

Networks Advisory Group

Meeting 15 Briefing Information

Tuesday 20 September 2022 | 1:30pm – 3:00pm AEST



Agenda



| Item | Lead | Timing |
|--|-------------------------------------|--------|
| Welcome, Acknowledgement of Country and Safety Moment | John Theunissen | 5 min |
| EDGE Project update | John Theunissen | 5 min |
| Scalable Data Exchange | Nick Reagan | 40 min |
| Next instalment on the DER and Market Interaction Studies that are being done within the EDGE project by the University of Melbourne | Shariq Riaz Pierluigi Mancarella | 40 min |

A photograph of a lush green forest with many tall, thin trees. The sky is a clear, bright blue. The trees are densely packed, and their leaves are a vibrant green. The overall scene is bright and natural.

Acknowledgment of Country

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

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

Safety moment

Safety item | Transition to Spring



1 TRIM TREES SURROUNDING YOUR HOME
Before spring showers turn into summer storms, trim any tree limbs or branches that could pose a threat to your home, driveway or nearby powerlines.



4 SECURE YOUR HOME
When the weather warms up, it's time to vacay—but unfortunately, burglars know that, too. So take precautions to secure your home's doors and windows while you're away.



2 LOOK FOR FLOODING HAZARDS
Signs around your home include water spots on walls and ceilings, faulty bathroom faucets, leaky appliances, clogged gutters and backed-up sewer lines—just to name a few.



5 CLEAN GRILLS AND OUTDOOR AREAS
Before your spring and summer parties begin, ensure your outside areas—including grills, sidewalks, pools and fire pits—are in safe, working order.



3 REVIEW YOUR INSURANCE POLICIES
Worried about what Mother Nature has planned? See what's protected in your home insurance policy. Planning a road trip? Review your auto insurance policy before you hit the road.

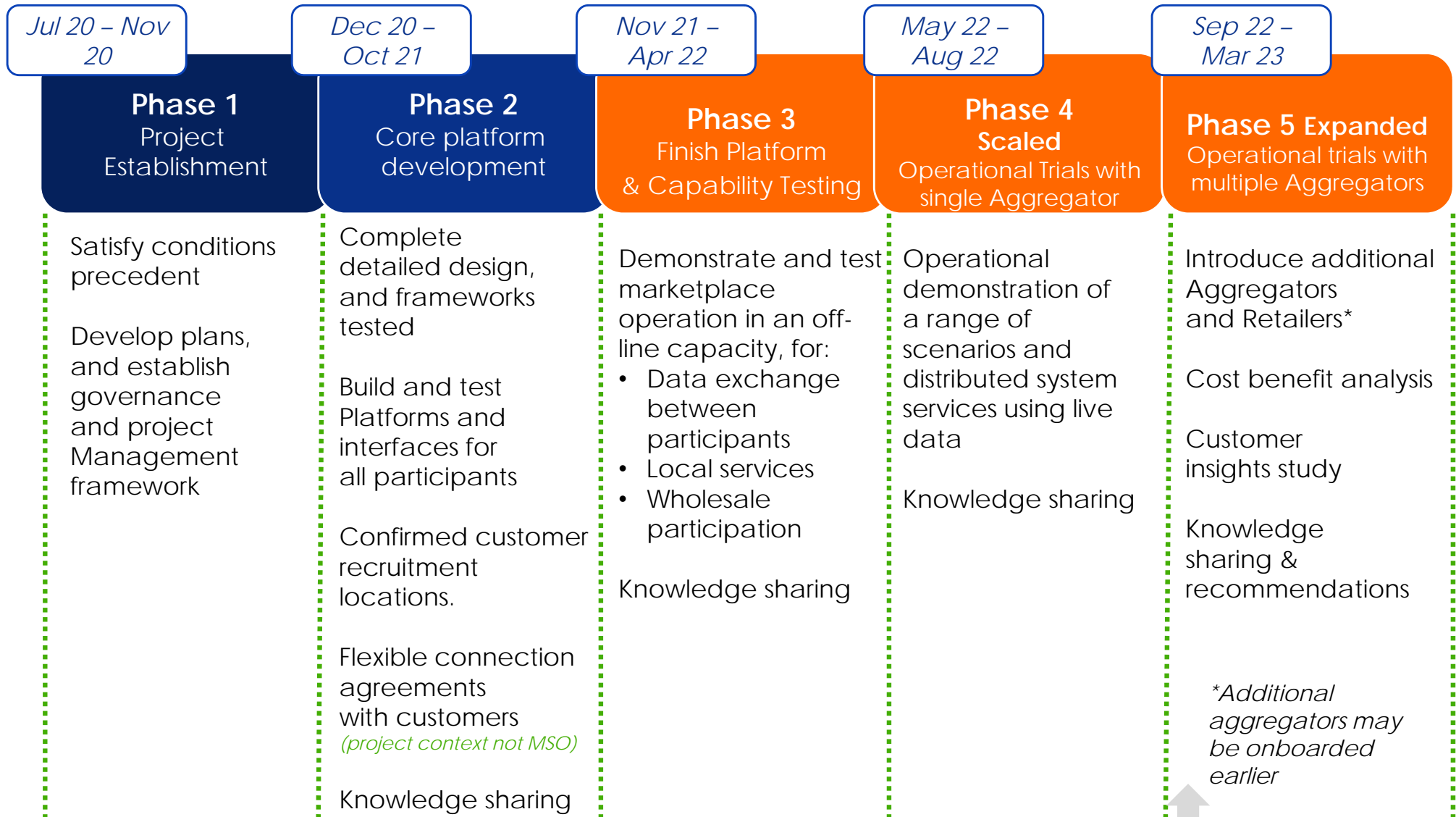


6 GET A GOOD NIGHT'S REST
According to the *New England Journal of Medicine*, researchers found an 8 percent increase in crashes the Monday after our clocks spring forward. That's why it's vital to get a full night's sleep—and be extra careful on the roads.



EDGE Project update

Project Update | Program view



**Additional aggregators may be onboarded earlier*

We are here

Project Update | All M4 deliverables submitted to ARENA



Funding Agreement
M4 Deliverables

Project Management

- D4.1 Provision of a Milestone Report
31 August 2022 ●
- D4.3 Provision of an updated Project Plan and material updates to other plans
31 August 2022 ●

Trial Platform Development and Testing

- D4.4 Evidence of successful operation of key Marketplace components
31 August 2022 ●
- D4.5 Provision of completed Phase 4 test plan, which is endorsed by the Steering Committee
31 August 2022 ●

Customer Acquisition

- D2.2 Confirmation of the addition of at least 20 residential customers across at least 3 LV feeders and 8 business customers participating in the Project
31 August 2022 ●

Stakeholder Engagement, Knowledge Sharing and Cost Benefit Analysis

- D4.6 Provision of completed CBA for Phase 4, which is endorsed by the Steering Committee
31 August 2022 ●
- D4.7 Consideration of the feedback of the stakeholder engagement and community
31 August 2022 ●
- D4.8 Completion of Knowledge Sharing Deliverables
31 August 2022 ●

On agreement from ARENA, the Public Lesson Learned report has been moved to November to capture more insights from CBA, trial data analysis, and the onboarding of additional aggregators.

| Knowledge Sharing Deliverables | Delivery date | Status |
|--------------------------------------|------------------|--------------------------------------|
| Public Project Lessons Learnt Report | 30 November 2022 | ● |

Project Update | Now in Phase 5 of the project



Project Management

D5.1 Provision of a Milestone Report

31 March 2023



D5.3 Provision of an updated Project Plan and material updates to other plans

31 March 2023



Trial Platform Development and Testing

D5.4 Evidence of successful operation of key Marketplace components

31 March 2023



D5.5 Provision of completed Phase 5 test plan, which is endorsed by the Steering Committee

31 March 2023



Customer Acquisition

D5.2 Confirmation of the addition of at least 200 residential customers and 30 business customers participating in the Project

31 March 2023



Stakeholder Engagement, Knowledge Sharing and Cost Benefit Analysis

D5.6 Provision of completed CBA for Phase 5, which is endorsed by the Steering Committee

31 March 2023



D5.7 Consideration of the feedback of the stakeholder engagement and community

31 March 2023



D5.8 Provision of a completed customer insights study

31 March 2023

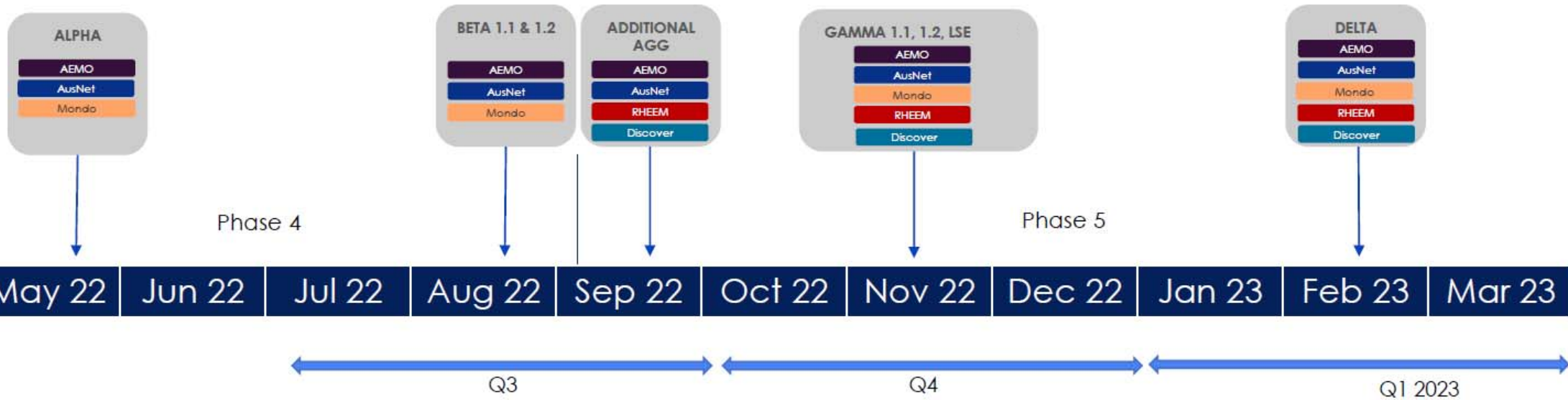


| Knowledge Sharing Deliverables | Delivery date | Status |
|--|------------------|--------|
| Public Project Lessons Learnt Report | 30 November 2022 | |
| Public final project report | 31 May 2023 | |
| Public customer insights and engagement final report | 31 May 2023 | |
| Final project report webinar | 31 May 2023 | |
| Final CIES report webinar | 31 May 2023 | |

Project Update | Platform release overview



- **Success Story:** Beta release was successfully deployed in the Trial environment on 8th Sept. It involved 6 weeks of team effort, with several significant issues being resolved with this release
- The Trial can now:
 - run most required modes
 - onboard the new aggregators
- The Team is now working on Gamma release which will provide us ability to test Local Service Exchange (LSE) & perform desktop assessments



| ALPHA | BETA 1.1 & 1.2 | ADDITIONAL AGGREGATORS | GAMMA 1.1 & 1.2, LSE - DHF | DELTA |
|---|---|---|---|--|
| <ul style="list-style-type: none"> • End-to-end basic wholesale marketplace integration between AEMO, AusNet & Mondo | <ul style="list-style-type: none"> • EWF Transport layer v2 (DDHub) • DOE V2 (in CSIP format) • PD price forecast • Remove NMI & device • Defect fixes | <ul style="list-style-type: none"> • End-to-end basic wholesale marketplace integration between AEMO, AusNet, Discover & RHEEM | <ul style="list-style-type: none"> • Enrolment updates • Desktop Assessment • Local Service Exchange (LSE) for Demand • DERMS additional functionality (Intraday) | <ul style="list-style-type: none"> • DOE reactive power calculation • Local Service Exchange (LSE) for Voltage |

Scalable Data Exchange

Project EDGE focus area

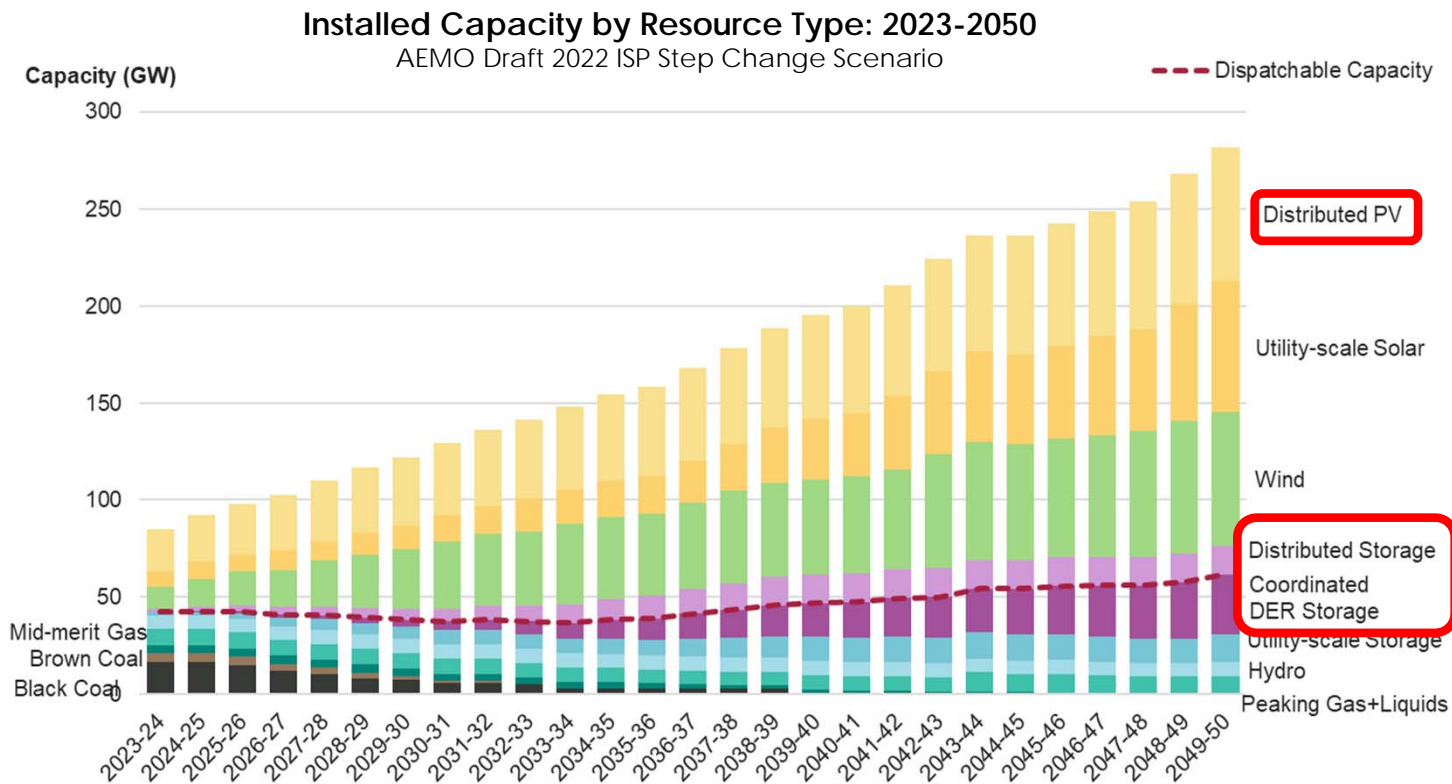
Nick Regan [AEMO]

What's coming: a DER-rich landscape



AEMO's **draft 2022 Integrated System Plan's** most likely scenario (Step Change scenario) projects capacity in the National Electricity Market (NEM) in 2050 to be over 280 GW, of which **114 GW (40%) is connected to the distribution network**¹

There will be times when the **entire NEM demand for electricity could be met with distribution connected resources**, aka Distributed Energy Resources (DER). This **distribution-based capacity is also 2-way: it can export and import** (or reduce demand). So DERs can also provide support to distribution grids ("network services")



114 GW

**40% of total
installed capacity is
connected to the
distribution network**

¹ At <https://aemo.com.au/en/energy-systems/major-publications/integrated-system-plan-isp/2022-integrated-system-plan-isp>

² At <https://www.cleanenergycouncil.org.au/resources/technologies/grid>

EDGE Scalable Data Exchange Hypotheses



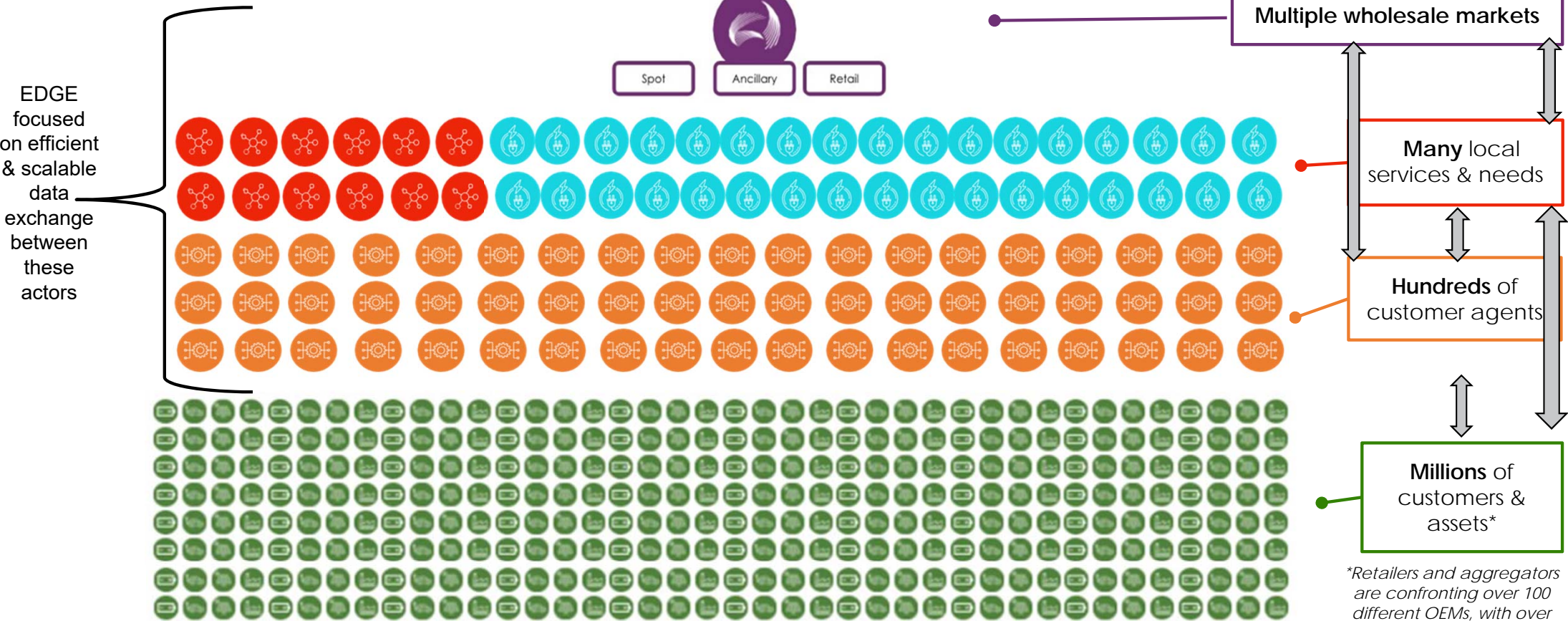
The project will test two core hypotheses:

- 1. A data hub model provides a scalable and long-term approach for DER Marketplace data exchange compared with a web of many point to point interactions between industry actors**
 - The ESB DER Implementation Plan requires DNSPs to begin implementing DOEs in late 2023
 - The ESB also require DER to be rewarded in the market and DNSPs to procure DER-based network services
 - The Reform Delivery Committee NEM2025 Implementation Roadmap has a “DER Data Hub & Registry Services” initiative that needs to be scoped in detail and in context of parallel ESB reforms
 - The data hub concept aims to lower aggregator barriers to entry by providing one integration to access wholesale markets, local network support services and DOEs

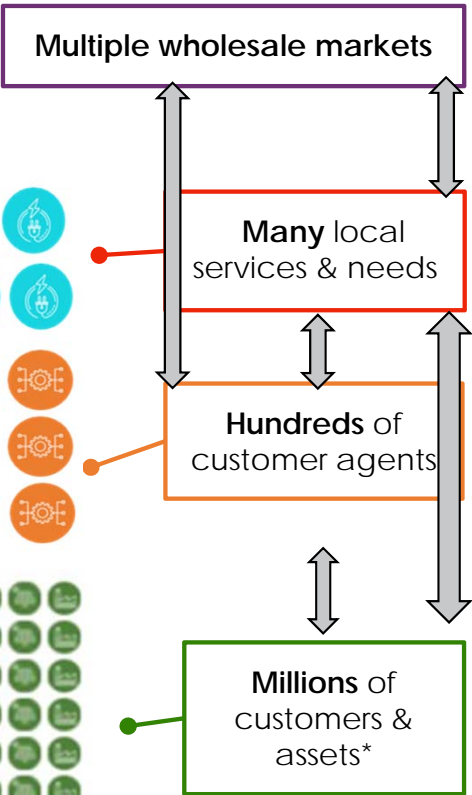
- 2. A decentralised data hub model is the most efficient solution that could deliver the most net benefit to NEM customers**
 - AEMO currently operates a centralised hub approach, the e-hub for the retail market
 - As an off-market proof of concept project, EDGE has a unique opportunity to test innovative approaches to DER market integration
 - Project analysis on scaled data exchange challenges suggests a decentralised data hub approach could have value and testing this approach was encouraged by executive sponsors

AEMO and Industry stakeholder feedback is paramount to understanding the merit and costs of a future DER Data Hub, centralized or decentralized.

A DER-rich market needs data exchange capabilities scaled by orders of magnitude



EDGE focused on efficient & scalable data exchange between these actors



*Retailers and aggregators are confronting over 100 different OEMs, with over 1,400 different products, on the CEC's approved inverter list

With the exponentially greater number of participants, markets, services, and especially devices, a DER rich landscape means industry must consider the **basic challenges** like:

- **Establishing & maintaining relationships** between customers, devices, and participants for processes like service enrolment, registration, and facilitating customer / device churn
- **Scaling to handle the volume of data** (transmission and storage) being exchanged across all markets and participants (and ensuring for performance, maintenance, security, and resilience)
- **Managing communication, credentials and integrations** between all market participants (and relevant 3rd parties like "agents" who can control the output of solar PV)



Q&A + Activity

Please raise a hand to speak or use the Teams chat function

We will use Mural to work through the Data Exchange Problem statements and gather relevant feedback



DER Standing Data inconsistent across industry participants

Statement (1) *"The DER Register does not necessarily reflect the "as-is" configured state of the connected DER, as settings can be changed after the installation, and this can have a consequential impact on network DER hosting capacity assessments and dynamic operating envelope calculations"*

Statement (2) *"Many installed inverter-based DER connecting to the network do not have the mandated standard AS4777 settings applied and this adversely impacts local network voltage management. Other than analysing historical smart meter data (where that exists), I have no way of knowing whether the installed system is compliant"*

Visibility of DER

Statement (3) *"I have no visibility of EV ownership or EVSE installations to manage emerging network loading conditions, network DER hosting capacity assessment, and in future the calculation of DOEs."*

We will use Mural to work through the Data Exchange Problem statements and gather relevant feedback



Register and Portfolio Management

I do not have a scalable registration process to certify and re-certify portfolios of DER assets as their composition frequently changes with device upgrades and customer churn across many aggregator portfolios

Exercise 1
(30 Seconds)

Introduce
Problem
Statement

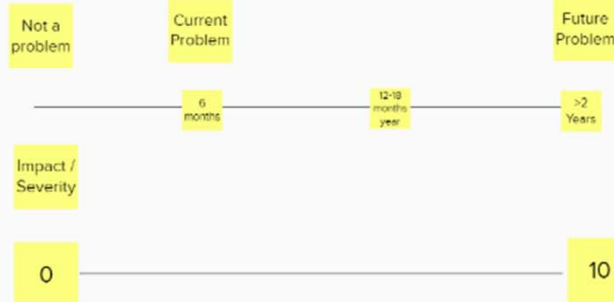


Exercise 2
(2 Minutes)

Document
Why it IS/
ISN'T a
problem

Exercise 3
(1 minute)

Ranking the
issue: Time
and Urgency



Exercise 4
(2 minutes)

Would you
change
anything with
this problem
statement?

*Move post-it note responses
through the exercises*

Link: [Data Exchange Problem Statements](#)

What are we trying to achieve?

As we walk through these statements, we have 4 exercises. Through each exercise we are looking for targeted feedback to determine if we have captured and understood the issue correctly.

Exercise 1: We have captured the issue correctly for Networks?

Exercise 2: Is this statement a problem for Networks?

Exercise 3: Ranking the issue by time and impact.

Exercise 4: What would you change about this statement?

**Next instalment on the DER and Market Interaction
Studies - University of Melbourne**

Material to be provided separately by the University of Melbourne on the day or before