulatory Proposal** for the 2025-2030 period

In building our Regulatory Proposal we engage deeply with customers and the community



Our reset engagement is structured around four key themes

Today's session is the third of three workshops focused on:



A reliable, resilient and safe network



Customer experience, choice and empowerment



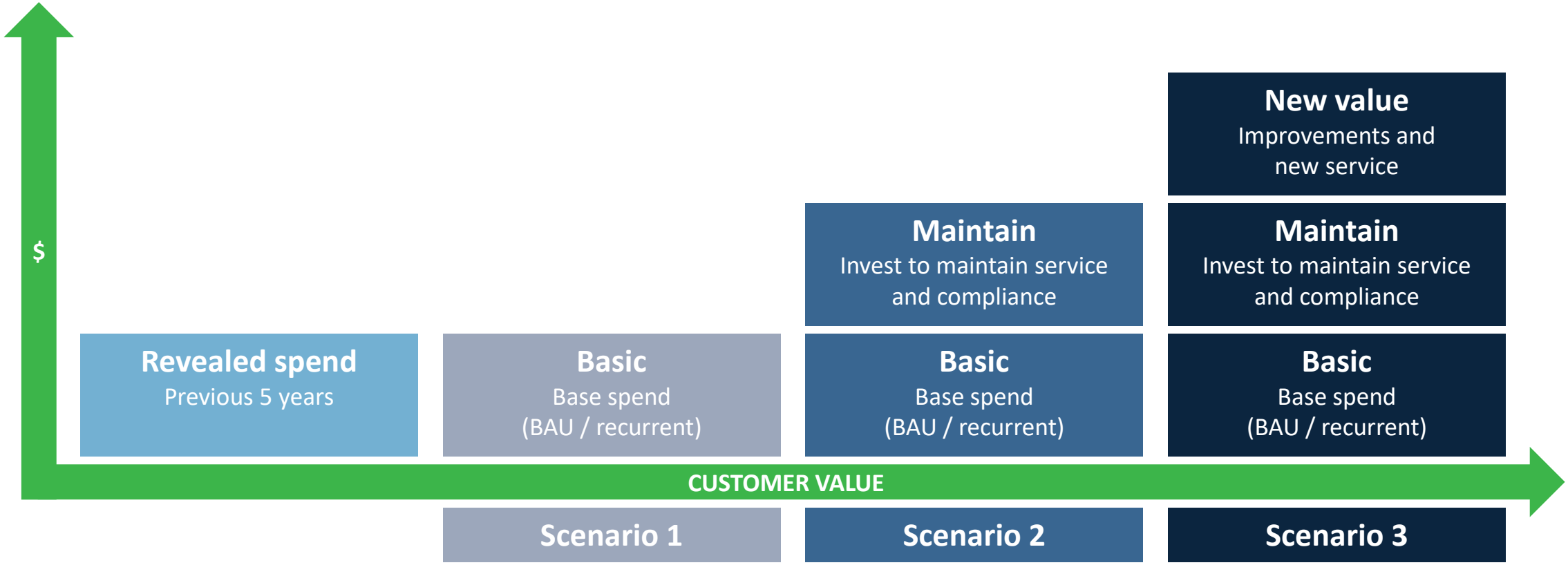
Affordable and equitable energy supply



Enabling clean energy and unlocking future value for our state

Forecasting service outcomes and expenditure for 2025-30

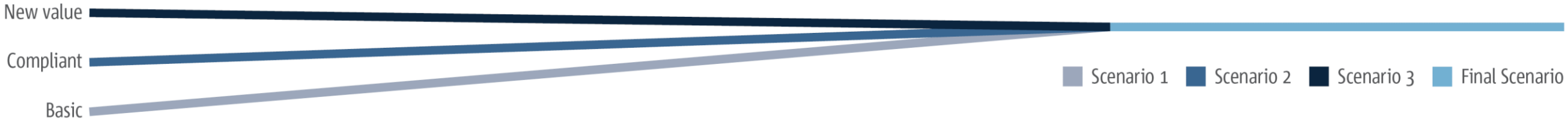
- **Evidence to customers** on likely service outcomes gained / lost under different spend paths
- Show what's needed to **maintain vs improve** customer outcomes
- Provide **transparency** on how we align expenditure to customer expectations
- **Note**: the 3 scenarios are not binding – we will explore if customers' preferences lay between the three scenarios



Forecasting service outcomes and expenditure for 2025-30

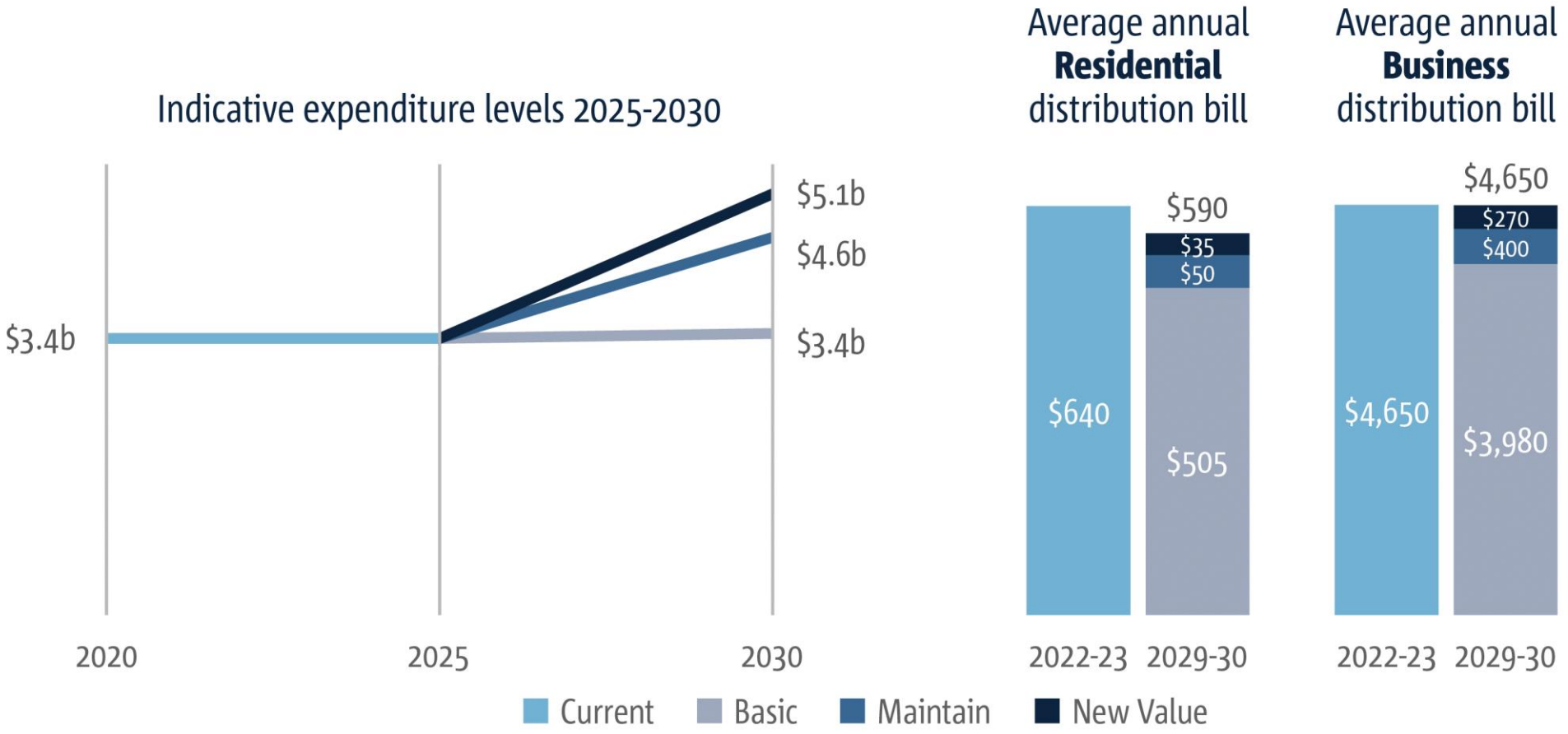
Iteration 1	Iteration 2	Iteration 3	Iteration 4	Iteration 5
End 2021	**August 2022**	**February 2023**	**June 2023**	**December 2023**
Preliminary ranges • Understand broad book-end ranges • Range of possibilities informed by business knowledge and high level consumer engagement to date	Input to focused conversations • More refined book-end ranges • Range of possibilities informed by business knowledge and feedback from 'broad and diverse' engagement	Outcomes from focused conversation and input to People's Panel • Narrowing of ranges by customers - ideally toward a preferred scenario	Outcomes from People's Panel and input to Draft Proposal • Identify preferred scenario for proposal	Outcomes from Draft Proposal and input to Regulatory Proposal • Identify preferred scenario for proposal

Provide transparency on the iterative process of how expenditure forecasts have been shaped by customers' expectations



Forecast total and annual average distribution bills ($2025) – iteration 2

The average residential bill will be lower in 2029-30 than 2022-23 under all scenarios.



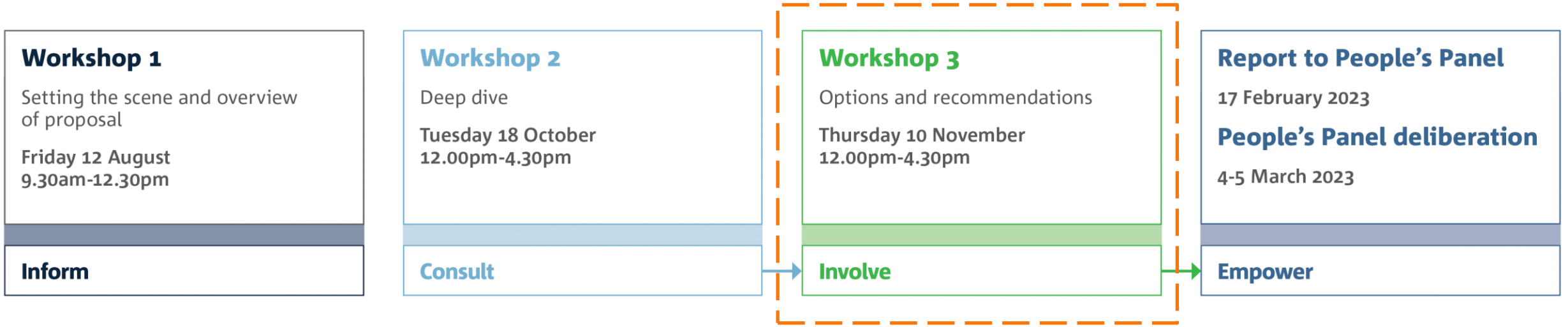
The numbers supplied are forecasts and will be updated due to stakeholder input and external market influences over time. Our final numbers will be provided in our 2025-30 Regulatory Proposal to be lodged with the AER in January 2024.

Today’s Focussed Conversation



Purpose: Today's Focussed Conversation

Today's Focussed Conversation is the third in a series of three workshops on our role in the Energy Transition:



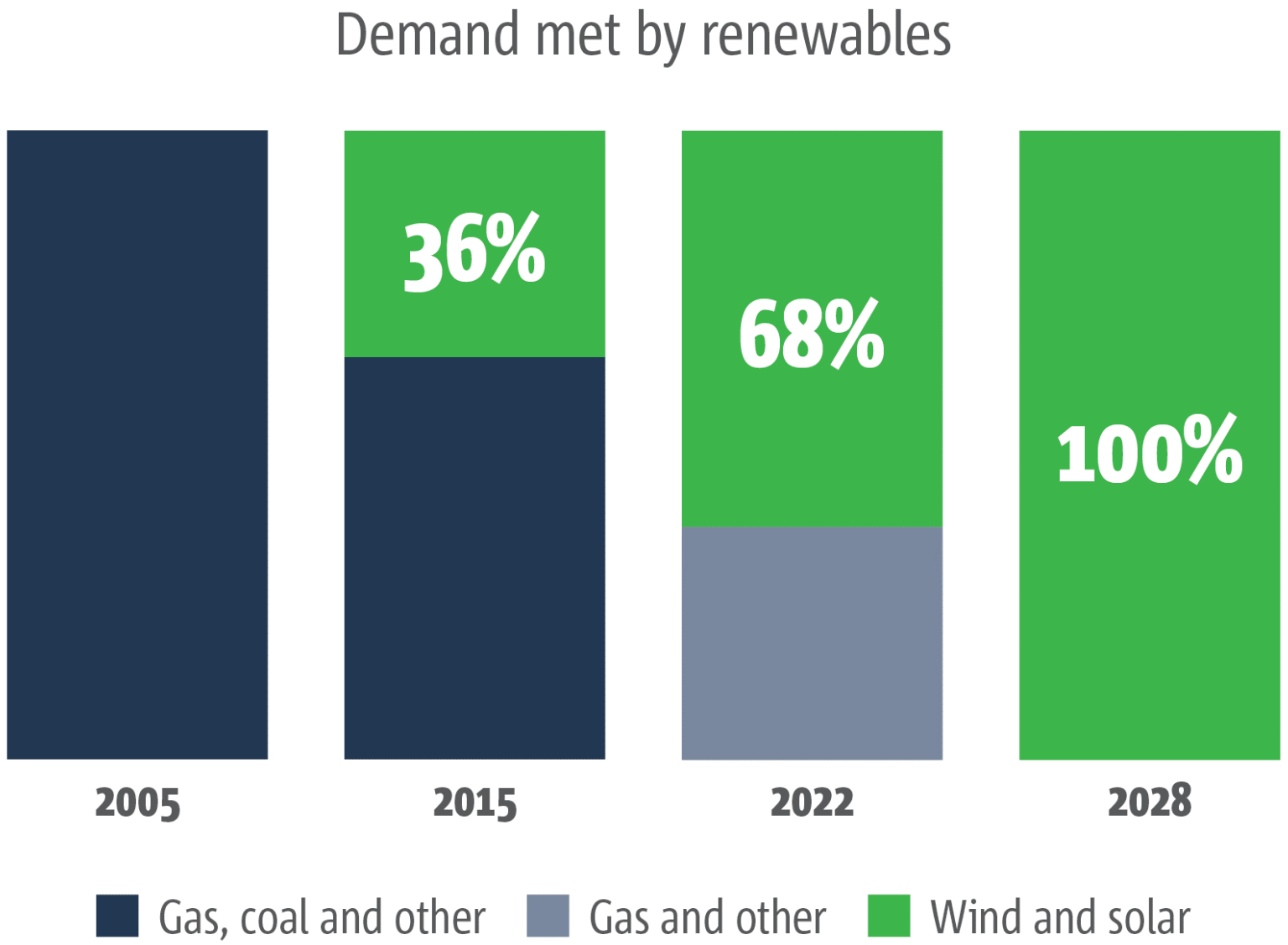
Outcomes of today's workshop:

- Recap the key topics we have been exploring through this series of Focussed Conversations
- Address some of the feedback and questions from Workshop #2
- Present more detail on the choices we are considering, with associated bill impacts
- Discuss and vote on which options this group will recommend to the People's Panel

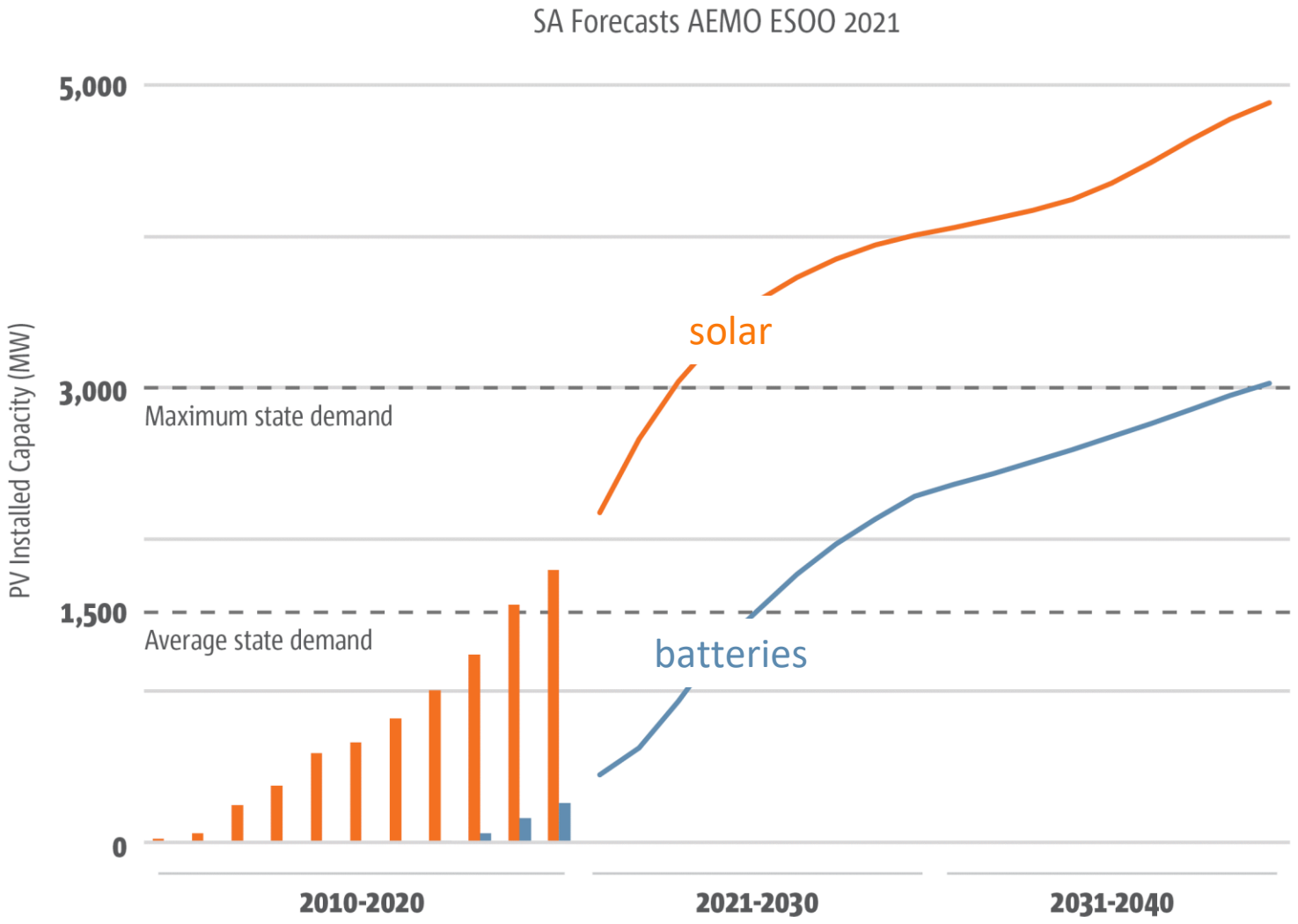
Recap: our role in South Australia's energy transition



South Australia is rapidly transitioning to renewable electricity



…which means the distribution network needs to work in reverse



~300,000 Rooftop solar systems

>1 in 3 customers, world's highest

State's largest generator

Net load on the entire distribution network fell below zero in 2021

Record growth continues

~30,000 Home batteries

9 Virtual Power Plants

operating in SA

Electric Vehicles (EVs) will be the next big thing



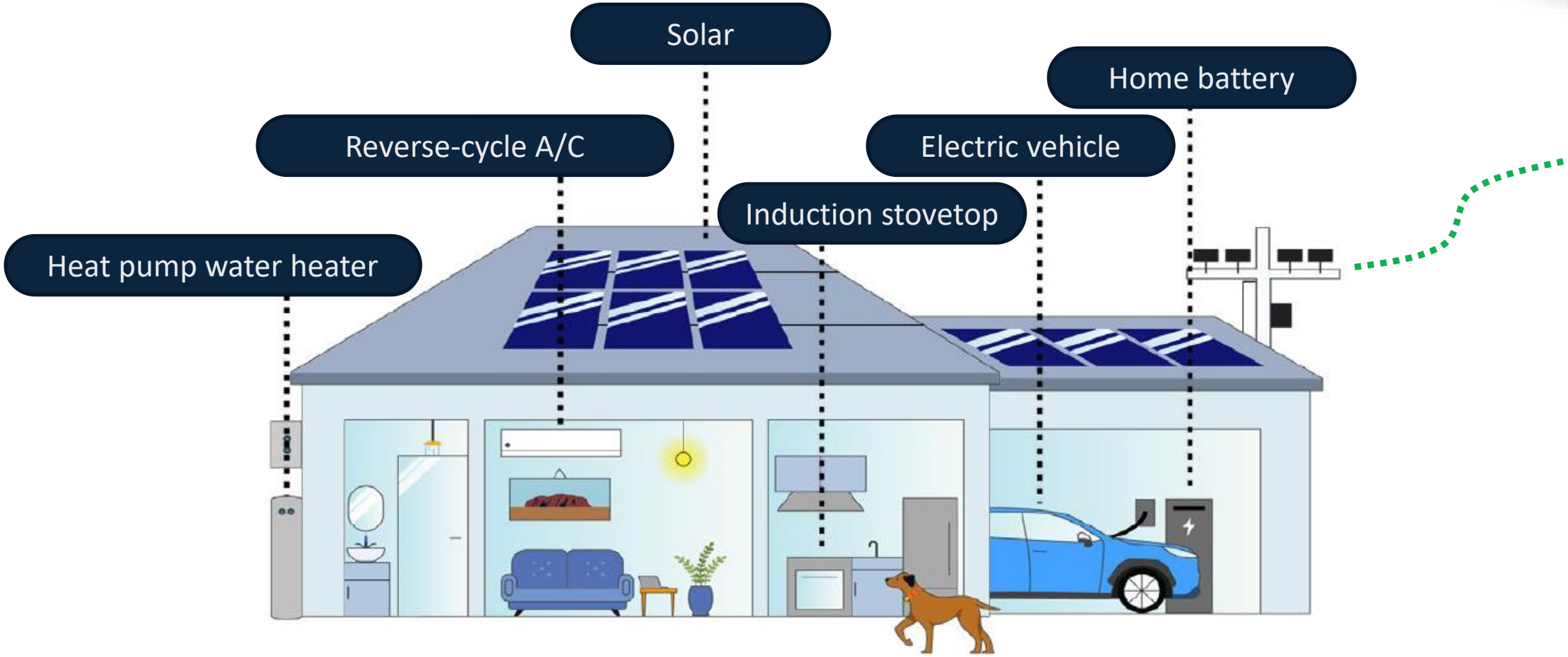
More than 20 countries and **many major automakers** have announced plans to **phase-out new internal combustion engine (ICE) cars** between 2025 and 2035

…and broader electrification is coming

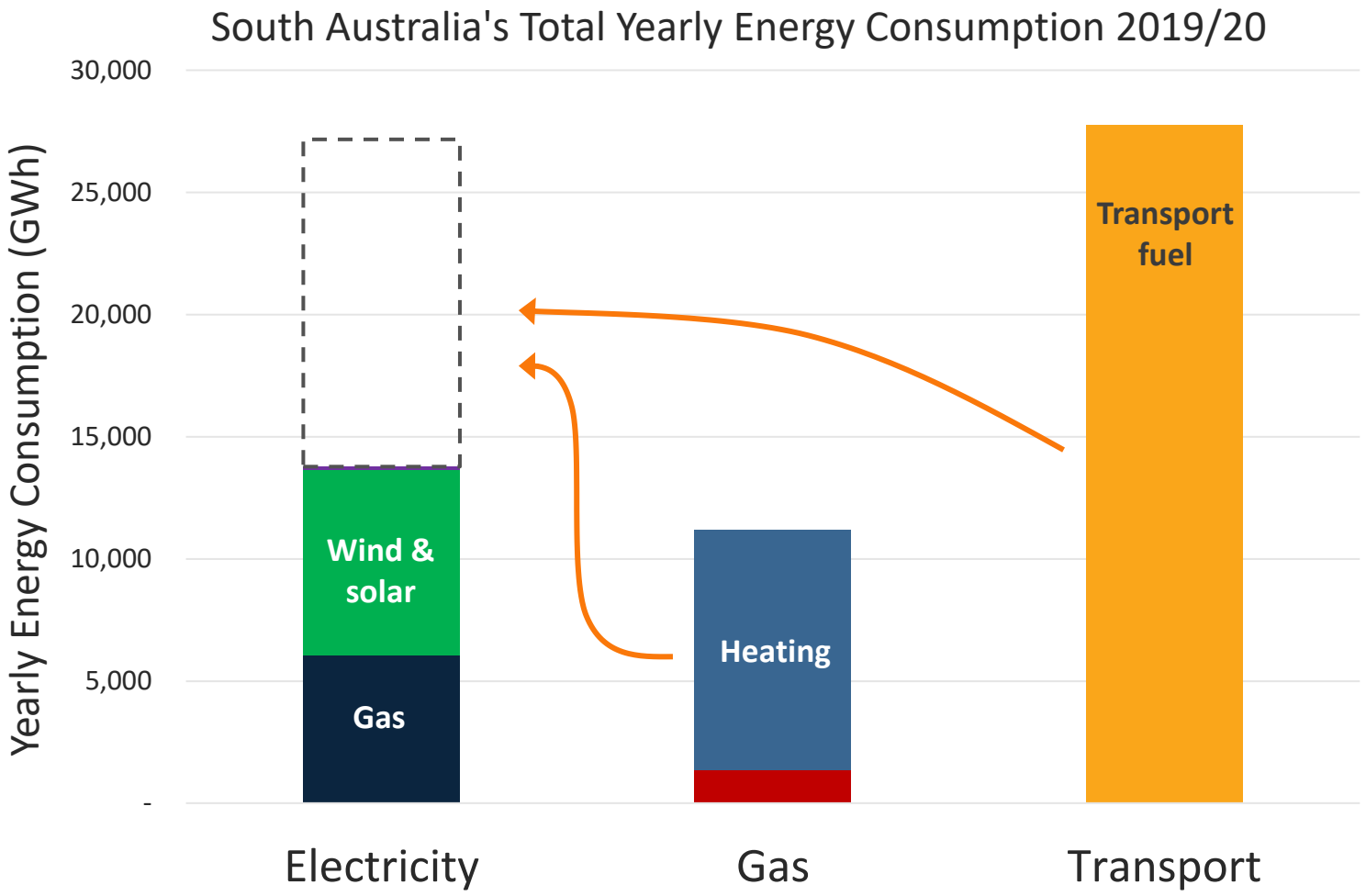
Electrification will be key to decarbonising the economy

For most applications, electricity also has significant advantages in **efficiency** and **cost**





… which means the network will have to carry much more energy in future



The electricity network currently delivers around **22%** of state end-use energy

As we decarbonise, the distribution network could ultimately supply more than 80% of the state's energy needs

Source: Australian Energy Statistics + SAPN

Energy Transition focussed conversation #3



Discussion topics for today



Enabling clean energy

- What are we planning to do to continue to support the uptake of rooftop solar and other customer energy resources?
- What level of service should we be aiming for?
- What might that cost, and what does it mean for tariffs?
- How can we help customers make the most of their flexible loads and other resources?

Transitioning our fleet to EVs

- How should we transition our own vehicle fleet to EVs?



Topic 1

Enabling clean energy





Recap: planning for DER integration in 2025-30

We want to make sure the network has enough **export capacity** to meet customer expectations

So, as we prepare our regulatory proposal, we need to

- Forecast how many solar PV systems, batteries, electric vehicles, etc, we will have on the system in 2025-30
- Work out how much we need to invest in upgrading the network (and supporting systems) to ensure we can continue to provide the level of service customers want and expect
- Determine how we recover the cost of that investment through tariffs in 2025-30, including export tariffs



Goals for today for this topic

Recall that we are considering two approaches to deciding how much we should spend on adding new export capacity in 2025-30:

In **scenario 2** the amount we invest is based on an estimate of the future 'market economic value' of the extra energy that could exported through the network

- Calculated using the AER's *Customer Export Curtailment Value* (CECV) and other measures
- i.e. we form a view as to what is the appropriate level of investment and customers receive the service level that produces

In **scenario 3** this decision is based on maintaining a minimum level of service for customers in the area, e.g.:

- *"We are targeting a service level* of **95%** for 95% of customers"
- Meaning: for 95% of customers, grid exports from solar systems will be reduced by no more than **140** hours per year (**5%** of daylight hours)
- i.e. we seek to invest to provide the service level that customers tell us they want and are willing to pay for



Goals for today for this topic

In this part of today's session we will:

- Recap our approach to forecasting the need for future DER investment
- Address some feedback and questions raised in Workshop 2
- Present several options in the level of investment we could make in export capacity, with estimates of:
  - The level of service each option would provide to exporting customers
  - The associated customer bill impact
- Seek your recommendation on the approach we should take forward in our proposal

We'll be asking you to vote on:

1. Should we base our proposal on **achieving an economic outcome** (scenario 2) or **maintaining a service level for customers** (scenario 3)
2. If your preference is scenario 3, what level of service should we be aiming for?

Note that none of the figures presented today are final – they are our best estimates at this point in time, but we continue to refine and improve our models

Some feedback from Focused Conversation #2

Questions:

- Has our forecasting considered:
    - The effects of customers shifting load, increasing their solar self-consumption as feed-in tariffs fall, and in response to time-of-use tariffs?
    - Different EV charging behaviours?
    - Early solar customers upgrading after 2028 when the premium feed-in tariff scheme ends?
    - Falling cost of batteries?
- What level of service do solar customers get today?

Observations:

- General support for aiming for a service level that customers want, but need to understand the bill impacts
- Solar customers are unlikely to tolerate being regularly curtailed
- Concern that a purely economic approach may miss key factors, e.g. carbon reduction benefits
- General desire to avoid significant inequity between service levels experienced by different customers
- Whatever we do, customer education and advice will be key, and we could do more in that regard

Managing export capacity requires a combination of approaches

1 **Promoting EV uptake**
and smart daytime charging





New tariffs and price signals 1
'Solar sponge' ToU tariff launched in 2020

1 **Shifting controlled load into the solar trough**
ToU tariffs and smart hot water trial





2 **Improving network voltage**
$10 million program upgrading 140 zone substations in 2020-21

2 **Targeted asset upgrades**
Infill transformers, transformer upgrades

1. Soak up daytime solar to reduce upstream load on the network

2. Increase total upstream capacity



3 **Flexible export limits**
$30 million program 2020-25 to activate smart inverters to operate dynamically within available capacity

3. Increase access to available upstream capacity

Export service levels post-2025

- With flexible exports we could continue to connect solar across the network through to 2030 and beyond without adding significant new upstream capacity

- If we do this, solar customers in congested areas will experience a progressive decline in the **level of service** they receive as more customers compete for access to the available network capacity

- This means in practice that their export limit will be reduce more often, and by more, as time goes on

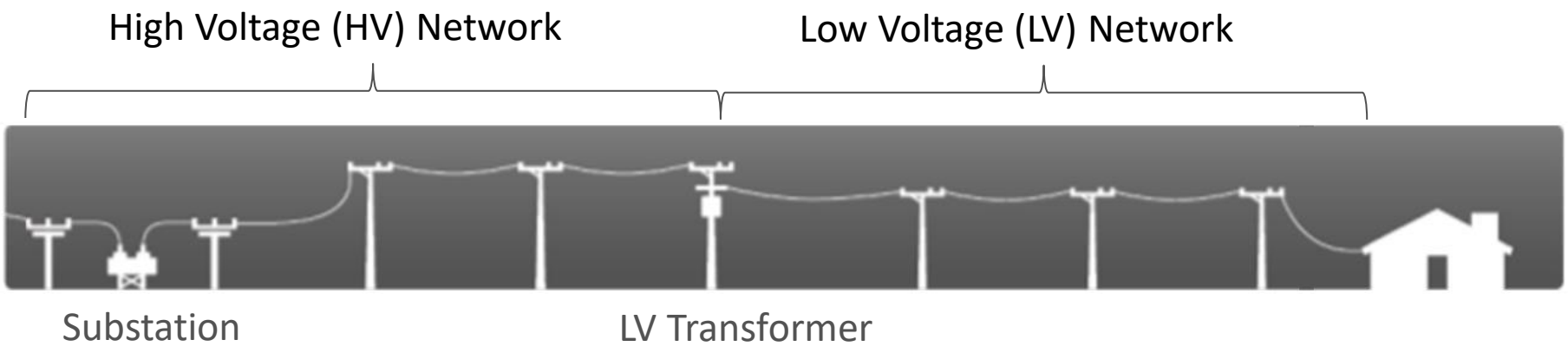
- We need to decide how much we need to invest to continue to deliver a service level that will meet our customers' needs and expectations



What kind of expenditure are we talking about?

A few specific upgrades will be required at this level

Most of our expenditure will be in upgrading this part of the network, e.g. replacing or upgrading transformers to fix emerging voltage issues or overloads

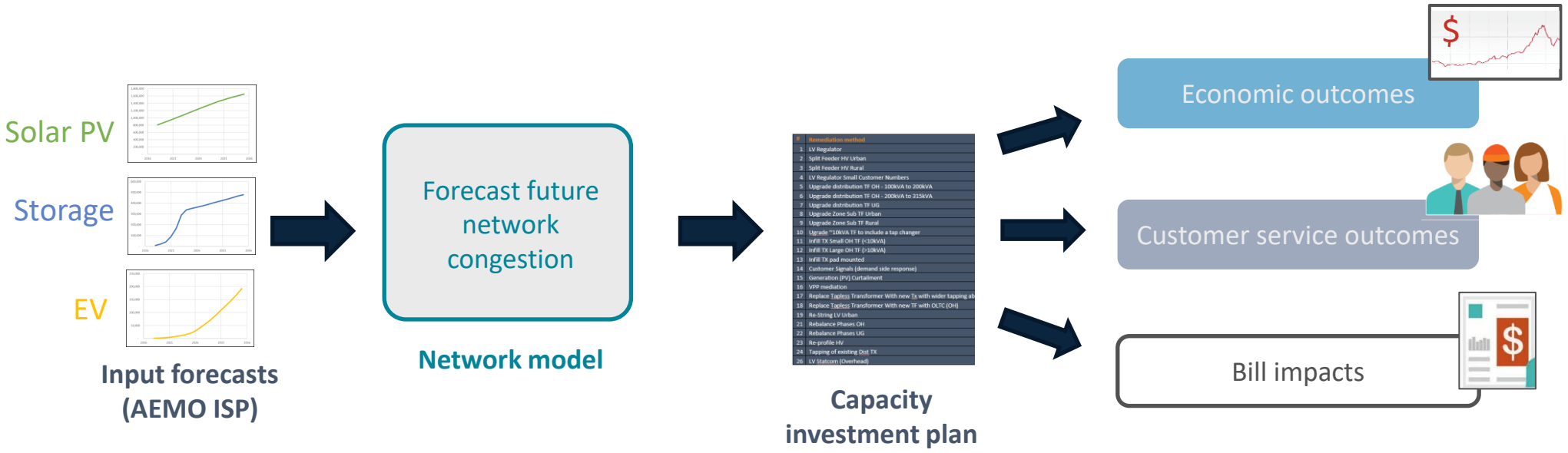


Some investment will be required to make substation voltage control smarter



As well as the physical network, we will need to spend money on supporting IT systems and staff

Recap: our approach to modelling future network expenditure



Recap: how we forecast future uptake of customer resources

- The AER directs us to use the state-level forecasts of future uptake of rooftop solar, batteries, EVs and other things published by the Australian Energy Market Operator (AEMO) in its *Integrated System Plan*

- We use AEMO's 'Step Change' scenario as our central case, and also test sensitivities above and below that

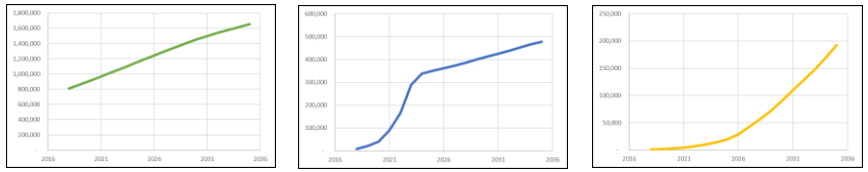
- We have engaged consultants to break AEMO's state-wide forecasts down to individual postcode level forecasts using demographic data from the ABS, historical uptake rates and other factors

- Once we have forecasts for each postcode, we can map these back up to specific assets in our network – e.g. we can predict how many customers connected to any particular transformer will have solar, batteries, EVs, etc in any given year

State-level

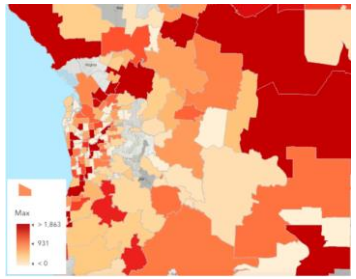


AEMO



Solar PV | Storage | EV

Postcode-level



Asset-level



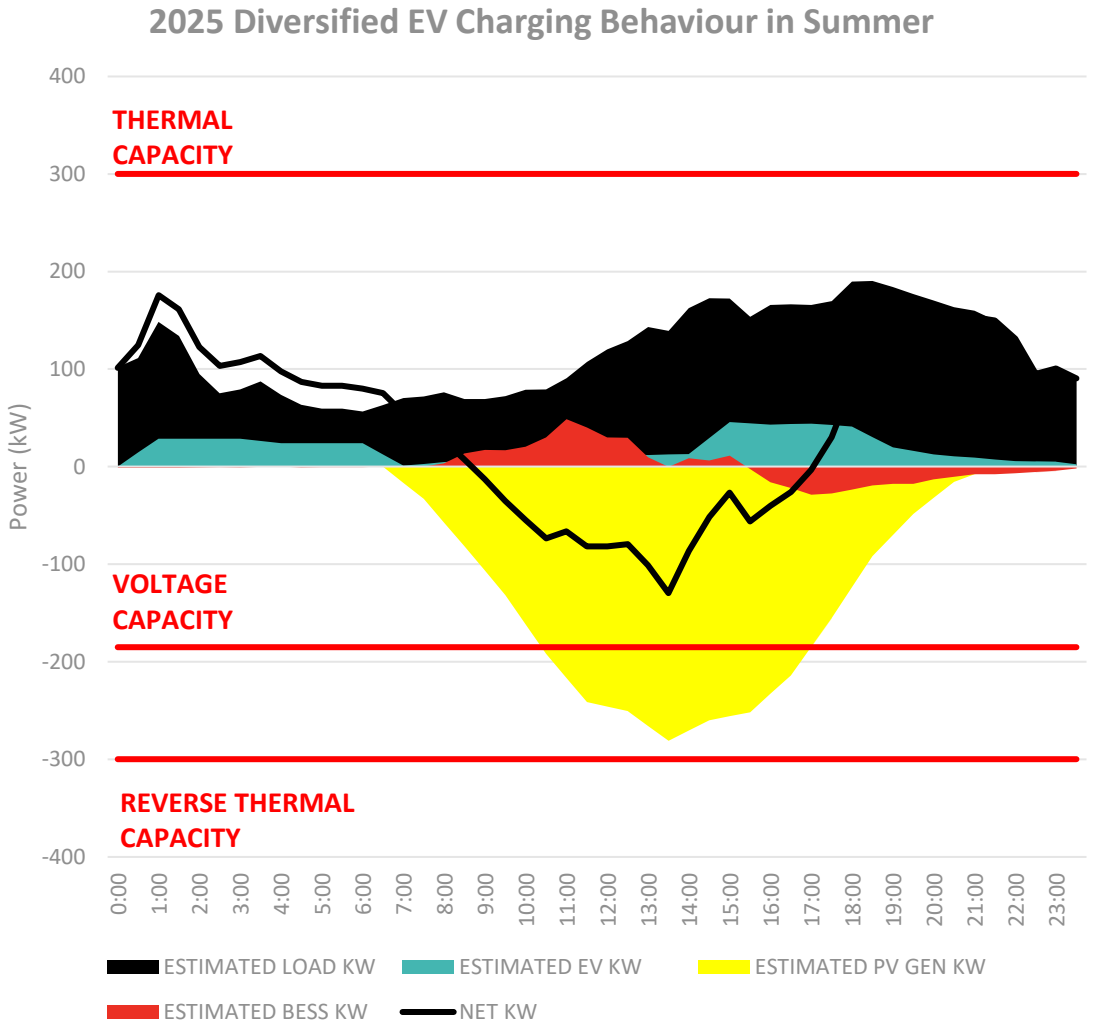
Recap: how we forecast impact on our network

- Once we have a forecast of how many customers connected to a transformer will have solar, batteries, EVs, etc, we can estimate the load on that transformer

- This varies throughout the day, and also seasonally
  - Solar output depends on time of year and how sunny it is
  - Air-conditioning load depends on temperature

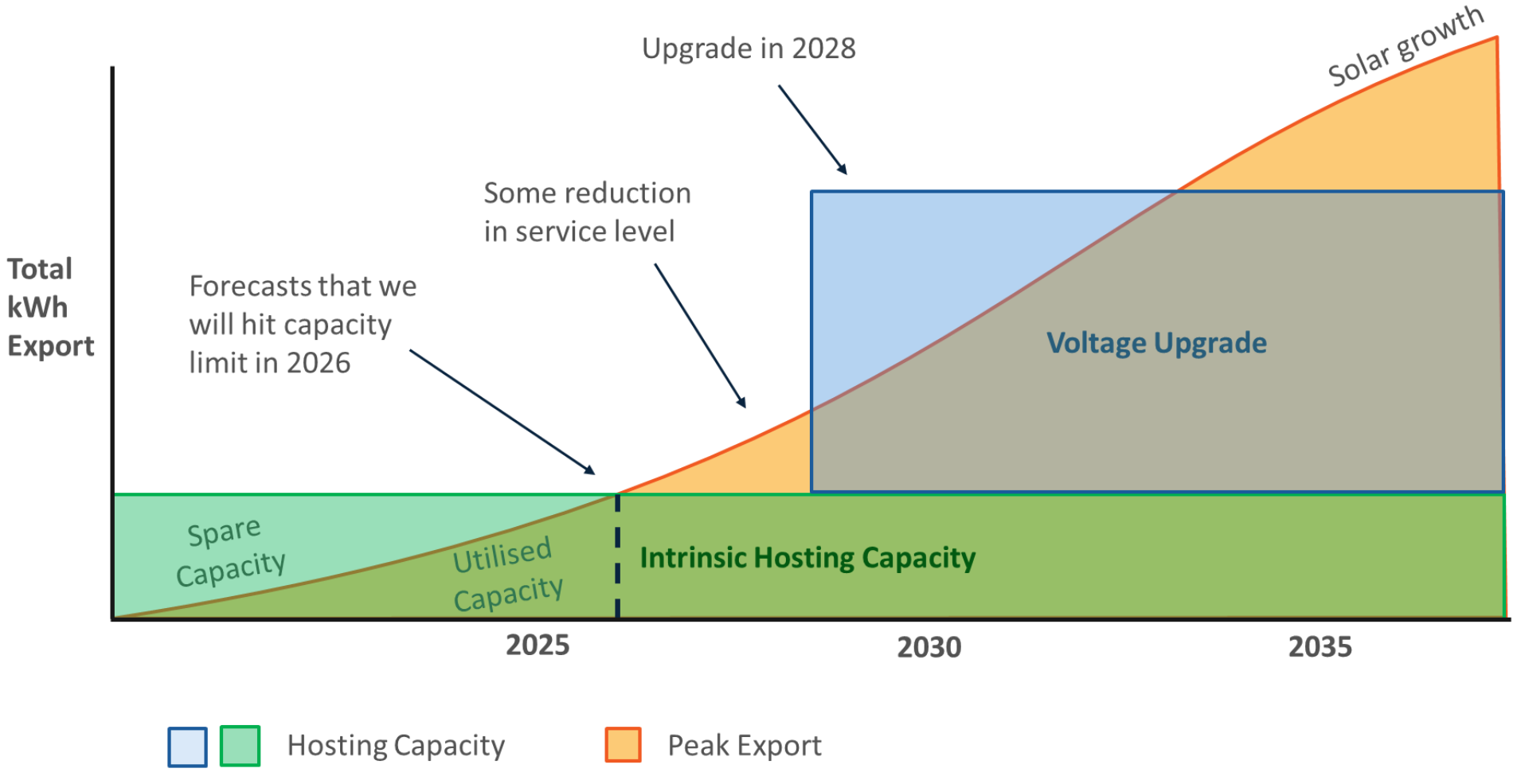
- We use a ‘reference year’ of real weather data to simulate a variety of conditions to determine whether the transformer reaches its limit

- This is also where we can take into account assumptions around load shifting, tariff response, etc.



Recap: how we determine what work needs to be done

When we forecast an asset is going to become overloaded in 2025-30, we decide whether we should undertake work to add more capacity or just rely on flexible exports to curtail customer solar output



Our DER enablement expenditure scenarios

Scenario 1: Minimal expenditure ('basic')

- Continue with current levels of investment, don't add new upstream capacity
- Manage congestion when it arises using flexible exports to curtail solar output from customer inverters
- Service levels will decline through 2025-30, to ~70%

Scenario 2: Target an economic outcome ('compliant')

- Some additional investment in new network capacity to relieve congestion and enable more energy to be exported
- We choose how much and where to invest to achieve an economic outcome based on the CECV and other measures
- Areas that are congested but higher cost to remediate will not be addressed
- Customer service levels improved on average over scenario 1, but considerable variability in service levels across the network (54% - 100%) depending on network type

Scenario 3: Target level of service ('new value')

- We aim to maintain a minimum level of service across the network
- Level of investment is based on our understanding of the level of service that customers want, expect and are willing to pay for
- Achieves more consistency in service levels than scenario 2, greater equity between customers
- We have initial estimates of the cost to maintain different levels of service

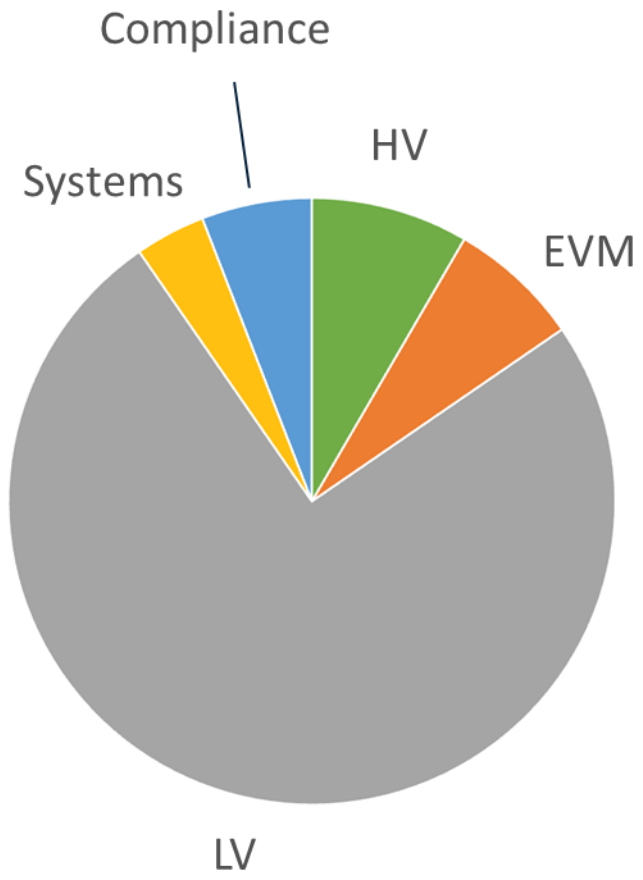
Our 2025-30 DER integration work program

We have considered a range of investment scenarios with different levels of expenditure and different customer service outcomes

Under all investment scenarios (other than scenario 1, ‘do nothing’), our 2025-30 work program will comprise the following elements:

- Enhanced Voltage Management Phase 2
- High voltage (HV) network export capacity upgrades
- Low voltage (LV) network export capacity upgrades
- Supporting systems and business functions
- CER technical compliance program

The level of expenditure on some of these varies according to the investment scenario



Example expenditure split for 95% Level-of-service

HV network export capacity upgrades

The following work is required under all scenarios* to manage voltage rise in the HV network in 2025-30:

- 66kV feeder exit regulators at Wudinna
- 33kV voltage regulators: Dalrymple, Kadina East, Balhannah, Baroota, Orroroo
- 33kV direct-connect transformer replacements (36)
- Upgrade to Snuggery zone substation

CAPEX of **$8.1 million**



*in this section ‘all scenarios’ means ‘other than scenario 1 (do nothing)’



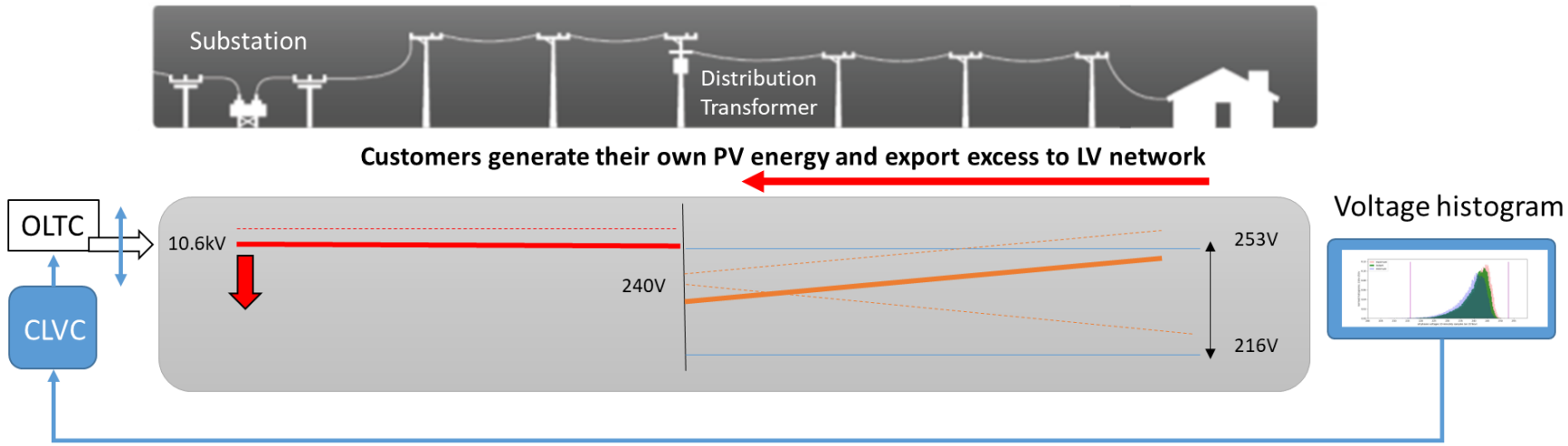
Enhanced Voltage Management (EVM) Phase 2

We propose to undertake our EVM Phase 2 program under all scenarios.

The majority of the work is common to all scenarios, but the scope of this program is slightly extended under scenarios that target higher service levels

- Install voltage control equipment at 109 substations
- Implement closed-loop voltage control in our Advanced Distribution Network Management System (ADMS) to dynamically adjust voltage using smart-meter data
- LV transformer re-tapping program to tap down ~540 LV transformers

CAPEX of **$4.3 million**



LV network export capacity upgrades

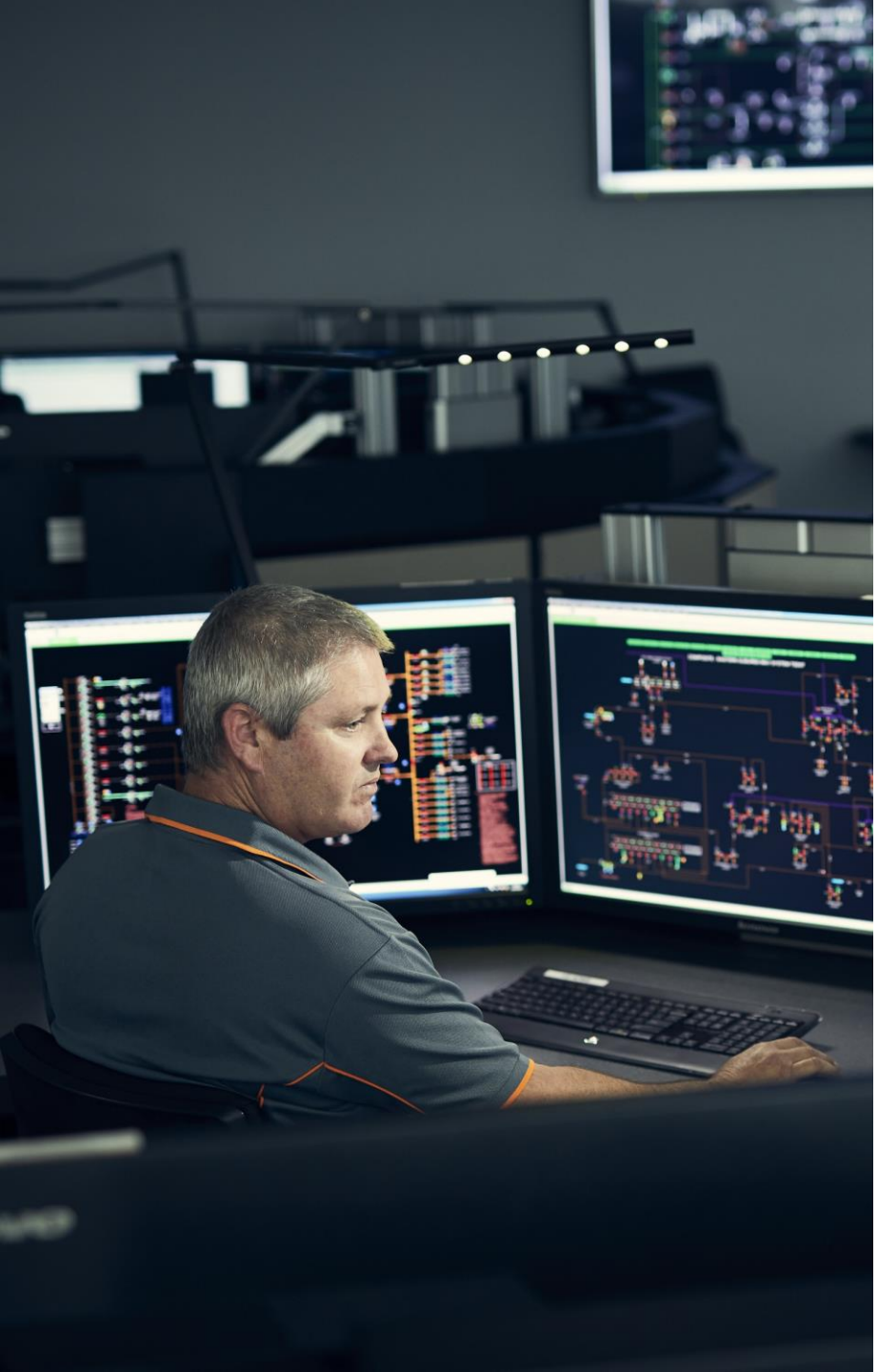
Low Voltage (LV) capacity upgrades make up the majority of our investment program, particularly for scenarios targeting higher service levels.

Depending on the level of service that we target, LV works would include:

- Install 70-80 voltage regulators
- Upgrade 500-1000 LV transformers (including replacement of old fixed-tap transformers)
- Install up to 35 infill transformers (add capacity by splitting LV areas)

CAPEX **$28-59 million**





Supporting systems and business functions

Supporting systems for export capacity enablement include:

- Flexible exports management system recurrent IT maintenance and scaling costs
- Operations centre staff – DER management systems and optimisation
- SCADA to substations with reverse flows but no visibility

CAPEX **$3.2 million**

OPEX **$2.5 – 5 million**

CER technical compliance program

Poor compliance to inverter technical standards and configuration settings is emerging as a significant issue nationally that is impacting on distribution network capacity for exports and system security

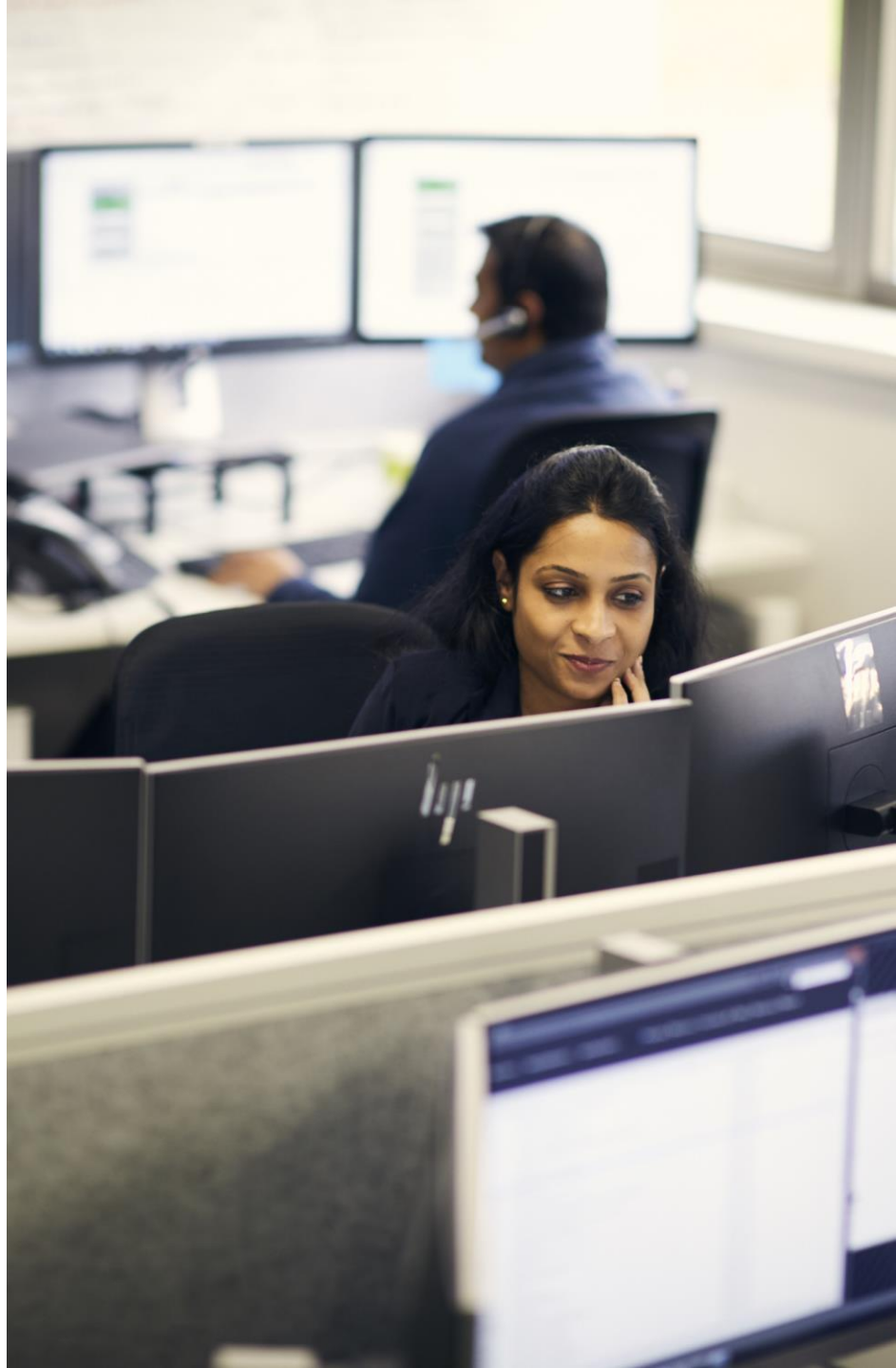
We have limited capacity today to detect non-compliance and address compliance issues

We propose to undertake a compliance program in 2025-30 including:

- Dedicated team of 3 x staff resources
- Liaison with solar industry, retailers, equipment manufacturers and peak bodies such as the Clean Energy Council to help improve levels of compliance in SA
- Develop training and other materials to help raise industry capability
- Establish automated systems to detect non-compliance through data analytics

CAPEX **$5 million**

OPEX **$3 million**

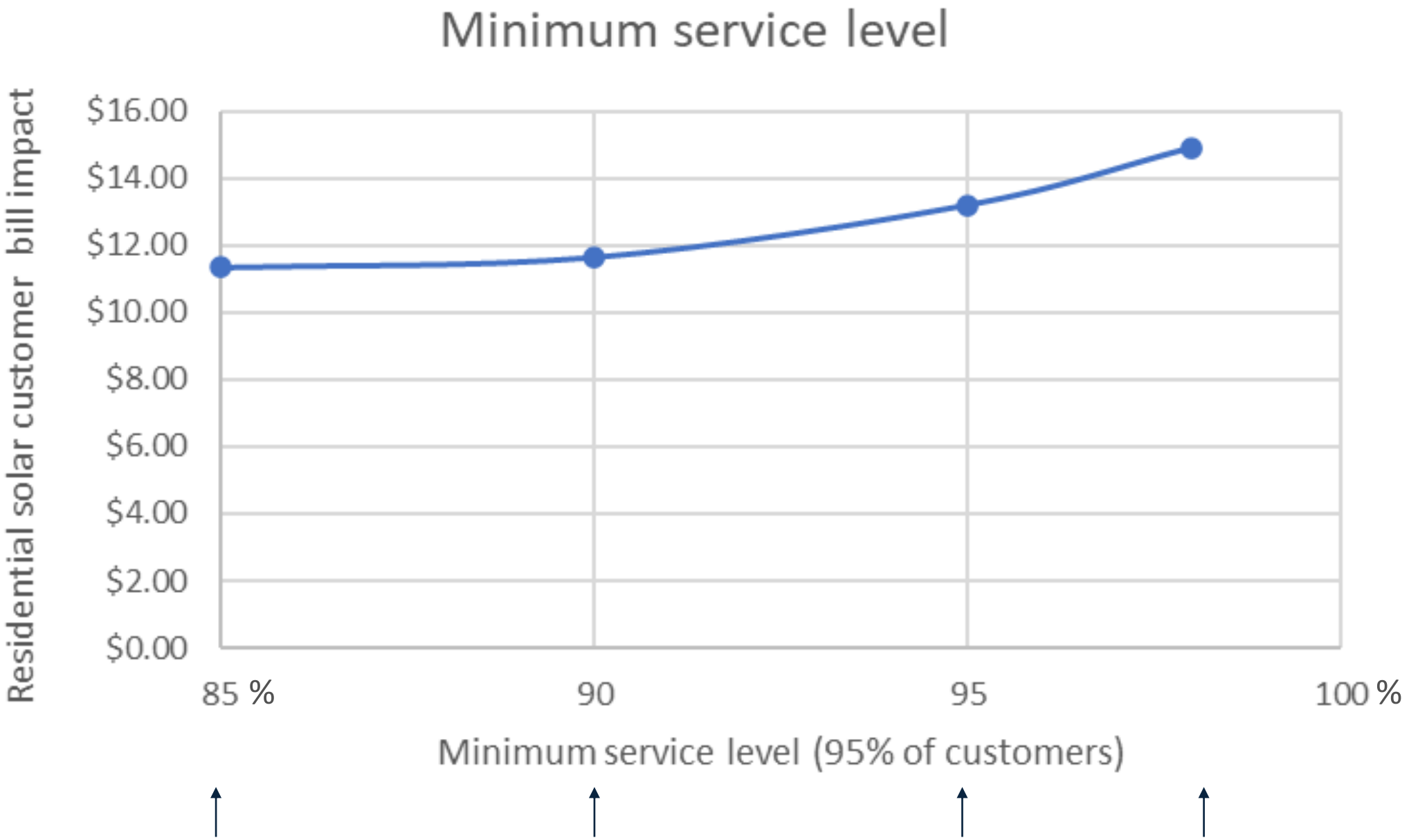


Enabling clean energy – options

Scenarios	Description	Outcome	Residential bill impact p.a.*	Business bill impact p.a.*
Scenario 1	Minimise investment, no additional export capacity, manage emerging network constraints by curtailing solar output using flexible exports	Increasing curtailment of exports over time	No bill impact	No bill impact
Scenario 2	Level of investment determined by market economic benefits, add capacity in locations where forecast market benefits exceed cost of upgrade	Average service level is improved but service level varies considerably across the network	$10.25	$38.60
Scenario 3	Invest to maintain a target service level	95% of customers receive the minimum service level		
3a		85% service level	$11.35	$42.80
3b		90% service level	$11.65	$43.90
3c		95% service level	$13.20	$49.80
3d		98% service level	$14.90	$56.15

*Estimated bill impacts are for export customers

*The numbers supplied are forecasts and will be updated due to stakeholder input and external market influences over time. Our final numbers will be provided in our 2025-30 Regulatory Proposal to be lodged with the AER in January 2024

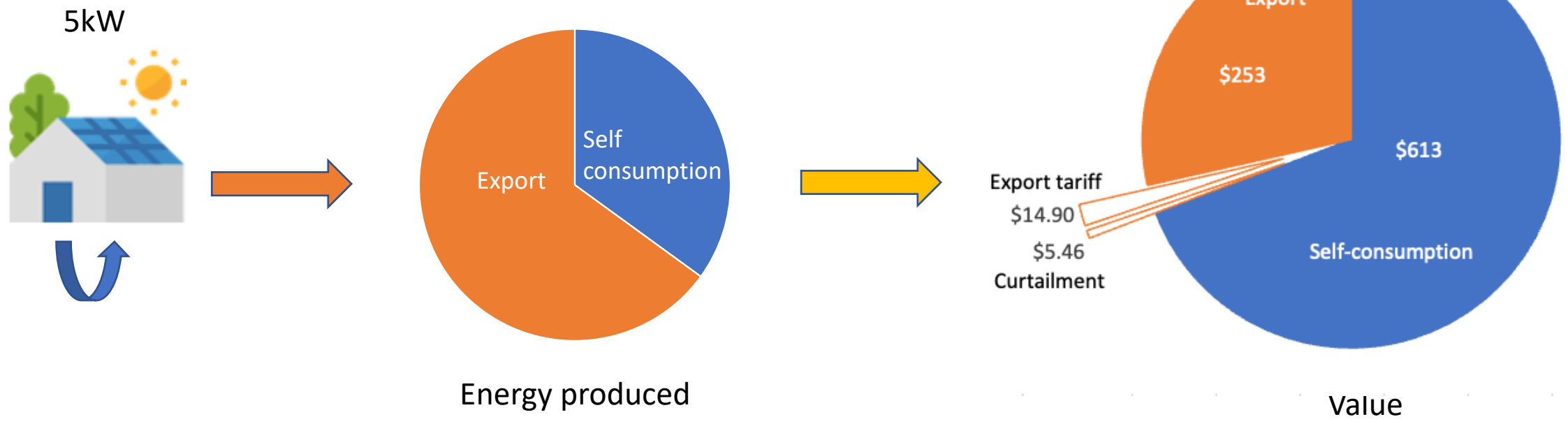

Minimum service level
Residential solar customer bill impact
$16.00
$14.00
$12.00
$10.00
$8.00
$6.00
$4.00
$2.00
$0.00
85 %
90
95
100 %
Minimum service level (95% of customers)
440 solar hours curtailed
290 solar hours
140 solar hours
60 solar hours

Customer impact of curtailment and export tariffs - example

Simple example for illustration only. Based on:

- 5kW solar customer, 35% self-consumption
- ToU tariff, 40c peak / 20c Solar Sponge, 6c FiT
- 2% curtailment (98% grade of service)

Note that final bill outcome will depend on tariff structure and rates – still TBC



Enabling clean energy – voting

Q1: When planning how much to invest in DER enablement, should we be guided by:

Our assessment of the economic benefits (scenario 2) ☐

Our understanding of the service levels customers expect and are willing to pay for (scenario 3) ☐

Q2: What is your preferred option of those presented?

Scenario 1 – Minimal investment (no impact) ☐

Scenario 2 – Target economic outcome ($10.25 / $38.60) ☐

Scenario 3a – Target 85% service level ($11.35 / $42.80) ☐

Scenario 3b – Target 90% service level ($11.65 / $43.90) ☐

Scenario 3c – Target 95% service level ($13.20 / $49.80) ☐

Scenario 3d – Target 98% service level ($14.90 / $56.15) ☐

Notes

Enabling clean energy – voting

Notes

Afternoon tea break



Enabling and incentivising load flexibility

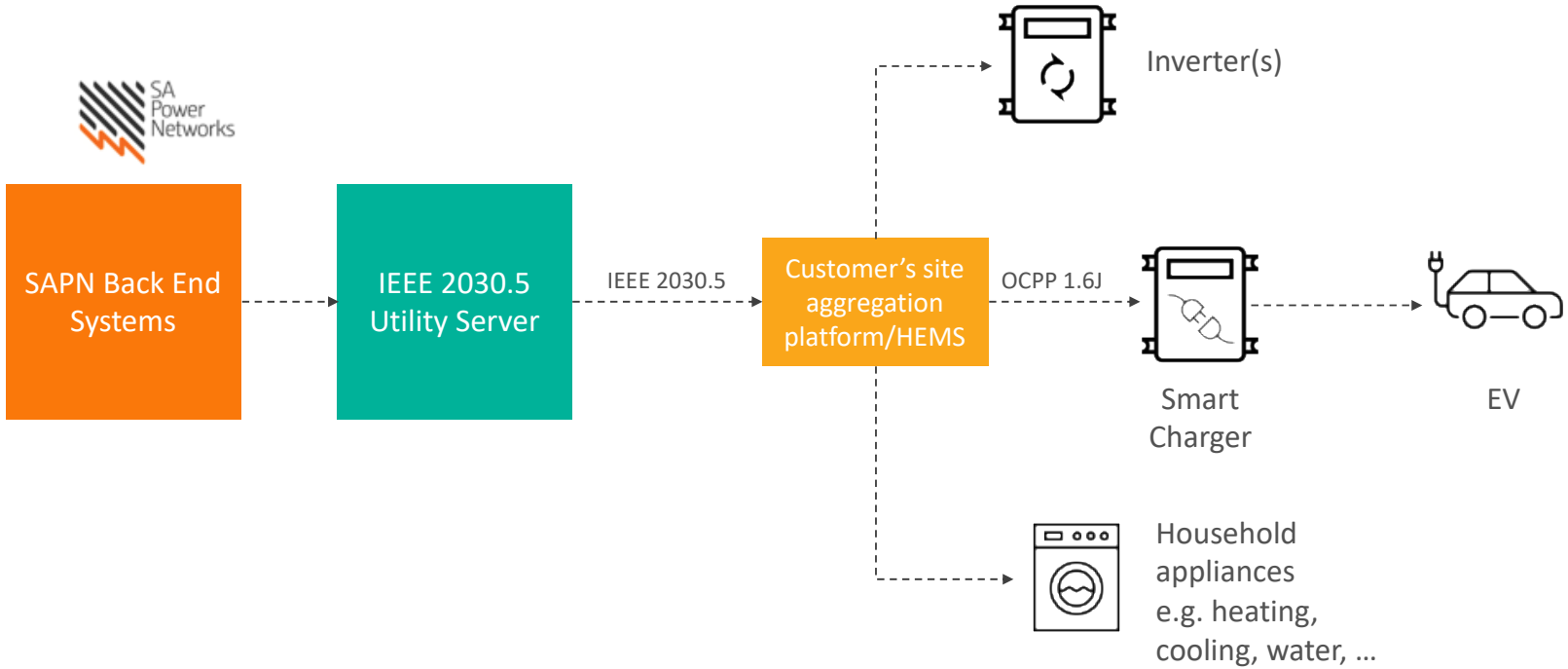
We have discussed a range of new services and capabilities we could put in place in 2025-30 to enable and encourage smart devices and load flexibility and provide rewards and incentives to customers, retailers and aggregators who can use their resources to support the network.



Enabling and incentivising load flexibility

We have discussed a range of new services and capabilities we could put in place in 2025-30 to enable and encourage smart devices and load flexibility and provide rewards and incentives to customers, retailers and aggregators who can use their resources to support the network.

- Customer rewards and incentives for smart EV chargers and other applicances that can respond to load limits (‘dynamic operating envelopes’)

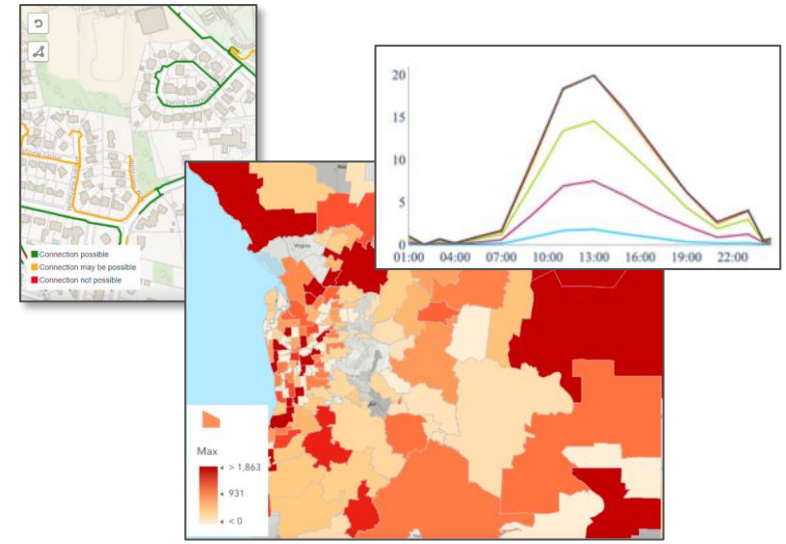




Enabling and incentivising load flexibility

We have discussed a range of new services and capabilities we could put in place in 2025-30 to enable and encourage smart devices and load flexibility and provide rewards and incentives to customers, retailers and aggregators who can use their resources to support the network.

- Publishing network data for retailers, VPPs and aggregators to enable them to optimise use of the network





Enabling and incentivising load flexibility

We have discussed a range of new services and capabilities we could put in place in 2025-30 to enable and encourage smart devices and load flexibility and provide rewards and incentives to customers, retailers and aggregators who can use their resources to support the network.

- A web platform for advertising opportunities and procuring network services, like in the UK



Department for Business, Energy & Industrial Strategy

UK Power Networks

SP ENERGY NETWORKS

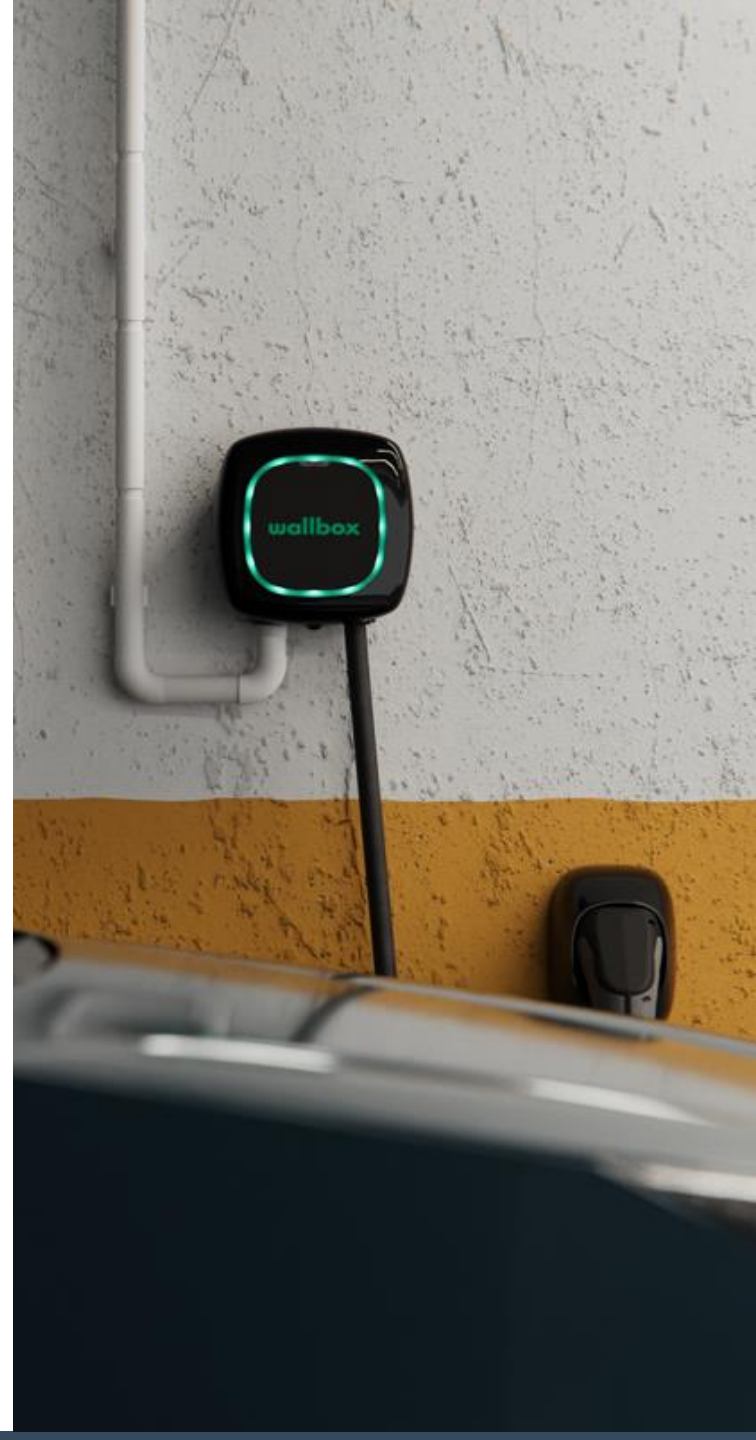
electricity north west

nationalgridESO

eso

LONDON July 4, 2019 10:00 AM

Piclo Announces Milestone Auction Result with UK Power Networks



Enabling and incentivising load flexibility - options considered

Scenarios	Description	Outcome	Residential bill impact p.a.*	Business bill impact p.a.*
Scenario 1	No new investment in systems, processes or staff to enable smart DER	No new services to customers or market participants	No bill impact	No bill impact
Scenario 2	Basic services • Dynamic operating envelope solution for smart EV chargers and other flexible loads • New connection options with incentives for smart appliances, similar to 'diversify' trial • Flexible load connection options for large commercial loads e.g. EV highway charging • Basic data publication services for market participants (network capacity)	New connection options and incentives enabling small and large customers with load flexibility and smart devices to save money.	$2.00	$15.50
Scenario 3	Advanced services. As scenario 2, plus: • Additional control centre staff for DER coordination • Advanced data publication services for market participants (real-time interfaces) • Trial UK-style flexibility services procurement platform for aggregators	Additional services to support aggregators, retailers and VPPs in optimising use of the network & developing innovative customer offers	$2.85	$22.20

*The numbers supplied are forecasts and will be updated due to stakeholder input and external market influences over time. Our final numbers will be provided in our 2025-30 Regulatory Proposal to be lodged with the AER in January 2024

Enabling and incentivising load flexibility – voting

Q: What is your preferred option of those presented?

Scenario 1 – No new investment (no impact) ☐

Scenario 2 – Basic services ($2.00 / $15.50) ☐

Scenario 3 – Advanced services ($2.85 / $22.20) ☐

Notes

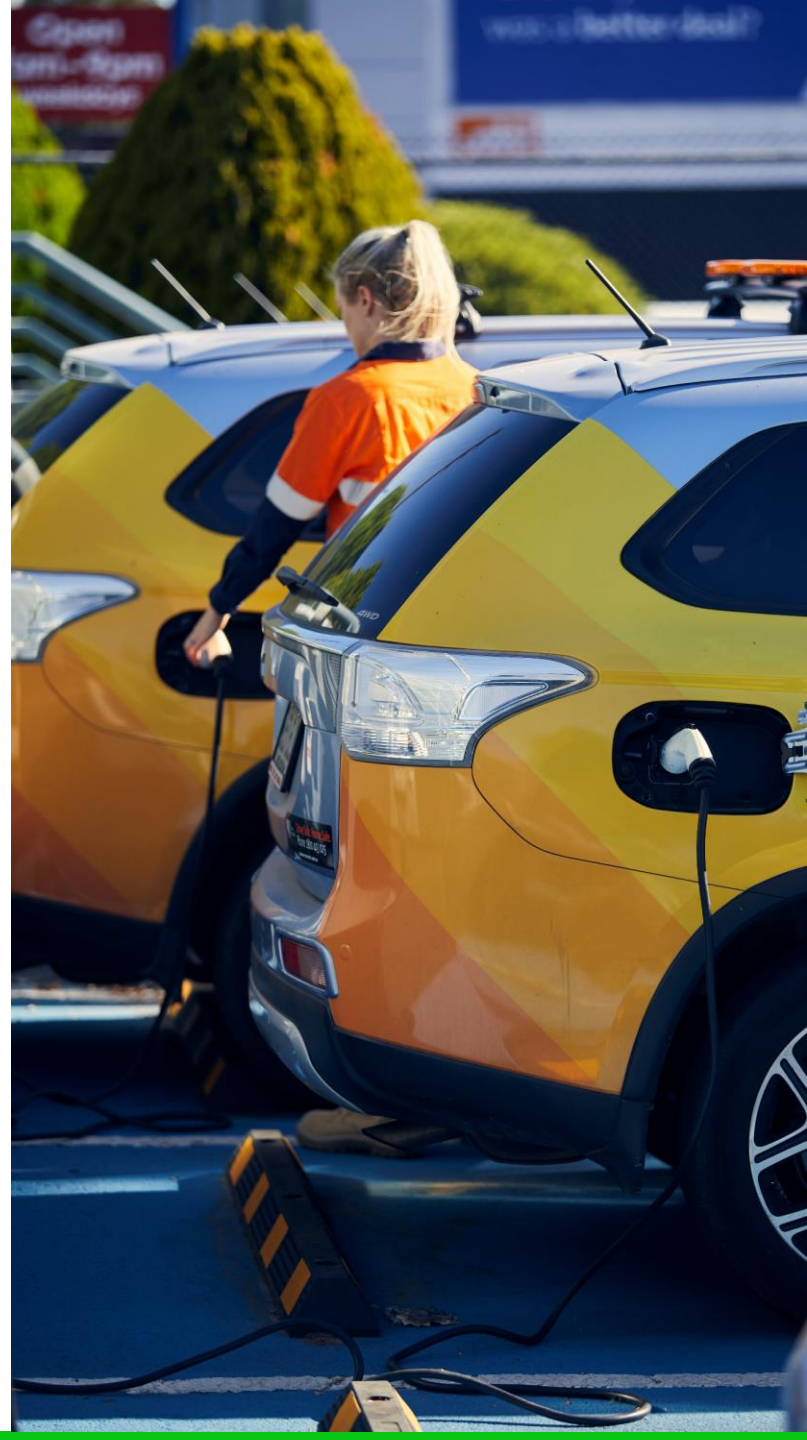
Enabling and incentivising load flexibility – voting

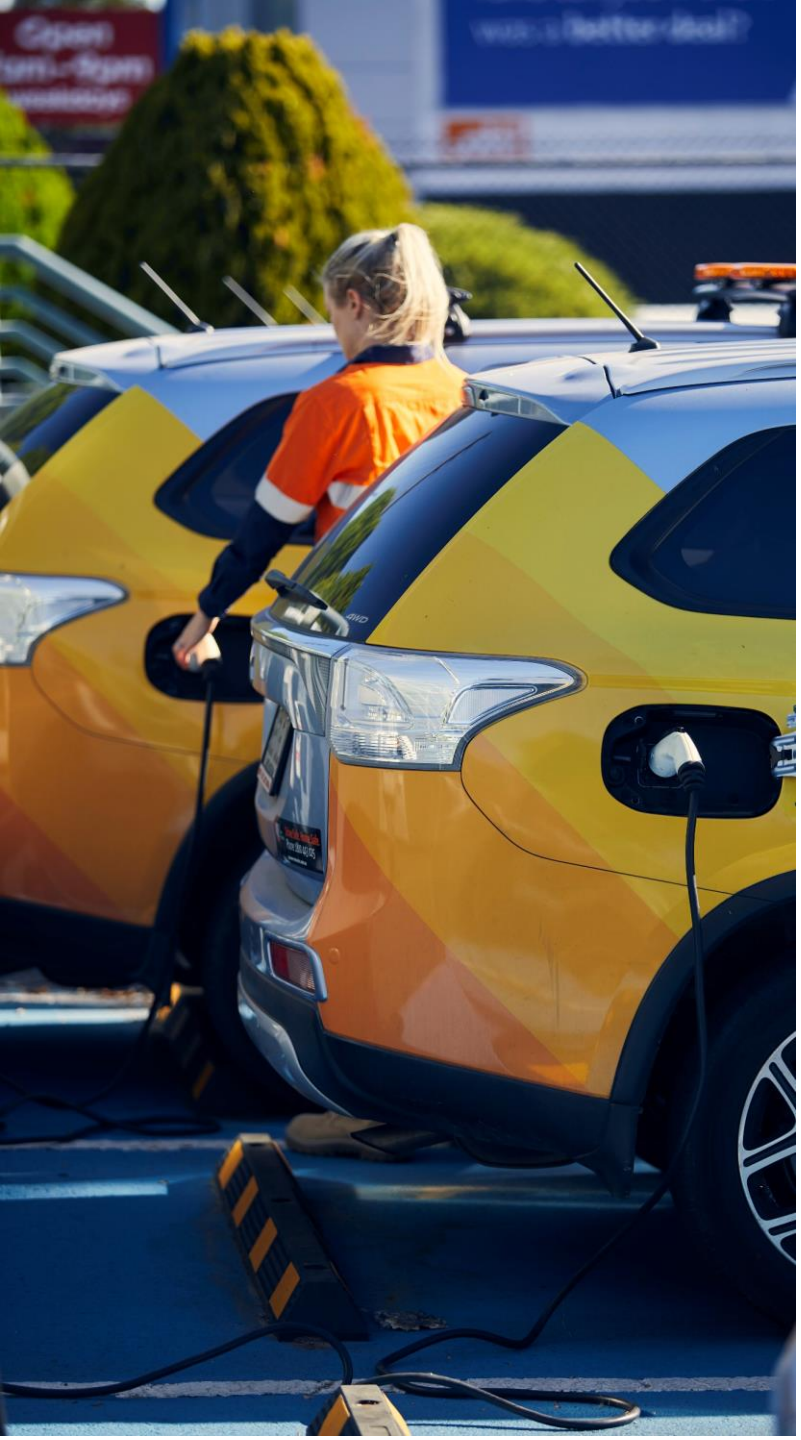
Notes



Topic 2

Transitioning our vehicle fleet to Electric Vehicles





Goals for today for this topic

In this part of today's session we will:

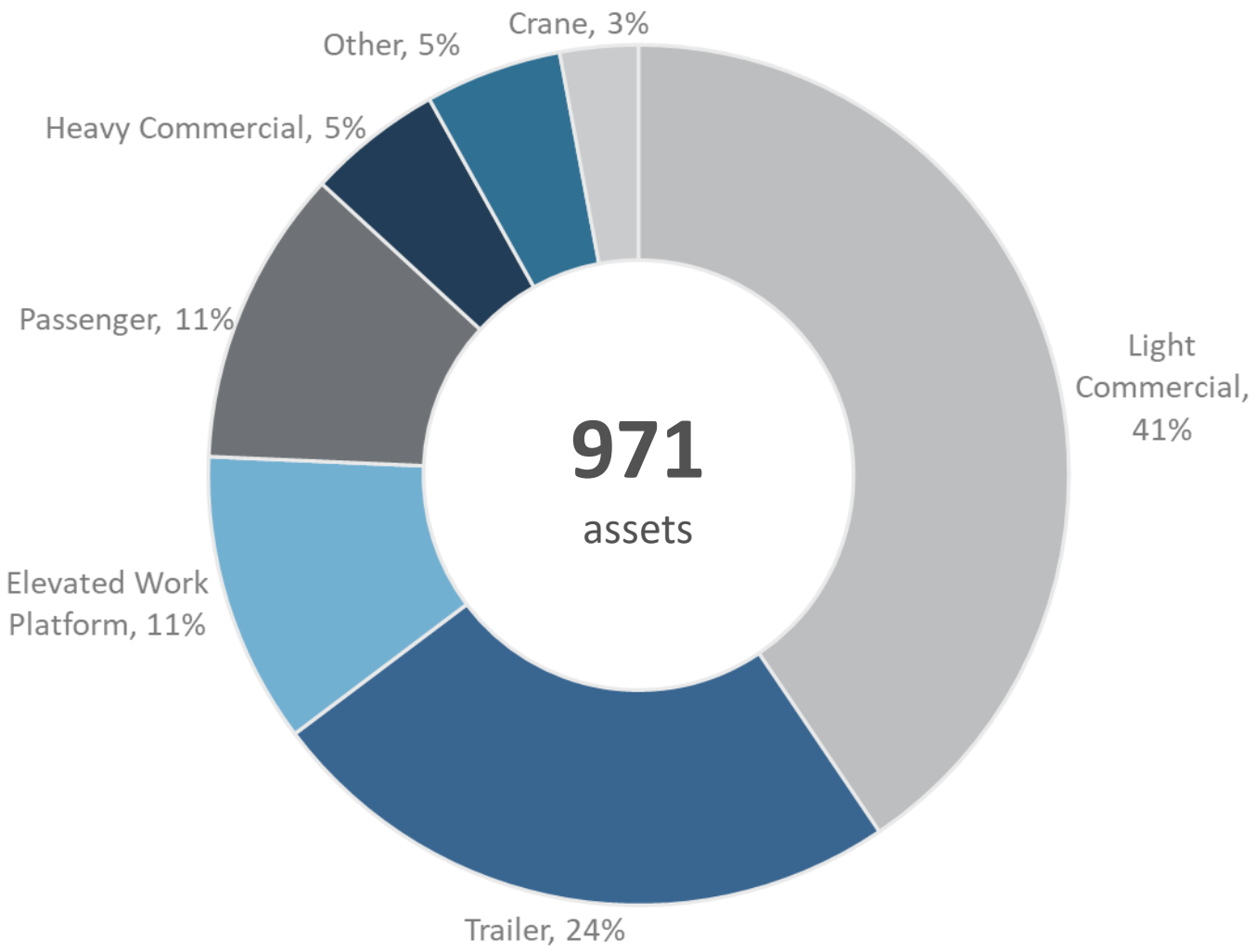
- Provide further details on our approach to planning for the transition of our own vehicle fleet to zero-emissions vehicles over time
- Address some feedback and questions raised in Workshop 2
- Present two options for how we could approach our fleet transition
- Seek your recommendation on the approach we should take forward in our proposal

We'll be asking you to vote on:

Should we aim for a **cost-optimised** transition (scenario 2) or should we aim to **accelerate our transition to EVs** (scenario 3)

Note that none of the figures presented today are final – they are our best estimates at this point in time, but we continue to refine and improve our models

SA Power Networks' fleet composition





Transitioning our vehicle fleet to EVs

We are founding signatories to the SA Government's **EV Fleet Pledge.** This commits us to seek opportunities to transition fleet vehicles to EVs as equivalent EVs become available at the same or lower cost.

We are modelling different approaches to transitioning our fleet vehicles to EVs over time.

EV transition scenarios are based on detailed modelling of each individual vehicle

- Vehicle type
- Annual km
- Daily driving patterns
- Operational requirements (payload, off-road requirements, etc)
- When it comes due for replacement vs. expected future availability of equivalent EV models



Transitioning our vehicle fleet to EVs

We are modelling three scenarios for transitioning vehicles to EVs:

Scenario 1 (baseline)

Business-as-usual

When a vehicle is due to be replaced, replace like-for-like with an equivalent petrol or diesel vehicle

Scenario 2

Cost-optimised

When a vehicle is due to be replaced, replace with an equivalent EV if:

(a) TCO is equal or lower and

(b) a fit-for-purpose equivalent EV is available (taking into account usage patterns, vehicle duty, annual km travelled, etc).

Scenario 3

Accelerated

In the last replacement cycle before 2032, always choose an EV if a fit-for-purpose equivalent EV is available even in cases where TCO is higher than the equivalent petrol or diesel vehicle

Some feedback from Focused Conversation #2

Questions and observations:

- General support for SA Government vision for the state to be at the forefront of the EV transition nationally
- General consensus that there are broader societal benefits to fleet operators like SA Power Networks electrifying their fleets, but need to understand the bill impacts
- How much does SA Power Networks spend on its fleet today – what kind of difference are we talking about?
- SA Power Networks' fleet is large and visible and electrifying would help raise awareness and promote EVs
- Mixed views on the extent to which SA Power Networks should be accelerating its transition beyond a customer cost-neutral approach
- Can we quantify the benefits customers would receive?
- Are we taking account of carbon reduction benefits? Can we quantify these?
- Have we considered opening up our charging infrastructure for public use? (noting we would not want to offer charging for free as this would distort the market)

Transitioning our vehicle fleet to EVs

2025-30 expenditure	Business-as-usual	Scenario 2 Total	Scenario 2 Delta*	%age	Scenario 3 Total	Scenario 3 Delta*	%age
Fleet CAPEX	$48.9m	$59.7m	**$10.8m**	+22%	$75.3m	**$26.3m**	+54%
Fleet OPEX	$61.1m	$56.3m	**($3.6m)**	-8%	$55.8m	**($4.0m)**	-9%
TOTAL	$110m	$116m	$7.2m	+6.5%	$131.1m	$22.3m	+20%

*includes charging infrastructure costs

Scenario 2 aims to be cost-neutral over the life of each vehicle, but involves a net $7.2 million increase in expenditure in the 2025-30 period due to some benefits accruing beyond 2030 (e.g. for vehicles purchased late in the period)

Scenario 3 accelerates the transition of our fleet and involves additional costs, but would result in added benefits:

- Greater reduction in CO2 emissions
- Help drive demand for manufacturers to bring new models to Australia
- Increase flow of affordable EVs to the second-hand market
- Promote greater awareness of EVs and help lead the transition more broadly
- Increased investment in the local market for EVs and charging infrastructure

Scenario 2 vs scenario 3 – heavy vehicle example

Scenario 2 - cost optimised

2025-30 regulatory period

ASSET#	SUB CLASS	MAKE	MODEL	ANNUAL DISTANCE (kms)	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
J02-001	Heavy truck - GVM 4,500 TO <8,000 KG	HINO	300 SERIES	8,868										
K40-000	Heavy truck - GVM 11,000 TO <16,000 KG	HINO	500 SERIES	12,216					ICE					
M69-004	Heavy truck - GVM 11,000 TO <16,000 KG	MAN	TGM	22,122		ICE								
H90-000	Heavy truck - GVM 11,000 TO <16,000 KG	HINO	500 SERIES	12,216								ICE		
M69-020	Heavy truck - GVM 11,000 TO <16,000 KG	MAN	TGM	30,078					BEV					
M69-005	Heavy truck - GVM 11,000 TO <16,000 KG	MAN	TGM	43,290		ICE								
J21-011	Heavy truck - GVM 11,000 TO <16,000 KG	HINO	500 SERIES	21,100							ICE			

While an equivalent EV is expected to be available by 2027, TCO remains higher than the equivalent ICE for lower-mileage vehicles and only one of these four is replaced with an EV in this scenario

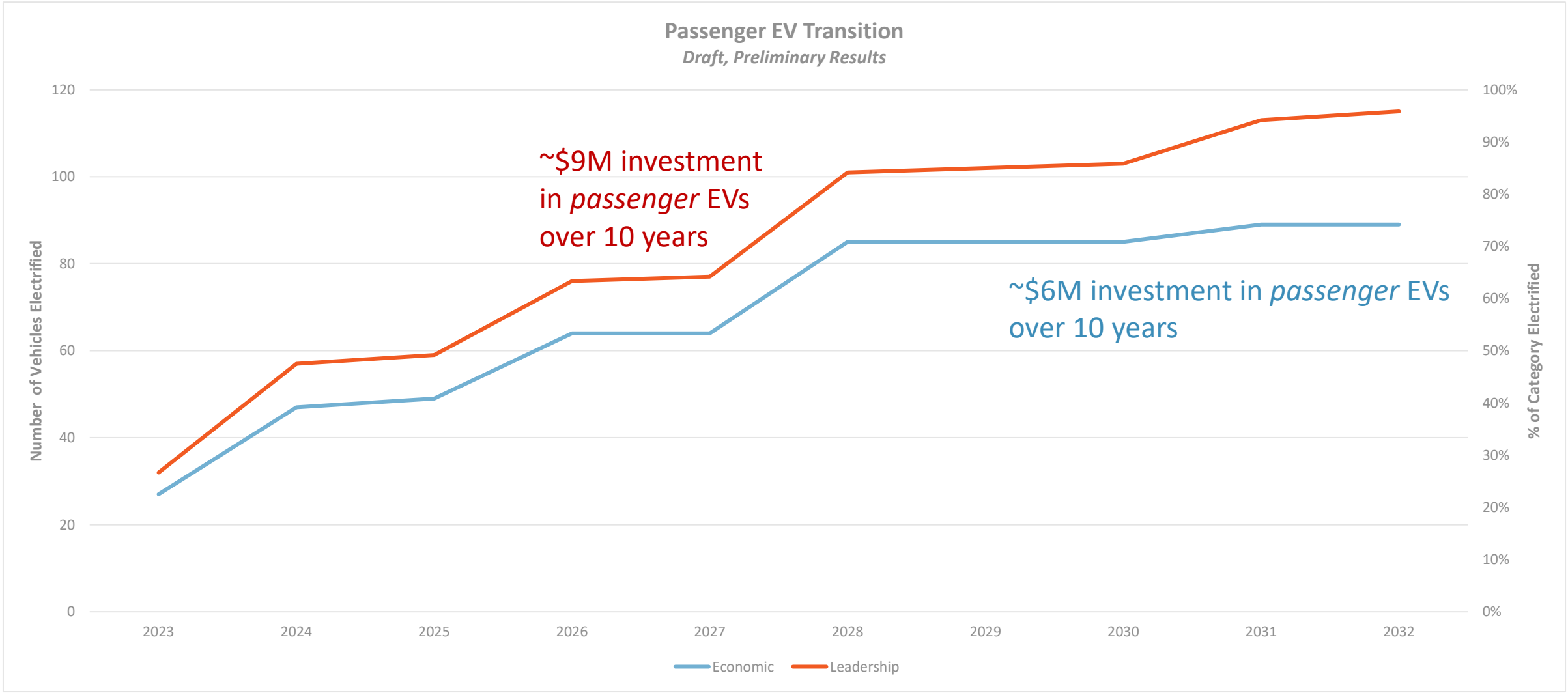
Scenario 3 - accelerated

2025-30 regulatory period

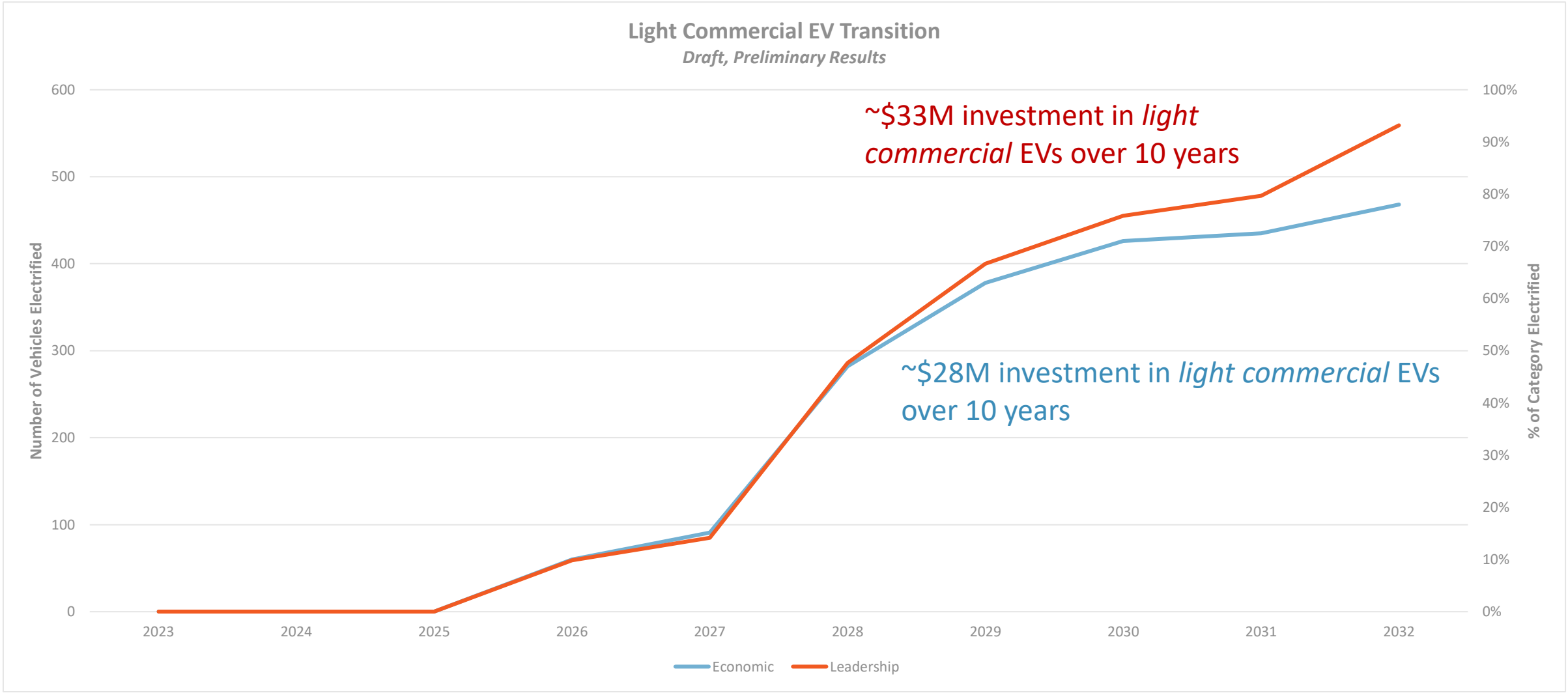
ASSET#	SUB CLASS	MAKE	MODEL	ANNUAL DISTANCE (kms)	FY23	FY24	FY25	Y26	FY27	FY28	FY29	FY30	Y31	FY32
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J21-011	Heavy truck - GVM 11,000 TO <16,000 KG	HINO	500 SERIES	21,100							BEV			

In an accelerated rollout we prefer to replace all four with EVs rather than purchase another ICE which would be expected to remain in the fleet for the next 15 years

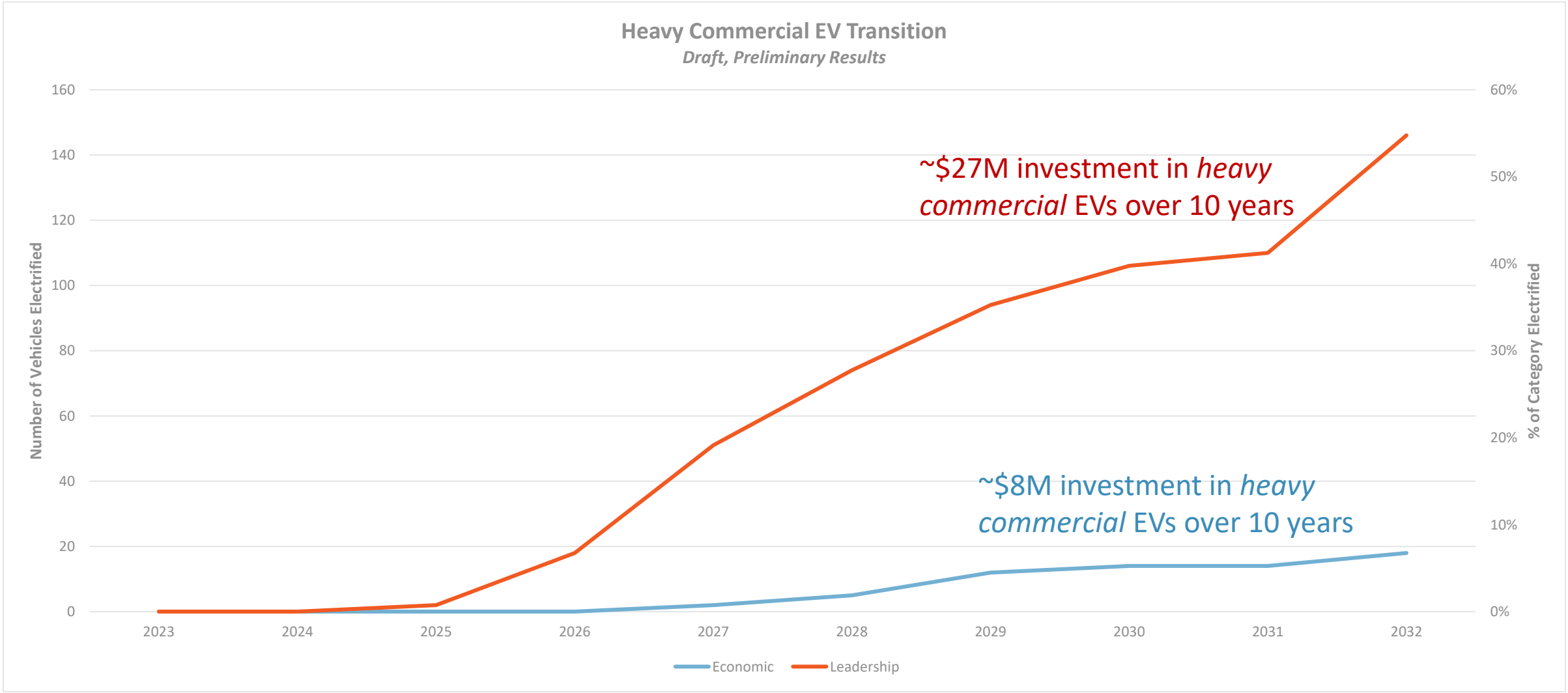
Fleet transition outcomes – Passenger vehicles



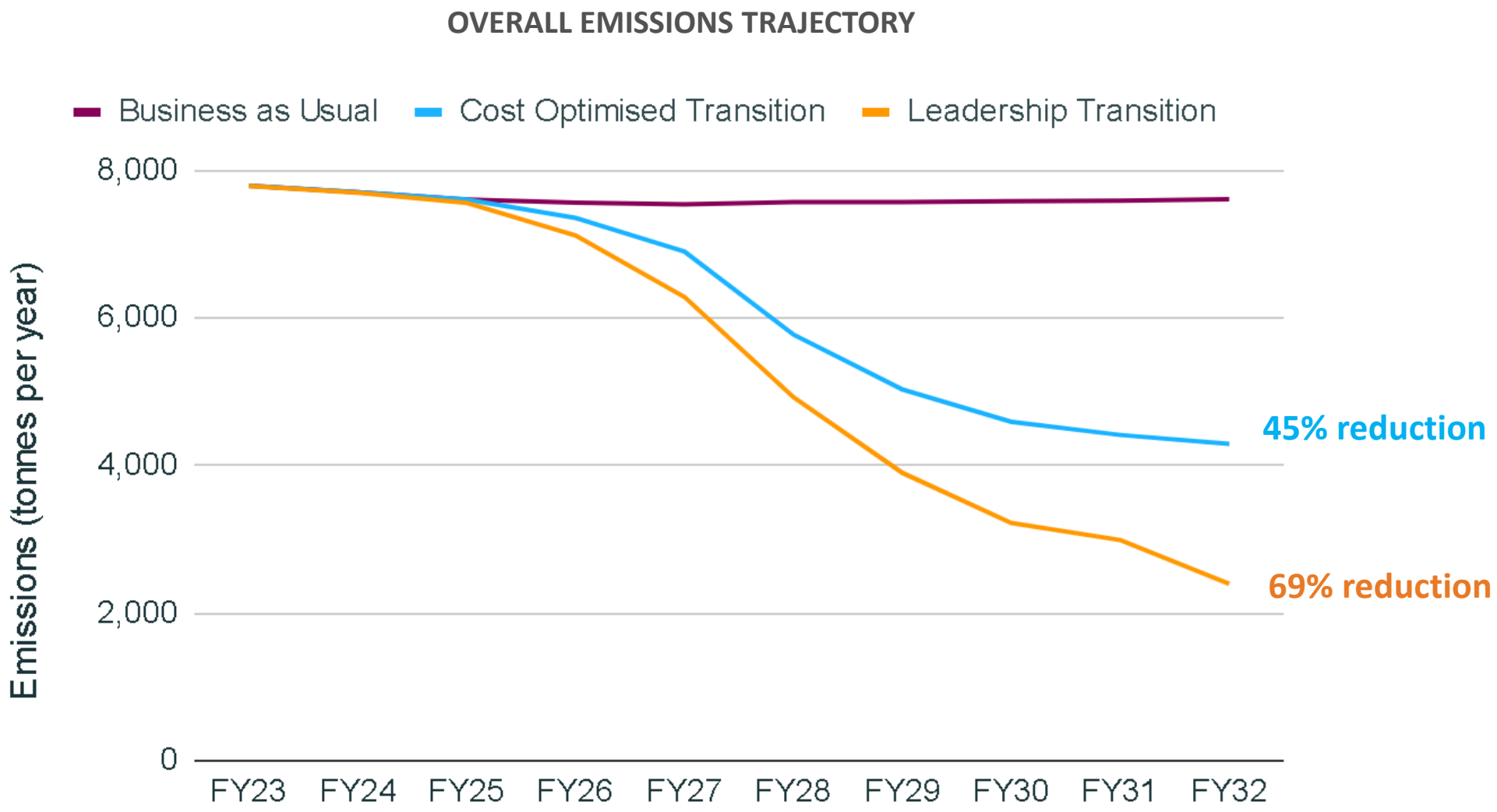
Fleet transition outcomes – Light Commercial vehicles



Fleet transition outcomes – Heavy Commercial vehicles



Fleet transition outcomes – Emissions reduction



Fleet transition outcomes – Emissions reduction

By 2030, the total emissions reduction is:

- Scenario 2: 7,327 tonnes of CO2
- Scenario 3: 10,198 tonnes of CO2

Supposing a carbon price of $50/tonne*, this would equate to a value of $366,000 or $510,000 respectively.

The key difference between the scenarios is that in scenario 3, 90 heavy vehicles that are due for replacement after 2026 are replaced with electric, whereas in scenario 2 these are replaced like-for-like with diesel vehicles, locking in emissions from these vehicles for the following 15 years, around 14,000 tonnes of CO2.

*This is illustrative only – we don't have a clear view on a possible future carbon price at this stage



Charging infrastructure

We have modelled the cost of charging infrastructure at our depots and office locations under each transition scenario, based on usage requirements of vehicles transitioning. This includes:

- Cost of EV chargers (mix of 7.2kW AC, 22kW AC and a small number of 50kW DC)
- Cost of electrical upgrades to connection, switchboard, etc

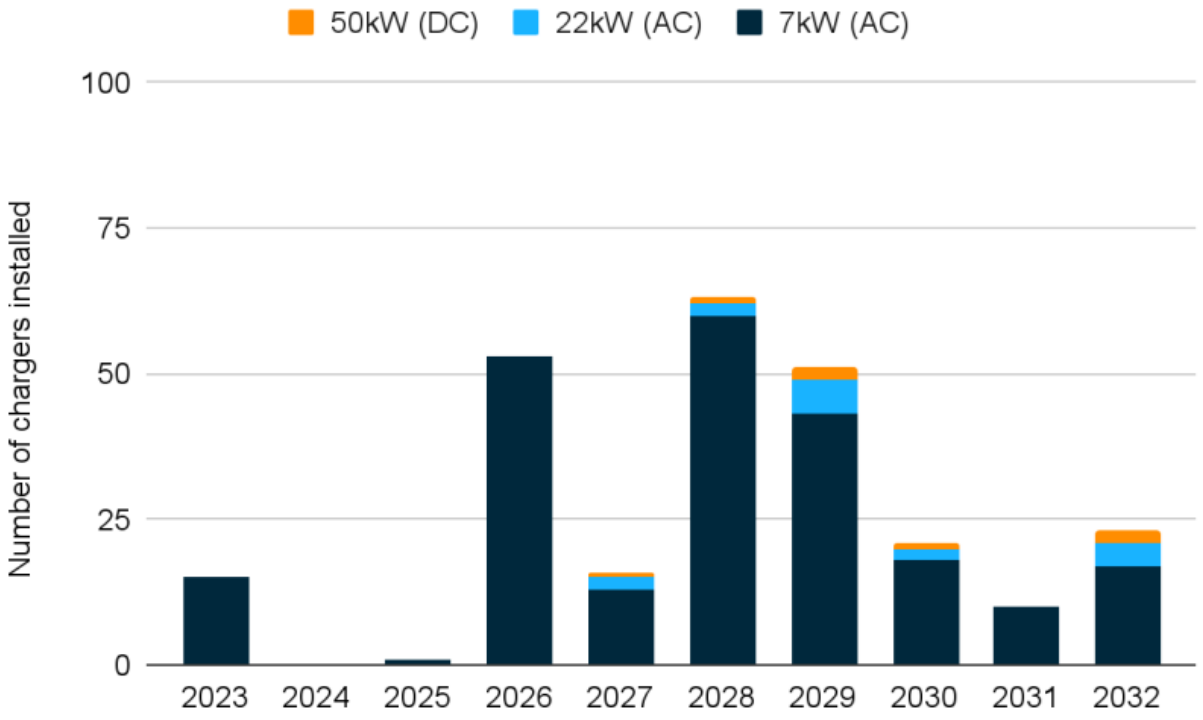
These costs are factored into the total cost of ownership for scenario 2



Fleet transition outcomes – infrastructure upgrades

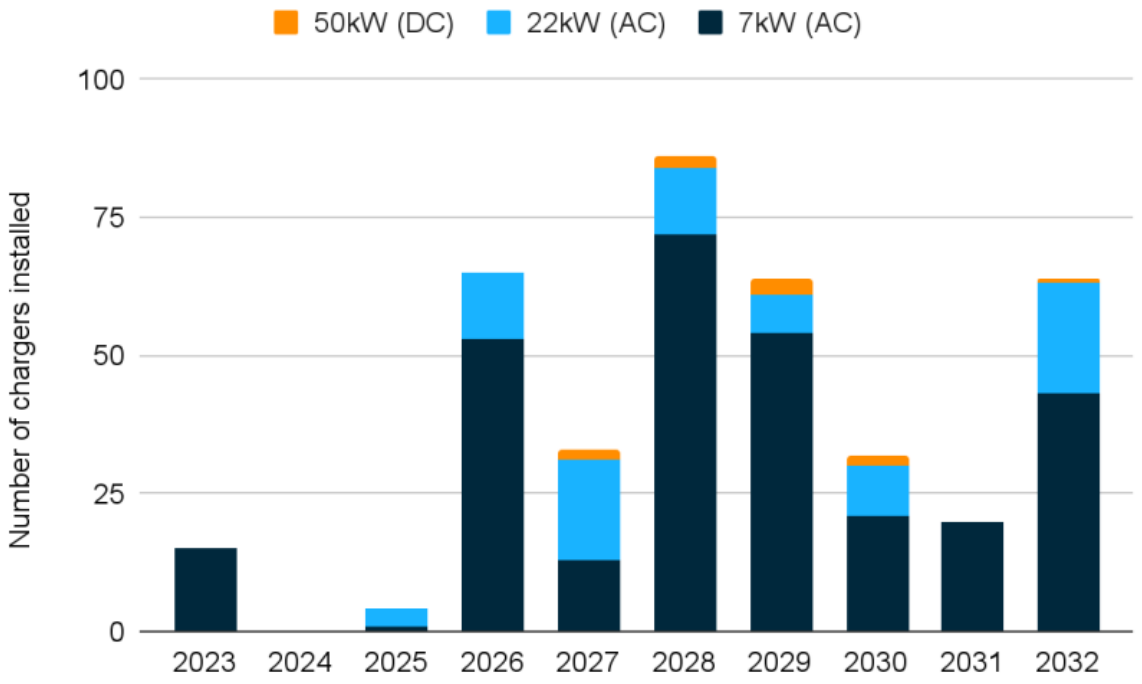
EV Charger Installations – scenario 2

$2.1M investment in EV charging infrastructure



EV Charger Installations – scenario 3

$3.8M investment in EV charging infrastructure



Summary	Scenario 1	Scenario 2	Scenario 3
2030 outcomes			
Number of light vehicles transitioned to EV	-	**498** (76%)	**542** (79%)
Number of heavy vehicles transitioned to EV	-	**14** (5%)	**106** (38%)
Number of regional depots upgraded with charging infrastructure	-	**20** (61%)	**27** (82%)
CO2 abatement to 2030 (vs scenario 1)	-	**7,327** Tonnes	**10,198** Tonnes
Potential avoided 15-year CO2 from heavy vehicles (vs scenario 2)	-	-	**14,000** Tonnes
2030 expenditure			
2025-30 CAPEX (vs. BAU)	-	$10.78m	$26.34m
2025-30 OPEX (vs. BAU)	-	($3.55m)	($4.00m)
Estimated 2025-30 bill impact*			
Residential customer Business customer	-	$0.60 $4.65	$2.20 $17.15

*The numbers supplied are forecasts and will be updated due to stakeholder input and external market influences over time. Our final numbers will be provided in our 2025-30 Regulatory Proposal to be lodged with the AER in January 2024

Electric vehicle fleet transition – voting

Q: What is your preferred option of those presented?

Scenario 1 – No new investment (no impact) ☐

Scenario 2 – Cost-optimised transition ($0.60 / $4.65) ☐

Scenario 3 – Accelerated transition ($2.20 / $17.15) ☐

Notes

Electric vehicle fleet transition – voting

Notes

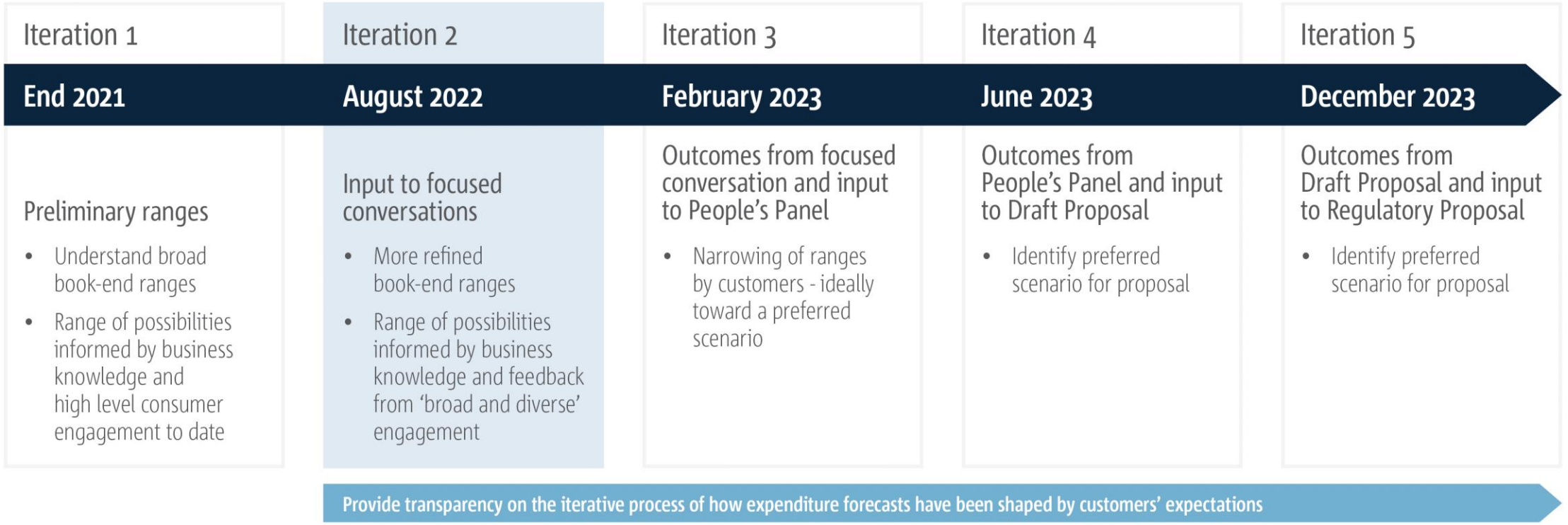
Next steps



Next Steps – Engagement

Opportunity for those unable to attend today to vote on options, with online Q&A session before end November

Document outcomes and prepare report with recommendations to provide to the People's Panel for deliberation through Q1 next year



Thanks!




SA
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