



Network Innovation Advisory Committee


1 September 2021



Agenda

#	SESSION	FACILITATOR	TIMING
1	Introductions & updates from Committee	Junayd Hollis	13.00 – 13.10
2	Review of actions	Junayd Hollis	13.10 – 13.20
3	Network Innovation Program Dashboard	Alex Watters	13.20 – 13.35
4	Program Delivery Strategy	Junayd Hollis	13.35 – 13.55
5	Q & A on DER and Inverter behaviour	John Fletcher - UNSW	13.55 – 14.15
	BREAK		14.15 – 14.30
6	Low Voltage Visibility Investment	Murray Chandler	14.30 – 14.50
7	Community Battery Update	Alida Jansen Van Vuuren & Felix Keck	14.50 – 15.05
8	EV Charging Platform Discussion	Alex Watters	15.05 – 15.20
9	Recap & next steps	Junayd Hollis	15.20 – 15.30

	For Information	Slide No.
A	Asset Condition Monitoring update	40
B	DSO Demonstration Project 'Edith' update	42
C	Standalone Power Systems update	44



Review of Actions

Review of Actions

To be confirmed

	Action Items	Date Raised	Status	Comments
5	To provide more information on what the customer's lived experience is with DSO trial - how might this be different from direct load control	March 2021	● In Progress	Verbal update from Alida Jansen van Vuuren.
7	Apply future looking forecast to River Communities benefits analysis	March 2021	● In Progress	Verbal update from Matthew Webb.
9	Provide more information on program and update of delivery options	June 2021	● Complete	Refer to Agenda Item 4.
10	Share draft Ausgrid submission post release of AEMC smart meter consultation paper	June 2021	● Pending	Ausgrid to share draft of submission to AEMC consultation paper.
11	Provide overview of community battery use cases and benefits of a wider roll-out	June 2021	● Complete	Refer to Agenda Item 7.
12	Identify the problems we have with access to smart meter data	June 2021	● Complete	Refer to Agenda Item 6.



Network Innovation Program Dashboard

Network Innovation Program Dashboard

Workstream	Project Score	Estimated Budget \$m	Actual Spend \$m	Committed Spend \$m	Status	Update/Comments/Feedback	High Level Project Timeframes				
							2020	2021	2022	2023	2024
Advanced Voltage Regulation	3.45	\$3.50	\$0.40	\$0.50	●	Scoping for pole mounted battery for voltage regulation and balancing support underway. Scoping of Stage 3 underway including conservation voltage reduction (CVR) and smart Tx trials	Stage 1	Stage 2 - LV STATCOMS	Stage 3 - HV Regulation Research & Trials		
Network Insight Program	3.82	\$14.40	\$2.70	\$5.47	👤 ●	Program to retrofit DM&C during RMI replacement works approved and device procurement commenced. LV monitoring capability now at 20% of distribution substations and remote control capability at over 5.5%.	Distribution Monitoring & Control Strategic Deployment	Evolve Project	Future DSO Visibility Trials		
Fringe of Grid Optimisation	3.71	\$4.97	\$0.53	\$2.38	●	Supply tender released to market and individual customer engagement complete. Site visits to commence with local crews in September.	Stage 1 - Develop and trial	Stage 2 - Pilot Program			
HV Microgrid Trial	3.44	\$16.48	\$0.00	\$0.05	●	Feasibility studies underway through the River Communities strategy development and community engagement to commence soon.	Stage 1 - Feasibility	Trial program to be developed			
Advanced EV Charging Platform Trial	3.53	\$1.05	\$0.00	\$0.00	👤 ○	Scoping of program has begun with development of potential trial focus areas.		To be developed			
Grid Battery Trials	3.81	\$6.86	\$3.17	\$5.04	●	21 of 22 registered trial participants at Beacon Hill have signed the trial agreement. Installation of monitoring devices at homes to resume in September following pause due to COVID.	Stage 1 - Develop and trial	Stage 2 - Pilot Deployment	Evaluation		

Note: Expenditure as at 31/07/2021

LEGEND

- Project not yet commenced. Remains within timeframes
- Project on track to meet budget and key milestones
- Project may be at risk if issues are not addressed. Attention required.
- Project is at risk of being over budget and/or significantly behind in meeting key milestones.

- Task completed
- Task on track
- Task not on track
- NIAC input required

Network Innovation Program Dashboard

Workstream	Project Score	Estimated Budget \$m	Actual Spend \$m	Committed Spend \$m	Status	Update/Comments/Feedback	High Level Project Timeframes				
							2020	2021	2022	2023	2024
Portable All-in-One Off-Grid Supply Units	2.51	\$0.50	\$0.00	\$0.03	●	Desktop evaluation and supplier engagement commenced on potential units for trial.					
Self-Healing Networks	3.58	\$0.33	\$0.17	\$0.20	●	Equipment solution failed testing, project terminated. Lessons Learnt report to be developed.					
Dynamic Load Control	2.83	\$0.49	\$0.00	\$0.04	●	Developing revised scope and objectives for workstream					
Asset Condition Monitoring	3.17	\$4.29	\$0.50	\$2.79	●	FutureGrid software procured and is being configured with Ausgrid IT systems. Scoping for future phases has commenced.					
Line Fault Indicators	2.75	\$0.70	\$0.08	\$0.04	●	Business case for non-communicating LFI device pending review and approval. Communicating LFI unit for engineering evaluation due in September.					

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Program Delivery Strategy and Future Directions

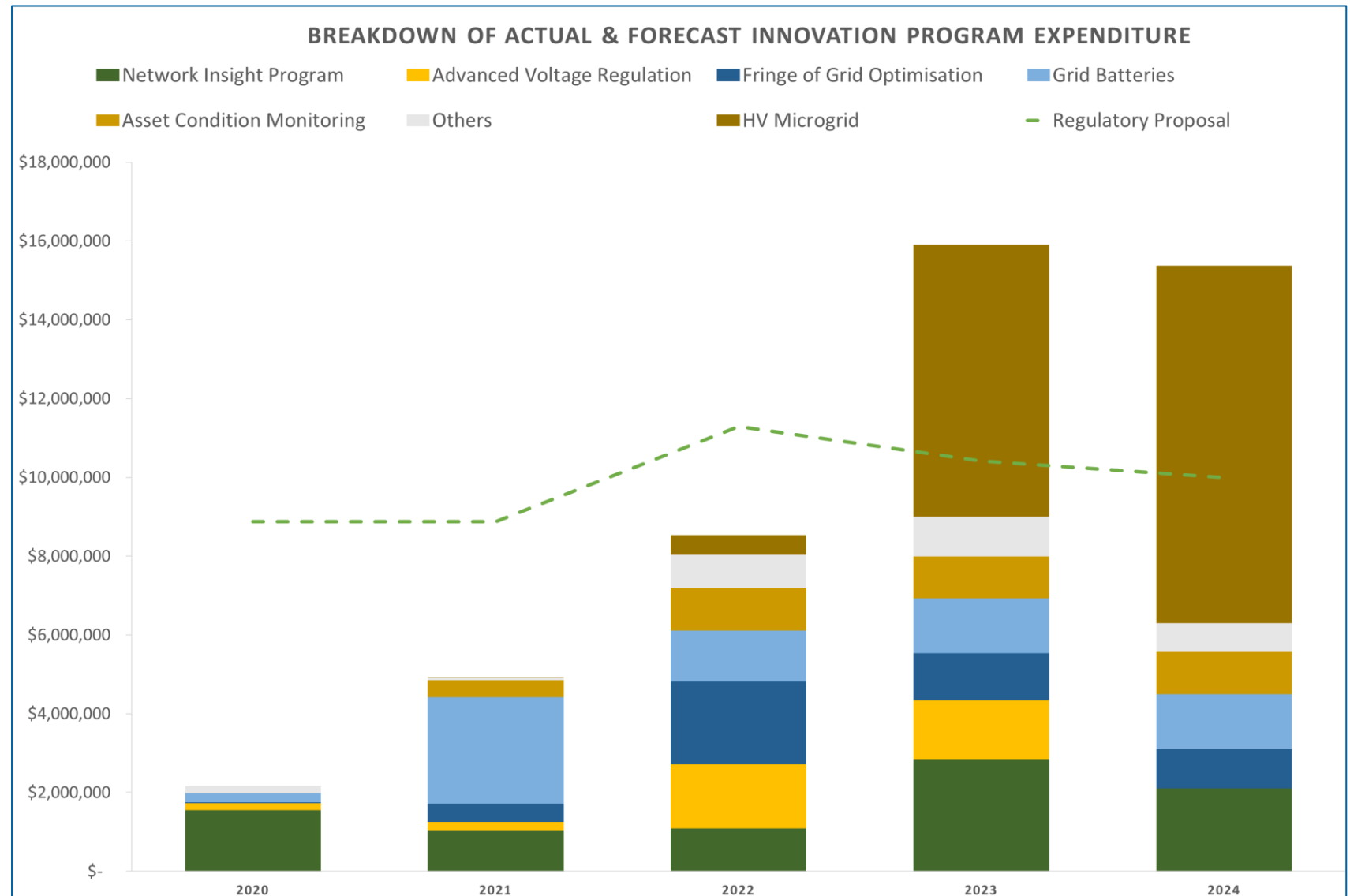
How the NIAC can assist

We are looking for guidance on goal-setting for the broader program for remainder of the regulatory period, and positioning for the next regulatory period

- Where should Ausgrid focus in a constrained environment?
- What do you see as important to inform your assessment of our upcoming regulatory proposal?

Actual and planned expenditure breakdown

- Delivery plan generally in line with re-balanced plan presented to NIAC in March 2021
- Key challenge is to deliver uplift to delivery in FY22 compared to FY21.
- Investment uplift in latter years driven by large chunky microgrid development.
- Must maintain focus on tangible benefits not just expenditure



Key delivery risks and opportunities

Issues and Risks

Resourcing

- Resourcing within Network Innovation team
- Field resourcing and delivery
- Engineering and planning resources

Process and capability

- Works integration and prioritisation
- Project development and design – Unforeseen complexity leading to longer lead times required to establish or deliver project(s)
- Lack of market/product maturity

“Force Majeure” events

- Live work pause and follow on impacts
- COVID-19

Opportunities and controls

- Ensure right delivery models (e.g explore in-source and out-source options for each project/program)
- Undertake more explicit prioritisation of projects within broader Ausgrid works planning processes
- Identify workstreams and projects less dependent on constrained internal resource types. For example this may lead to further adjustments in spending from field labour-intensive workstreams towards more system or externally delivered workstreams

Overcoming resource challenges

Strategy

- Focus on fewer, larger workstreams and items with less internal resource requirements – 6 workstreams have 90+% of the funding
- Explicitly prioritise between projects which draw on similar resources
- Utilise other avenues to deliver some workstreams (eg partnerships with external groups and suppliers)
- Additional contract/short term resources to aid project development and delivery

Actions

- Confirm existing delivery capability and prioritise projects
- Identify alternative options to accelerate delivery
- Obtain endorsement and agreement on alternative delivery models with key stakeholders

Targeted actions for delivery uplift in FY22 and beyond

Planned pivot towards SAPs and Microgrids

- Program is pivoting towards SAPS and microgrids which have significant material / asset costs.
- Opportunities to engage with market and suppliers to deliver assets without significant internal resource requirements.
- SAPS expecting significant milestones in FY22.
- Microgrid scoping and project development to kick off for River communities area and other target spots in FY22 with delivery over FY23 and FY24 – key goal to develop robust and detailed plans and complete stakeholder engagement in FY22 so ready for delivery from FY23.

Advanced Voltage Regulation and Network Insights workstreams are more heavily dependent on internal resources

- Delivery risk remains higher with these items due to dependencies on internal resourcing.
- Actively exploring alternative delivery options (e.g. outsourcing) of some components where feasible, and bundling with other work.

Further potential to increase focus on (subject to NIAC endorsement) on smart meter data acquisition and use

- Developing capability for LV visibility with smart meter data and associated analytics, increasing controlled load flexibility and exploring FLISR pilot schemes with pre-production ADMS system.
- Uplift to the Asset Condition Monitoring workstream required, further scoping to be developed before presenting to NIAC.
- Avoids field resource limitations and potentially brings forward opex and capex savings envisaged through use of smart meter data in the longer term.
- Largest risks are on-going issues with contestable metering provider capability to deliver services.

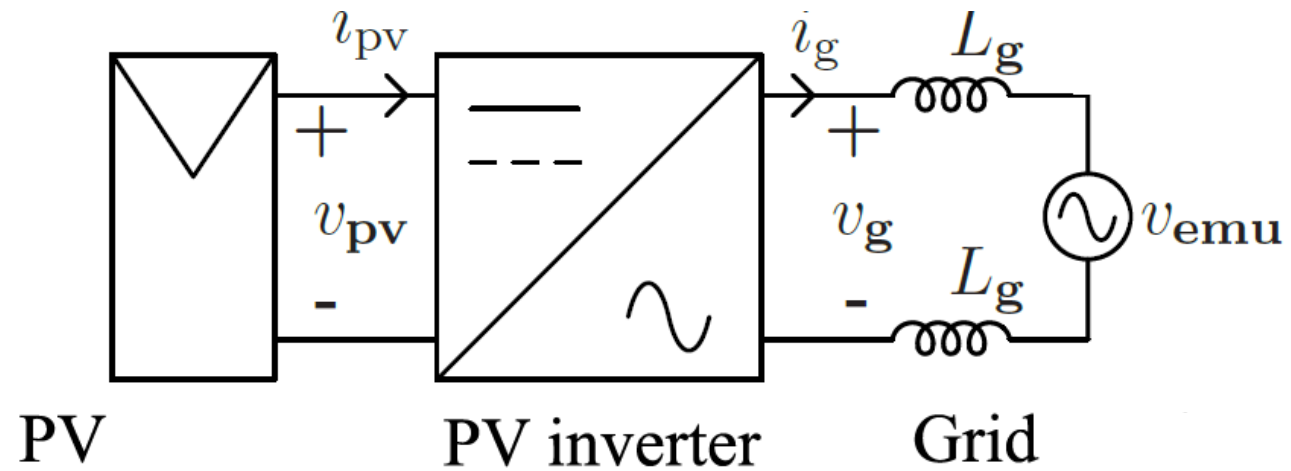


Q&A on DER and Inverters

John Fletcher - UNSW

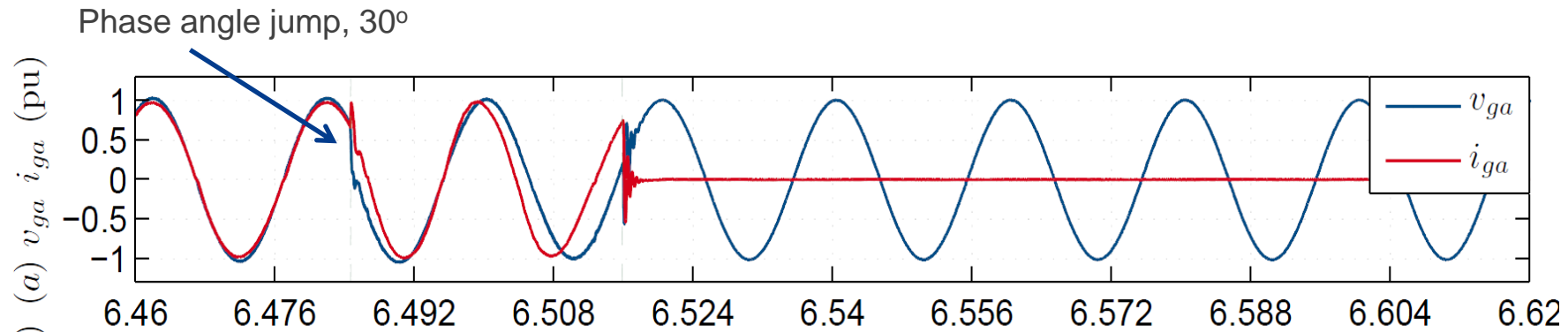
Inverters and DER

John Fletcher

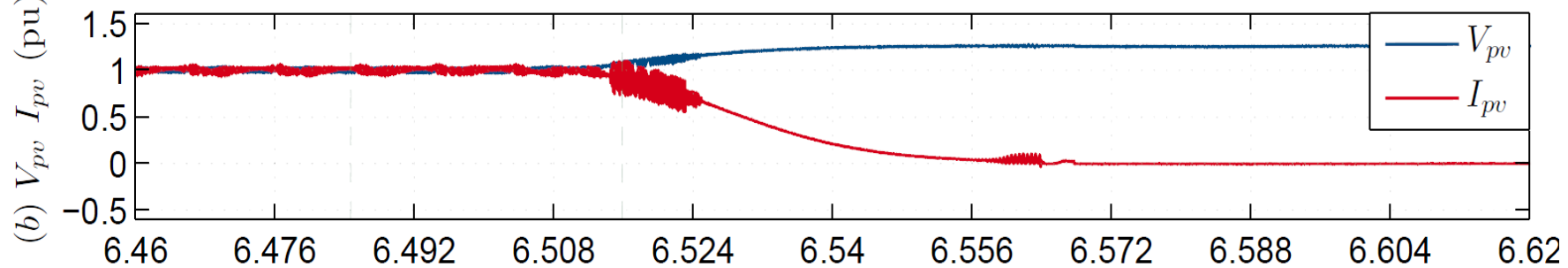


Rooftop Inverters do Mis-Behave

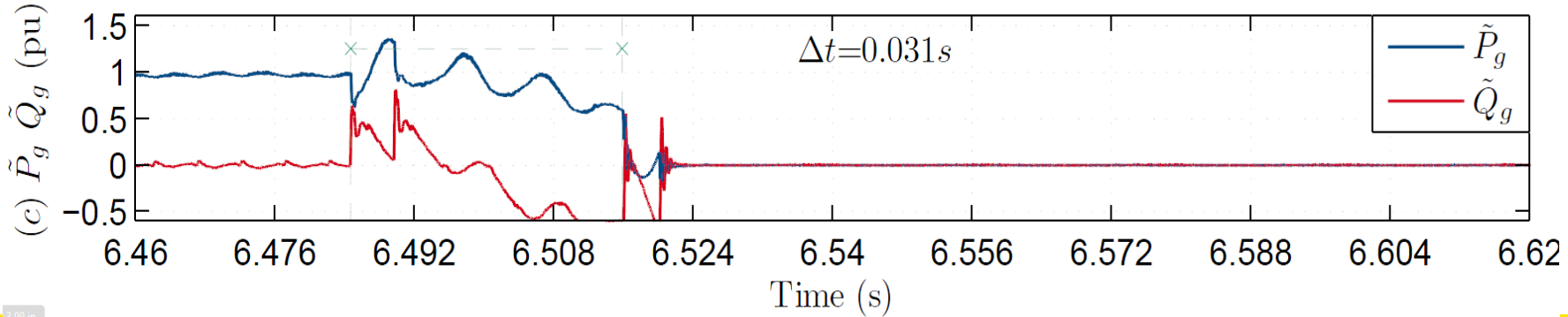
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DC side

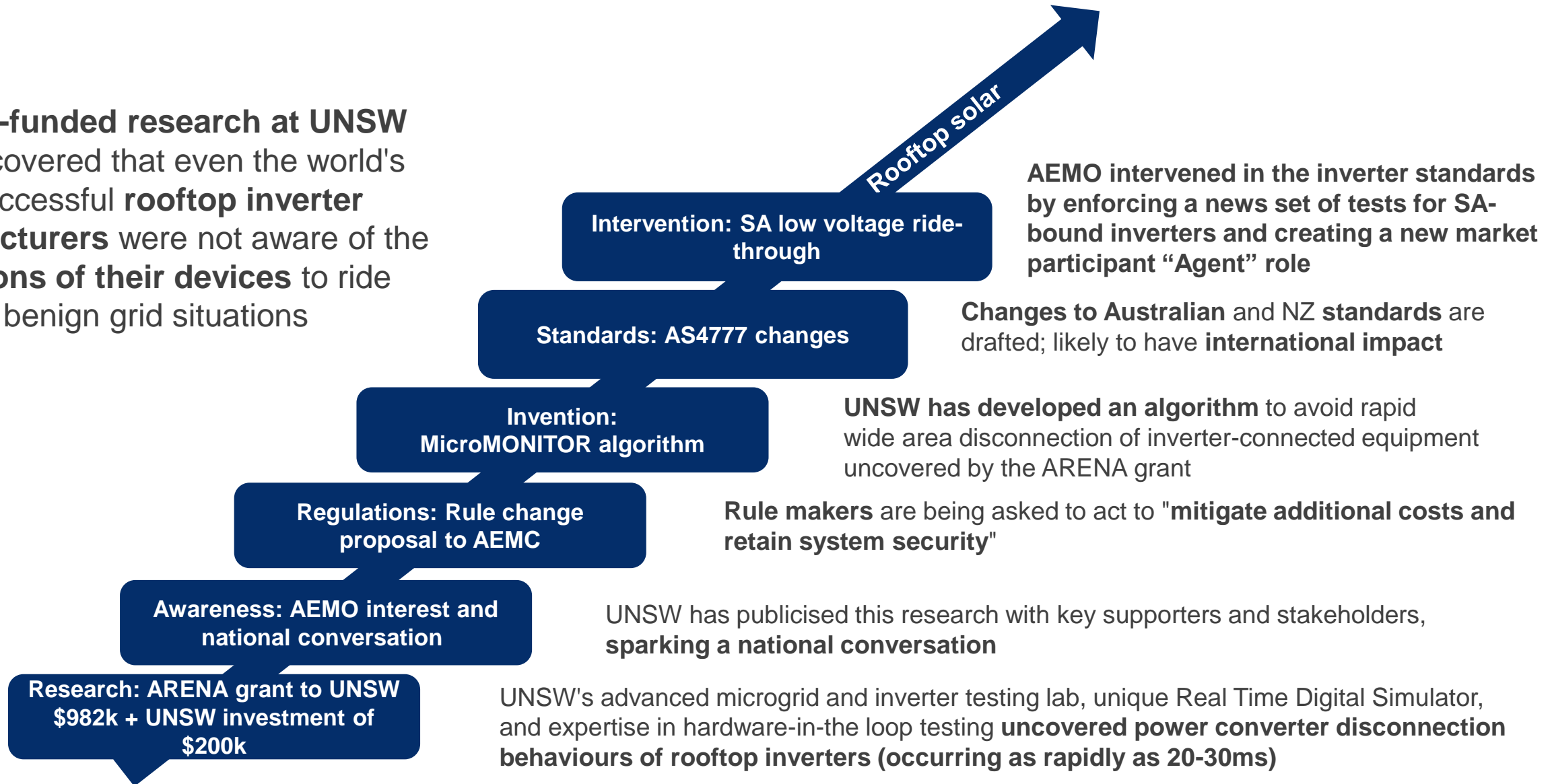


AC side



UNSW research pathway to impact: rooftop solar inverter example

ARENA-funded research at UNSW has discovered that even the world's most successful **rooftop inverter manufacturers** were not aware of the **limitations of their devices** to ride through benign grid situations



Questions and Answers

1. What are the key problems and issues identified by your work around DER and inverters?

Standards reflect past issues – not current issues. Unexpected behaviours, limited understanding of fault propagation from transmission to distribution, fleet complexity, firmware versions and keeping inverters up-to-date.

2. What are the potential solutions (and impacts or barriers to those solutions)?

Stricter technical requirements BUT slow, complex, compromises
Better modelling BUT lack of access to detail, industry buy-in for realistic models


3. What are the opportunities DER and new inverter technology to support networks ?

“Power Quality” modes: volt-watt, volt-Var, power-frequency may assist in supporting local network
Grid support: voltage control in the near term, potential to support frequency control BUT with consequences
Coordination/orchestration especially with batteries and Evs and lots of other inverter-based resources “around the corner”
Aggregation challenges of PV
Start thinking about your network architecture if it has to deliver x3 the ‘energy’ to the supply area

Inverter test results available:

<http://pvinverters.ee.unsw.edu.au/>

[AEMO Capstone Report](#)

A close-up photograph of a hand gripping a black, textured handle of a power tool. The background is dark and out of focus, featuring a glowing blue ring and some faint blue markings. The overall image has a dark, moody aesthetic.

Break – 15 minutes

A close-up photograph of a person's hand holding a black handheld device, likely a voltage detector or a similar diagnostic tool. The device is being held against a dark, textured surface, possibly a piece of equipment or a vehicle component. A bright blue glow emanates from the device, highlighting its active state. The background is dark and out of focus, with some faint blue markings visible on the surface being tested.

Low Voltage Visibility

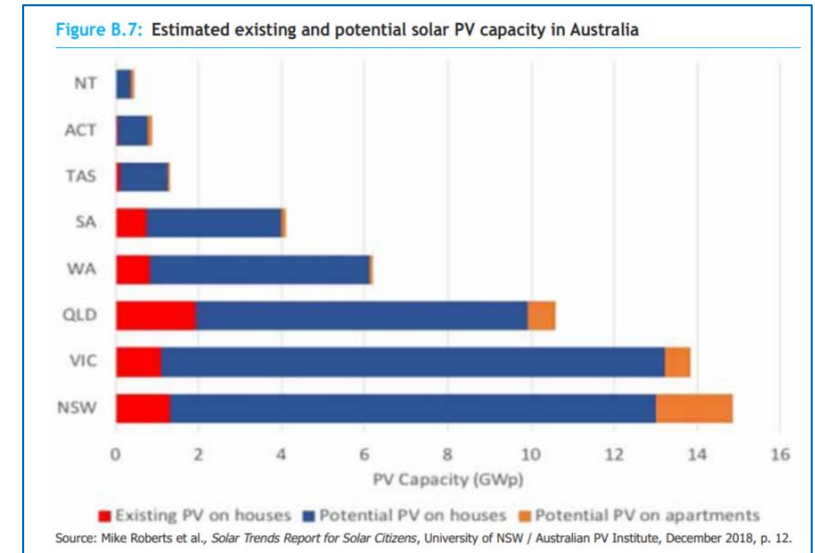
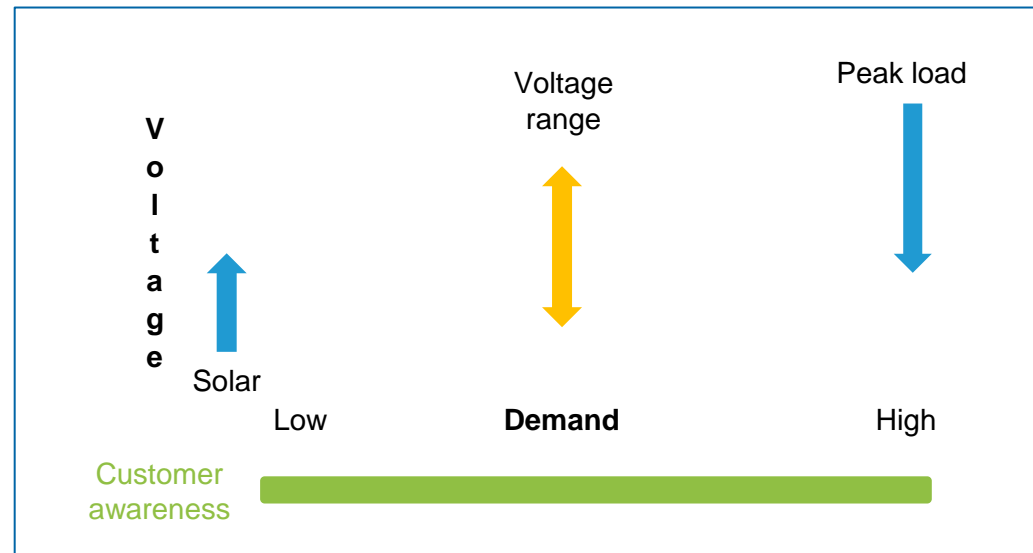
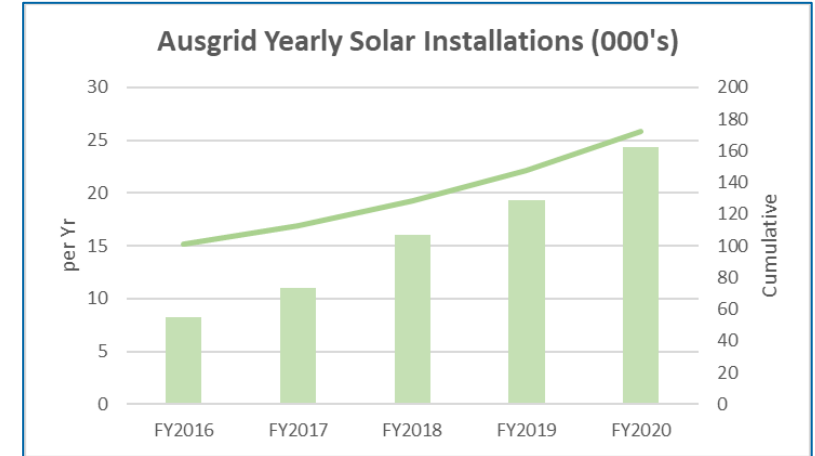
How the NIAC can assist

We seek your views on a potential uplift our LV visibility capability

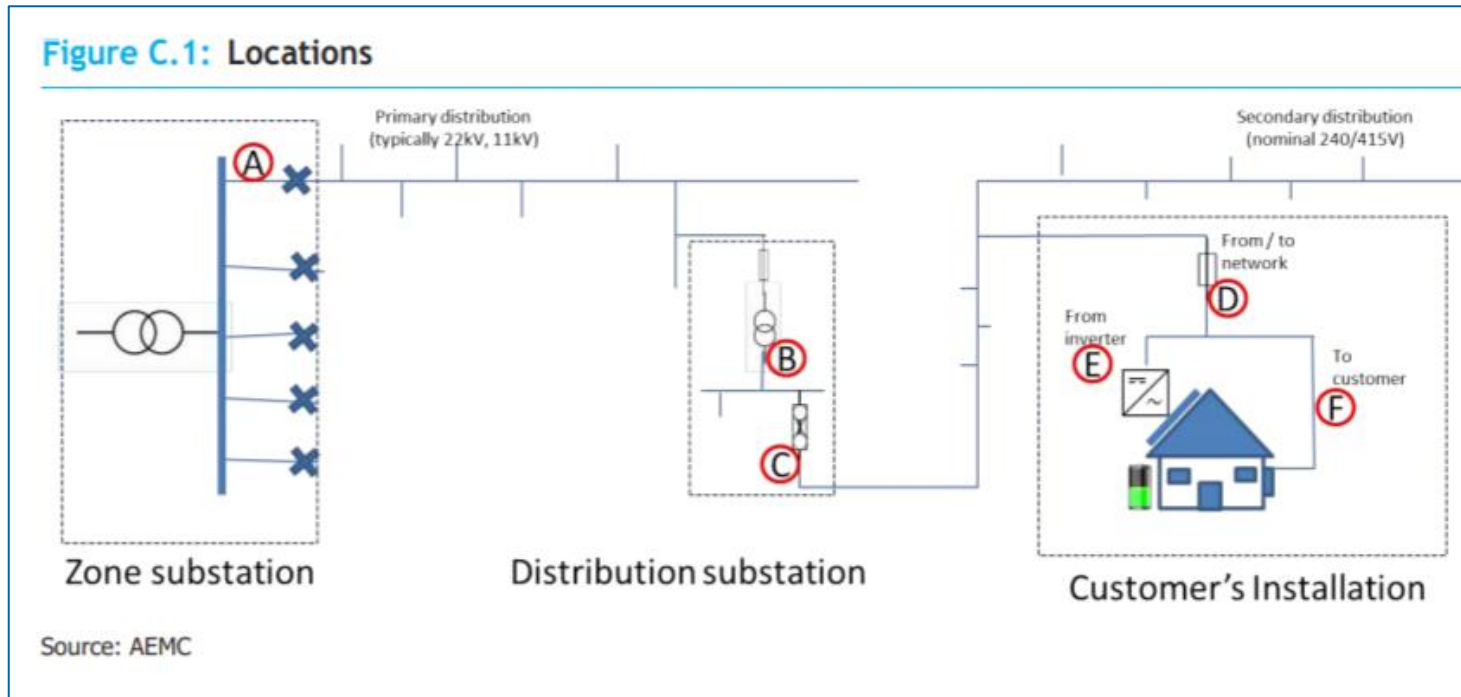
- What are priority areas you see emerging in the broader energy market for LV visibility?
- What are your views on the AEMC Metering Services review and data access from the contestable metering market?

The changing environment

- Growth of distributed energy resources leads to increasing variability in low voltage network behaviour, and customer awareness of the quality of their energy supply
- New technology offers cost effective ways to monitor and optimise the network by understanding voltage and current at different points of the network, including at the end points of the network
- Potential benefits include greater asset utilisation, increased DER hosting capacity, and improved customer reliability and power quality.



Sources of low voltage visibility data



A. Zone substation circuit breakers and PQ Monitors

B&C. Distribution Monitoring & Control (DM&C) devices

D*. Smart meters or network device
 E. Inverter equipment
 F. Consumer equipment (e.g EV Chargers, smart devices, plug monitors)

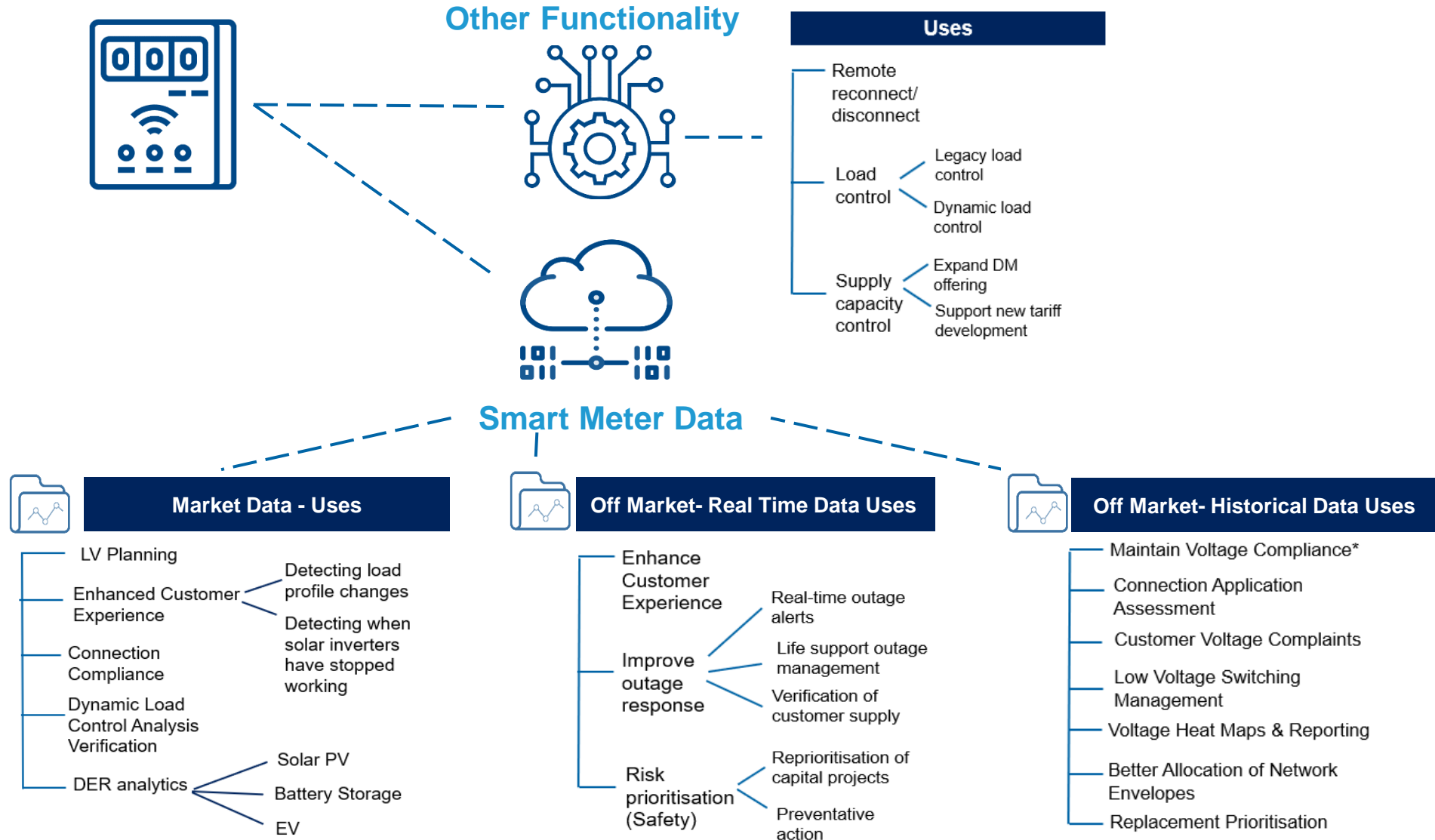
Ausgrid has a lack of visibility of network performance at the customer installation

Location	Ausgrid % Coverage	Non-Victorian DNSP Average	Victorian DNSP Average
A: Zone Sub Circuit Breakers	>95%	>95%	>95%
B. Dist. Subs (Transformer)	20%	10%	<1%
C. Dist. Sub (LV Feeder)	25%	3%	<1%
D. Customer Installation (Meter*)	<1%	<1%	>98%
E. Customer Installation (PV Inverter)	<1%	<1%	<1%
F. Customer Installation (Appliances)	<1%	<1%	<1%

Coverage as of 2019

*Not including historical market data

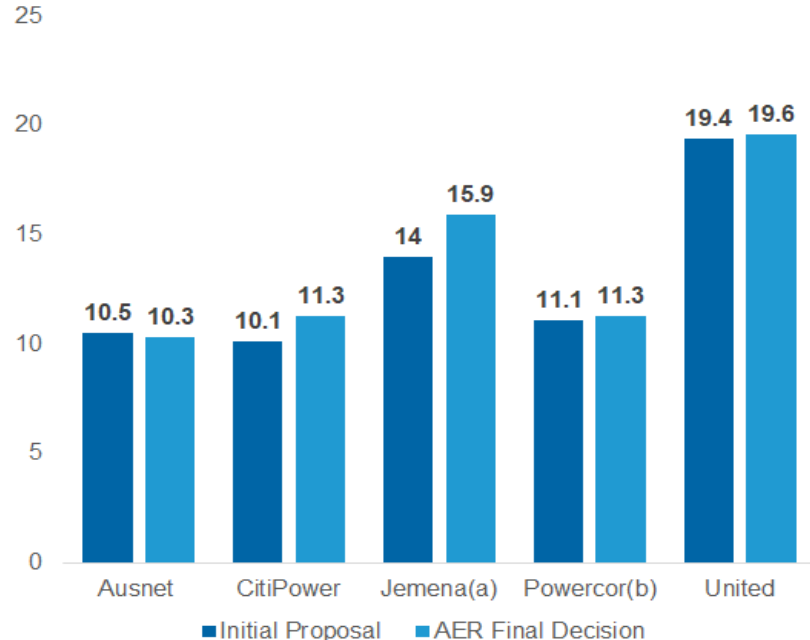
Overview of potential smart meter / data uses for Ausgrid



Victorian DNSPs continue to invest in low voltage visibility capability

Low voltage visibility capex refers to investments in ICT, monitoring equipment and in some instances data acquisition that provides a comprehensive view of the performance and capacity of the low voltage network.

AER final decision on LV visibility capex for the Victorian distributors (\$m)



(a) Reflects the reclassification of project opex to capex in revised proposal; (b) reflects minor upward revision of component projects and rounding.

LV visibility capex proposals

- The AER accepted that the majority of capex put forward by Victorian distributors was prudent and efficient.
- The AER disallowed part of Ausnet's proposed capex as it failed to demonstrate the benefits of elements of the program including improved spatial data to support decommissioning legacy assets.
- Ausgrid will develop and share its proposal on DER including LV investment with NIAC and the RCP following the release of the AER's DER integration expenditure guidance note.

Identified benefits LV capex visibility benefits

- Access to real time data on the operation of the low voltage network, allowing for dynamic management of network capacity.
- Facilitating DER investment by providing data on the capacity of low voltage networks to host further DER.
- Providing the data necessary to make informed decisions about network investment and encouraging more prudent and efficient investment.
- Potential improvements to reliability and safety through the early identification of poor network performance and faults.

What's next?

We are developing our strategy to optimise the right mix of network, metering and other information.

Key elements under consideration include:

- Continue existing policy of standard installation of remote monitoring and control in ground based substations, including addressing current gaps in very large distribution substations
- Continue to explore lower cost options to support use cases where substation measurement is required to manage changing customer needs and address 'blind spots'
- Further acquisition of smart meter data and engagement with all major metering providers
 - Expand current trials into more production systems
 - Work with metering providers and AEMC to refine Contestable Metering framework to support maximum value of smart meters for customers and avoid inefficient investment.
- Engagement with other data providers such as aggregators through VPP and Evolve projects to identify and value alternative data sources



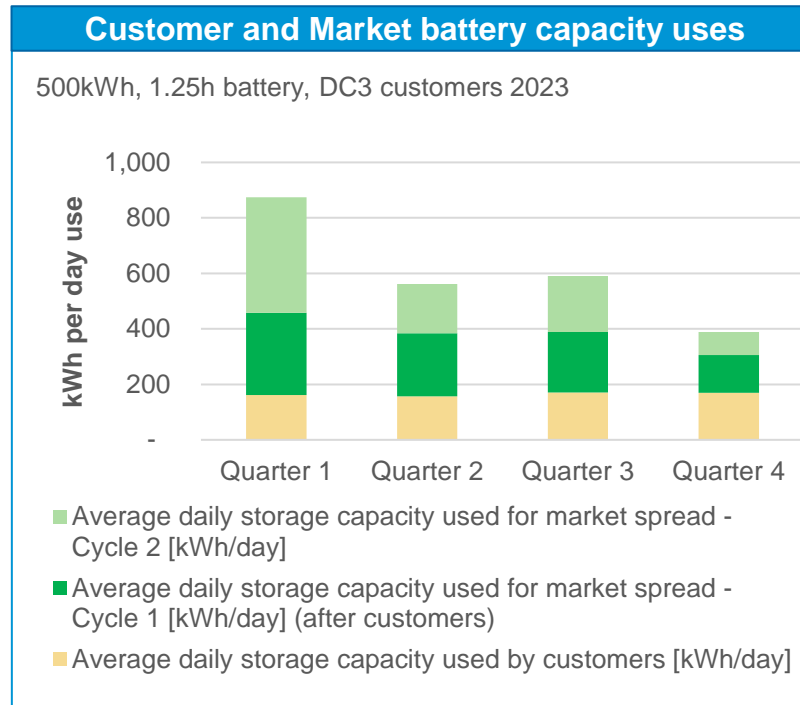
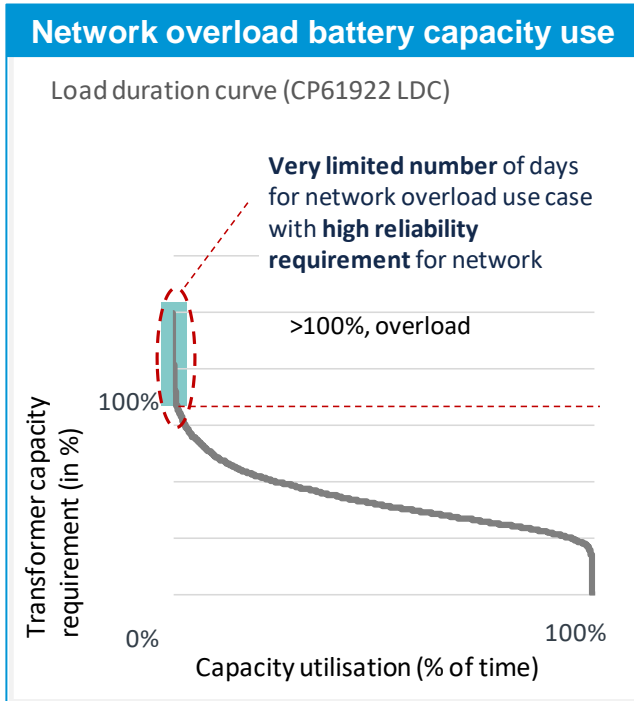
Community Battery Project Update

How the NIAC can assist

We are looking for your views on our community battery program:

- What insights about community batteries, and community energy more broadly, do you see as more critical for your constituents?
- What do we need to learn from the trial to inform a broader roll-out?

We are testing different combinations of the 3 main Community Battery use cases



Network use cases

- A number of network benefits (such as overload support, voltage management and phase balancing) in scope of trial.

Customer and Market use cases

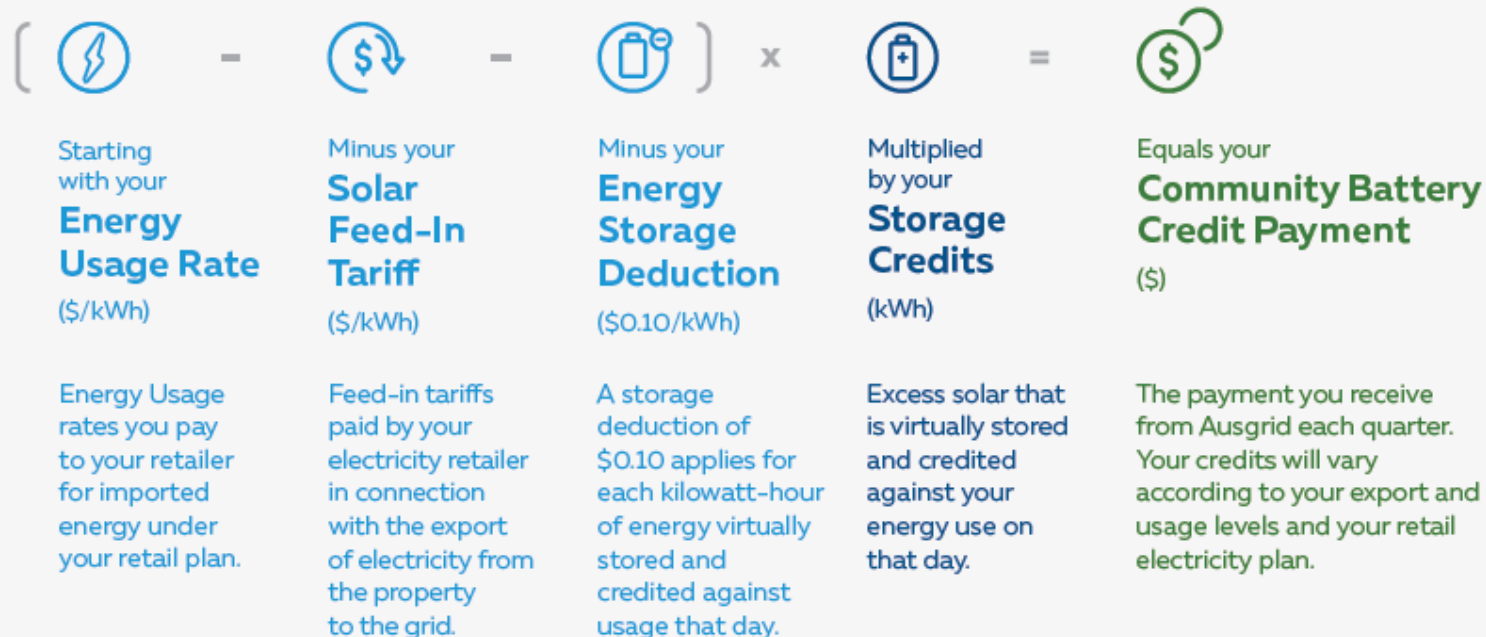
- Capacity allocation between 'Customer' and 'Market' can be conditional or firm. It is a contractual agreement that can be optimised for maximum value capture – there is multiple commercial models and customer offerings possible.
- In addition to starting detailed discussions with our Market Partner on what we will test in the trial, we've engaged KPMG to do follow up piece on potential models for the customer offer (and how to meter and settle this).
- It is anticipated that more complex commercial arrangements between parties would be condensed into a simple customer offer (as we are trialling – see next slide).

NIAC Feedback: Conceptually we are testing three use cases, but we are hoping to get insights into a number of versions of how these could interact throughout the life of the trial. What insights about community batteries, and community energy more broadly, do you see as more critical for your constituents?

We have had a great response to customer offers, however Covid has impacted the progress on signing customers up to the trial

How your community battery credit payments are calculated

Each day you can virtually store up to 10kWh of excess solar energy you generate. You will receive credits for any stored solar energy against the electricity you use from the grid that day. This is measured by the smart measurement device installed at your home.



Extract from customer offers sent out to Beacon Hill and Bankstown

Current status of customer enrolment

Beacon Hill

- 38 customers registered their interest and 22 have so far been progressed to a formal offer, with further solar assessments on hold due to Covid.
- 21 of 22 customers who have been sent an offer have signed trial agreement.
- Droplet installations on hold due to Covid.

Bankstown

- 21 customers registered their interest and 7 have so far been progressed to a formal offer, with further solar assessments on hold due to Covid.
- 3 of 7 customers who have been sent an offer have signed trial agreement.
- Droplet installations on hold due to Covid.

Covid response

- Project team is putting in place Covid safe practices to recommence droplet installations at Beacon Hill. This includes contacting customers to check if they are happy to proceed.
- Bankstown installs remain on hold due to being in one of the 12 LGAs of concern.

Community battery project research page now live

Community Batteries

Project Research

To inform the development of Ausgrid's community battery trial, Ausgrid conducted research that was focused on investigating the potential for locally based community batteries as alternative solutions to traditional local network investment.

Feasibility Report

The first stage of the research consisted of a feasibility study which was completed in February 2020. Ausgrid commissioned KPMG to explore solutions which offered a possible lower-cost alternative and more equitable access for customers compared to investing in individual home battery storage solutions. The study assessed a range of technical, commercial and regulatory issues and concluded the community battery project initiative could be feasible within as little as 3-5 years. You can read the [Feasibility Report](#) here.

Customer Survey Report

To help inform the development of the Ausgrid Community Battery trial, a second phase of research was undertaken in July 2020 to measure Ausgrid customers' knowledge and perceptions of community batteries, solar PV systems and home batteries. Around 900 Ausgrid customers with grid-connected solar PV or battery storage, and customers considering installing solar PV within the next 2 years were surveyed. Thank you to the customers who participated. You can read the results from the [Customer Survey Report](#) here.

Project Research page

- Project research page have been created to make it easier to access knowledge share reports.
- This will continue to be updated through the life of the project.
- KPMG slides on storage as a service options will be next item added to this page.

<https://www.ausgrid.com.au/In-your-community/Community-Batteries/Project-research>

A close-up photograph of a person's hand inserting a black charging cable into the charging port of an electric vehicle. The port is illuminated with a blue light, and the number '23' is visible on the inner panel. The background is dark and slightly blurred, focusing attention on the hand and the charging process.

EV Charging Platform Update

Why would Ausgrid invest in managing electric vehicles?



Optimise network design and configuration to avoid excess capital investment to accommodate EV load



Engage with the market to improve utilisation of existing assets through information sharing and dynamic connection agreements



Support de-carbonisation of the economy by supporting the accelerated uptake of electric vehicles



Help improve customer ability and choice to charge EVs at home, work and in public locations

NIAC Feedback: In what areas do you see Ausgrid play a more active part in relation to EV growth and delivering ongoing benefit to customers?

What customers have told us - key results of Ausgrid EV owner survey



Respondent Demographics

- Couples (without children) households (33%) or Couples with children (50%) made up the majority
- Full-time workers or part-time workers (72%)
- 78% live in detached house and 88% owned their home
- Tertiary educated – Bachelor degree or higher (78%)
- Higher than average household income bracket (75%)
- Around a third of respondents were from the Northern Sydney suburbs



Vehicle Ownership

- Less than 12 months old (68%)
- 1 other car in household (53%), 2 or more other cars (32%)
- Tesla most popular brand (78%)

Vehicle Usage

- 10,000-20,000 km/year (56%)
- Many regular trips start between 7 to 10 am (55%)
- The main purposes for regular trips were work, recreation and regular shopping (69%)
- The main purposes for occasional trips were recreation, holiday or visiting family/ friends (75%)
- 58% of regular trip distances were less than 20km compared to 19% for occasional trips



Home Charging

- Vast majority charge at home (83%)
- 10pm-7am was the most popular time for home charging (65%)
- Majority already do (18%) or would consider (58%) using a solar power system to charge their EV
- Decision on when to charge is based on 'when most convenient' irrespective of state of battery charge (37%)

Public Charging

- When using public EV chargers most do so for free (72%)
- The most used public charger locations were shopping centres
- Fast chargers were nearly always used for less than 60 mins



Electricity Pricing

- Above average awareness and knowledge about pricing options
- Around half were on an off-peak tariff for charging their EV, costing them around half as much as a single rate tariff on average
- 56% indicated they used timer setting controls to charge their EV

Demand Management

- 78% would consider participating in demand management (DM) programs for their EV charging
- 51% considered up to \$10 per event to participate in a DM program would be worthwhile
- Above average awareness of energy saving actions

Total of 129 owners of NSW registered electric vehicles responded to the survey

Our EV Charging Platform Regulatory proposal

- This initiative examines **the ability** for Ausgrid's network **to interact** with multiple electric vehicles (EVs) **at a single location**.
- In **collaboration with** suitable **industry partners**, this initiative will evaluate the technical parameters and market mechanisms **for a suite of EV chargers** that can sense the level of charge in vehicle batteries, manage their charge rate and optimise the concurrent charging of individual vehicles **to best utilise** the **available network capacity**.

Target Customer Benefit

Better service experience for EV owners and reduced network costs to facilitate EV charging stations

Success Criteria

Development of effective model for deployment of EV charging stations

Existing ARENA funded trials in the market

Trial	Focus	Cost
AGL EV Orchestration Trial (ARENA)	<p>The project will also provide detailed insights into customer behaviour to inform how best to maximise customer participation and customer value, and will materially advance the preparedness of the energy industry to be able to integrate large numbers of EVs in the future. It involves orchestration trial of 200 customers:</p> <ul style="list-style-type: none"> • 50 participants on V2G chargers • 50 participants on Vehicle API control • 100 participant control group on ToU only 	\$8.25m
Origin Energy Smart Charging Trial	<p>The Origin Energy Electric Vehicles Smart Charging Trial seeks to understand the benefits of and barriers to controlled smart charging, including improving our understanding of EV driver behaviour, willingness to accept third party control and what incentives are needed to encourage future participation in charge management programs.</p>	\$2.92m
Jemena Dynamic Electric Vehicle Charging Trial	<p>Objectives</p> <p>Monitoring network capacity in real time and providing technologies that can automatically control charging including time delay and throttling. i.e. initiating, delaying and/or varying EV charging rates.</p> <ul style="list-style-type: none"> • Understanding customer behaviours during the recruitment process and through customer surveys during and after demand response events. • Building capabilities to forecast the real household EV charging load associated with managed charging. 	\$3.38m
REVS Report	<p>The Realising Electric Vehicle-to-Grid Services project will install 51 bi-directional chargers and deploy a fleet of 51 V2G capable vehicles in the ACT. A system will monitor charger and vehicle availability, as well as a range of electrical parameters, which will enable the delivery of market contingency Frequency Control Ancillary Services (FCAS) at a fleet scale.</p>	\$6.59m






Trial focus areas

Areas we see opportunity and benefit in developing are:

- Testing the integration of operating envelopes into EV charging infrastructure
- Developing innovative tariffs to manage consumption (with or without controlled load)
- Establishing a framework to support Dynamic Connection Agreements for Evs
- Exploring V2G trials including for Ausgrid work vehicles
- Improve data visibility of EV location and demand
- Support the development of standards and common interfaces with key OT and IT infrastructure for future large scale integration where beneficial (eg Schneider chargers & ADMS / Ausgrid battery control system tech)
- Improve our demand forecasting and prediction of EV load patterns to enable optimum network configuration and minimise augmentation expenditure

NIAC Feedback: Are there other focus areas we should consider?

Potential options to explore

What is the trial?	What might it look like?
Integrate one of the existing retailer trials (eg AGL or Origin) Ausgrid is supporting into our systems for visibility, operating envelopes (OE) or dynamic connection agreements (DCA).	 A standardised tool to gain visibility of EV charging impacts and potentially publish OE or facilitate dynamic connection agreements for EV chargers at a broad scale across the network, where existing trial customers are located.
Extend current bus electrification collaboration to integrate our IT/OT systems for visibility/OE/DCA.	 A standardised tool to publish OE or inform DCA requirements for EV chargers at two bus depots Ausgrid is working with Transport for NSW on.
Collaborate with property developer(s), councils, TfNSW and/or charge point provider(s) to develop managed charging infrastructure at a single site.	 Direct engagement with one or two parties to develop the equipment, infrastructure and standards for optimised charging at an apartment, rail station or shopping centre carpark.
Spatial demand forecasting tool for EVs	 Develop modelling & forecasting capability to understand EV impacts on load at a granular (down to low voltage) level
Develop an A/G fleet trial (with V2G focus)	 Deploy a range of electric utility and other vehicles which could potentially provide V2G support in some work tasks.

A close-up photograph of a person's hand holding a black handheld device, possibly a scanner or diagnostic tool, over the engine compartment of a car. The engine components are dark and metallic, with some blue markings visible. The background is slightly blurred, focusing attention on the hand and the device.

For Information: Asset Condition Monitoring Update

Asset Condition Monitoring Projects Update



Recap of workstream objectives

- To test a variety of modern on-line asset condition monitoring technologies to provide real time assessment of asset condition for critical assets, including integration into the ADMS.
- These technologies can increase efficiency due to advanced predictive failure capabilities. They may also allow capex deferral where it can be deployed to facilitate techniques such as dynamic ratings.



Smart meter data analytics

- **Trial objective:** Developing data analysis platform for detection of neutral integrity issues using market sourced smart meter data.
- **Trial Status:** Data from 11,000 meters now incorporated into FutureGrid platform with testing and analysis commenced. Scoping of Phase 3 pilot has begun to examine broader use cases including near real time data acquisition.



High Accuracy Loop Impedance Monitor

- **Trial objective:** Develop high accuracy loop impedance monitor to aid detection neutral detection on distribution mains and calibrate smart meter data analytics.
- **Trial Status:** Prototype developed and delivered ready for lab testing.



Travelling Wave Relay Trial

- **Trial objective:** Test viability and benefits of travelling wave relays to improve fault response time and detect insipient faults before they occur.
- **Trial Status:** Trial site designs completed and equipment procured. Field and engineering resource limitations impacting installation.



For Information: DSO Demonstration Update

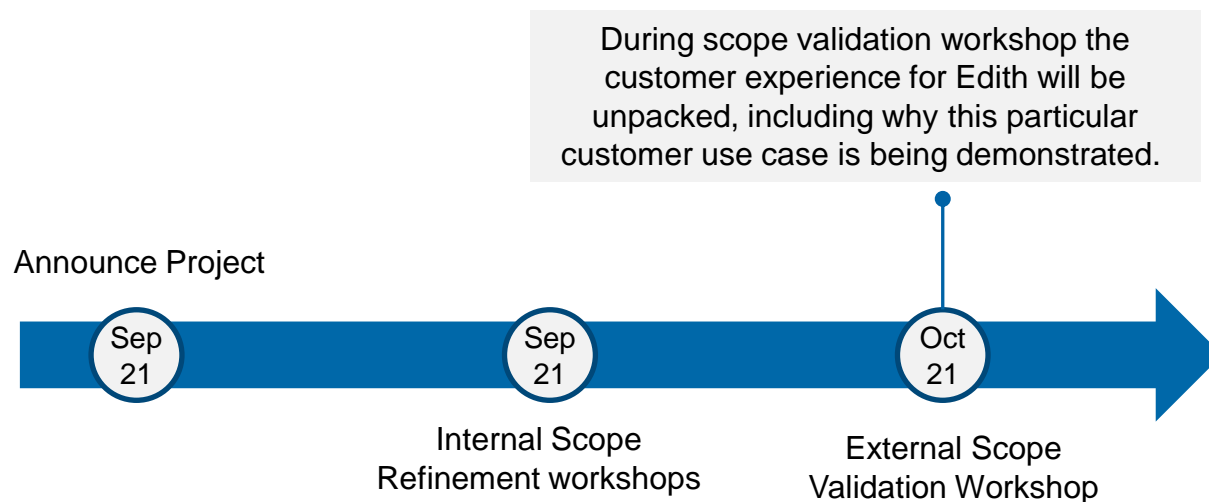
We are preparing for the Scope Validation workshop

Updates since last meeting

- External reference group composition amended based on NIAC feedback. Work underway to onboard Project Reference Group.
- Operations team at AEMO have indicated an interest in using Edith to test how to account for VPPs in their market constraint model. This may form part of future phase of the project.

Updated engagement timeline

- We are engaging a consultant to support the initial scope validation workshops



Thank you

