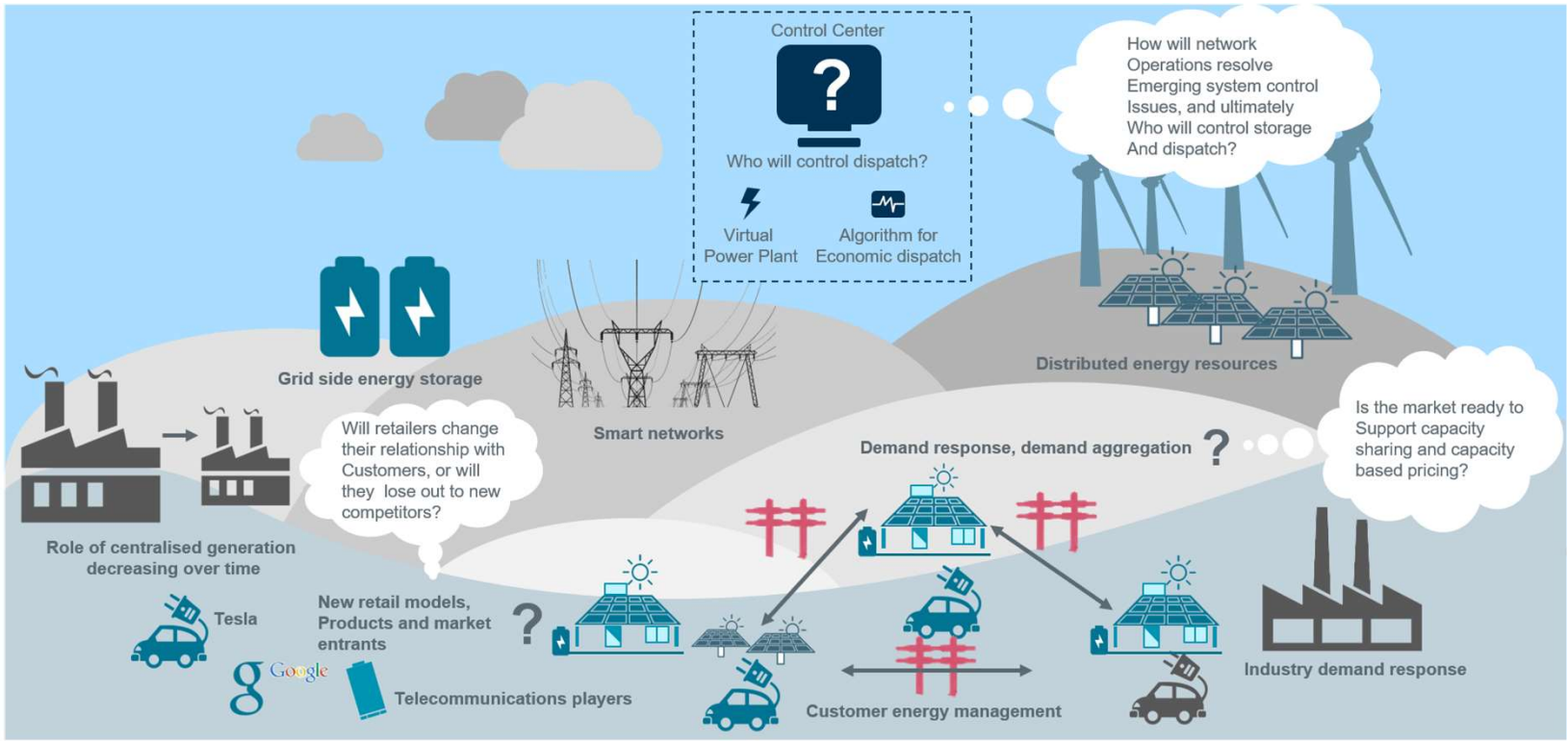
Regulatory DEIP Dive
Endeavour Energy

Ty Christopher

Endeavour Energy

A new energy eco-system is emerging, with the increase in digitalisation and two-way flows enabling end-consumers to have greater control and power



Endeavour Energy

There are four main areas transforming the energy market

COMPETITIVE LANDSCAPE

- Break down of industry boundaries between electricity, technology, telecommunications and mobility
- Stagnant or declining demand for electricity
- Distributed generation and disconnection from grid enables small start-ups to capture emerging opportunities, with focus on skills and innovation

TECHNOLOGICAL ADVANCEMENT

- Maturity of technologies (e.g. solar PV, electric vehicles, battery storage, energy efficiency) becoming more cost-competitive in an increasing number of markets
- New technologies such as intelligent grids and smart meters giving enhanced demand-side management opportunities

CUSTOMER DEMANDS

- Increasingly mobile, interconnected customers
- Increasing demand for additional services that go beyond the commodity
- Convenience and digital engagement becoming more important
- New technologies will drive new consumer demands and consumption behaviours

REGULATORY FOCUS

- Global trend towards tighter regulation around CO_2 emissions and energy efficiency
- Balancing supply security and affordability with environmental impact
- Broad energy reforms possible as new technologies and markets continue to evolve with expanding market base

Endeavour Energy

Distributed Energy Focus Areas

Customer Choice	• Customers are expecting more from the energy supply environment • Customers are and will continue to make their own choices and drive change as a result
Power System Security	• Multi-directional power flows create new technical challenges • Stand Alone Power systems are now a viable (and superior) alternative to grid connection in remote areas
Carbon Abatement	• Secure a stable carbon policy is needed • Uncertainty is driving customers to make their own decisions and choices
Intelligent Networks & Markets	• Information visibility needs to be a priority in order to facilitate the new energy market • A new customer relationship needs to be forged between NSP's and their connected customers
Incentives & Network Regulation	• Technology and customer behaviour is running ahead of regulation • Insufficient or misaligned economic signals within existing schemes

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Changing customer expectations

Industrial

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These models seek to apply commercial and physical solutions which operate behind the meter and in front of the meter.

Current rules around NMI's etc were not written with such arrangements in mind.

Residential

Economics would appear to be providing a reliable moderating influence.

Increasing solar uptake is increasing the level of cross subsidy between solar generators and electricity consumers

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System operation and security

Industrial

Generally larger scale solar generation is well supported by adjacent load, minimising technical issues such as voltage control.

Development of the DER register may prove challenging but is on the right track

Residential

Micro solar output capacity of 5kW single phase or 30 kW three phase per premise are within system capability and present a low risk to connection.

As DER penetration increases, voltage constraints will continue to emerge.

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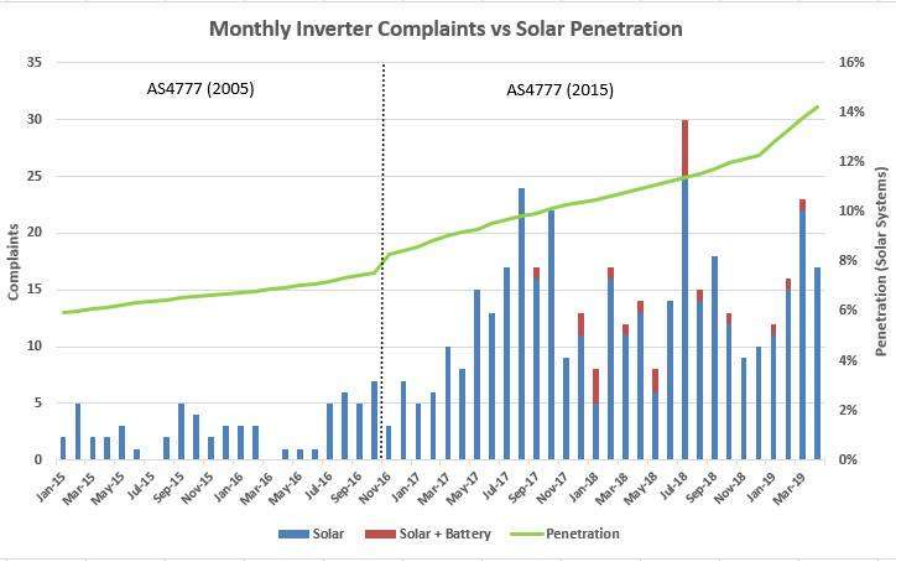

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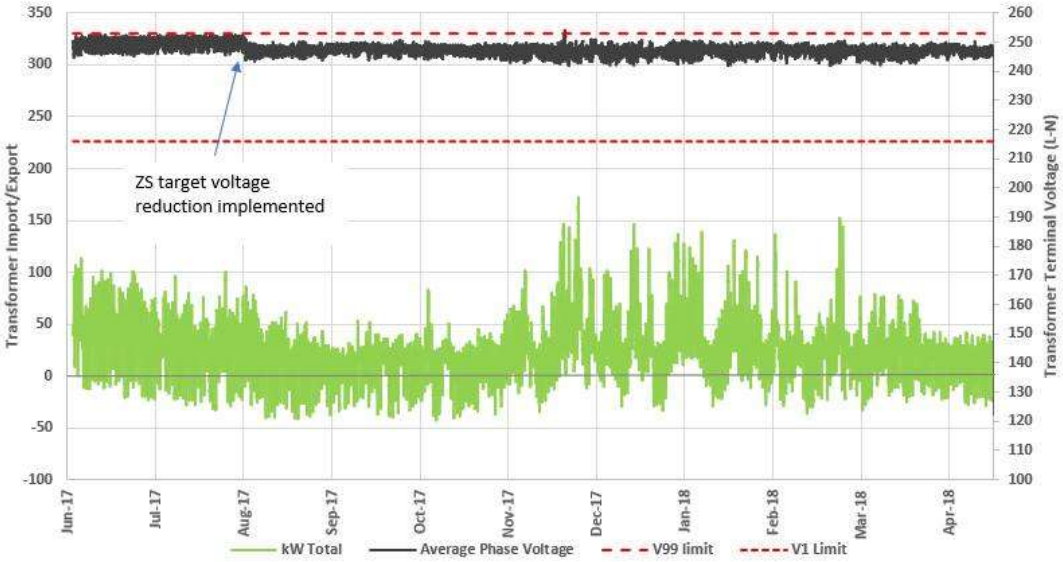
System operation and security – example 1

DS32302



Kellyville

Distribution Substation with close to 100% solar penetration.

System sizes 3-5kW.

Voltage reduction undertaken at zone substation. Likely headroom to re-tap distribution transformer as well.

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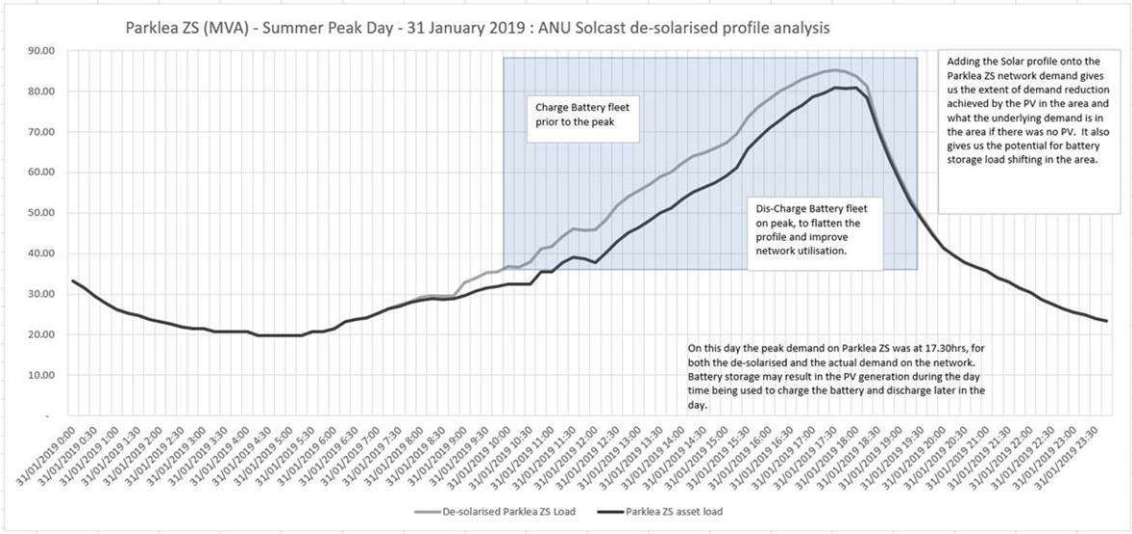
System operation and security – examples 2&3



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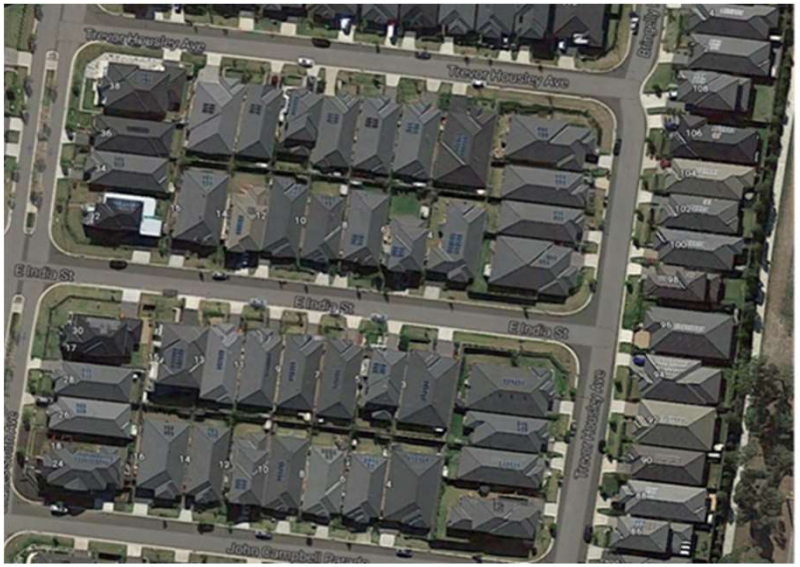

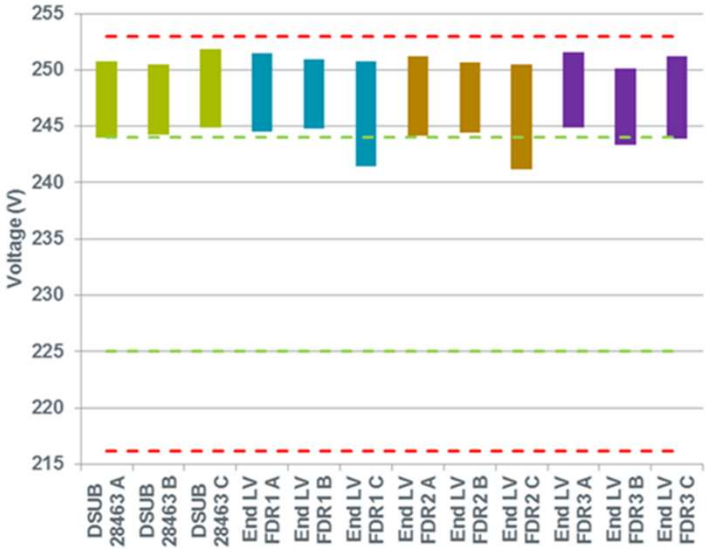

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System operation and security – example 4

Kentlyn

Solar DER at urban fringe.

Customer has ~16kW 3-phase solar (compliant installation).

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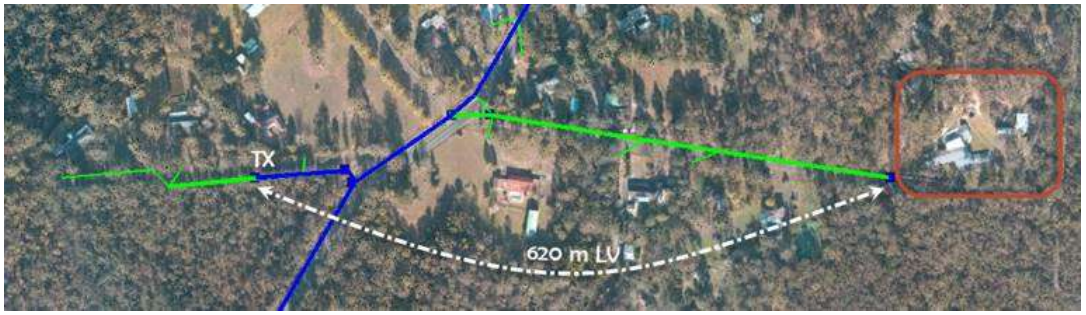
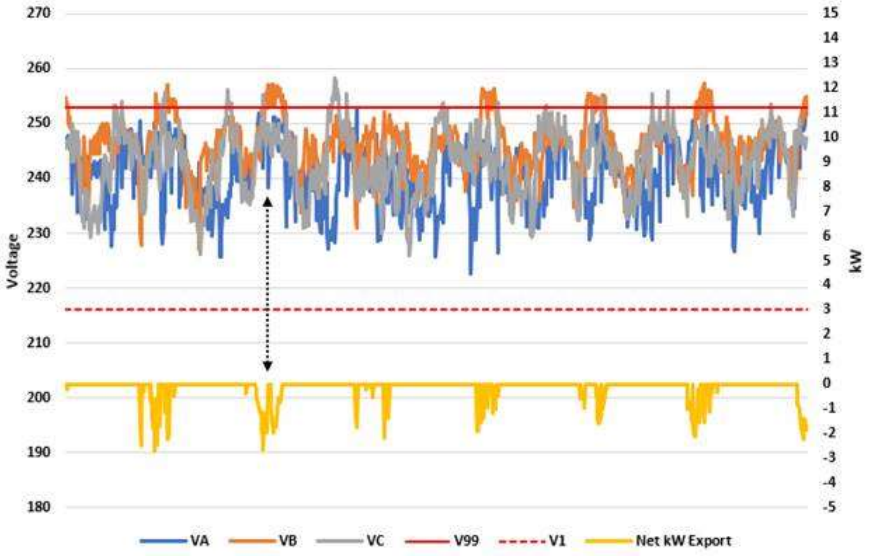
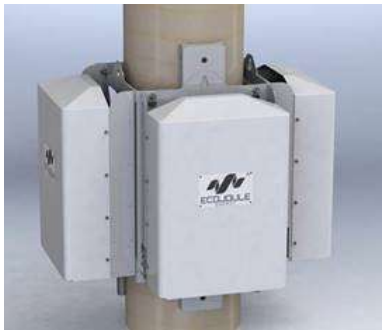
Data shows minimal opportunity to export before curtailment, at best ~3kW can be exported.

LV Stat Com the recommended solution







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Intelligent Networks and Markets

Acquiring smart meter data from energy retailers and metering coordinators will allow NSP's to monitor edge of grid safety, reliability and security.

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Customers expect a closer relationship between them and their NSP. Customers want to know about their electricity supply situation in real time.

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Incentives & Network Regulation

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When engaging with the AER and stakeholders during our most recent determination process for the period that commences next month there was a great focus on the ADMD used in our planning assumptions for sizing the network. This is of course an appropriate discussion.

However, what this measure does not consider is the expectation of DER generation within those areas and what the “load” from these generation sources may be.

It is entirely conceivable that by reducing the ADMD assumptions we may be creating the environment where localised generation constraints may arise in the future.

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As customers change how they use the network our perception of the services that the network provides also needs to change to keep pace.

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If we price the correct network cost drivers – say demand and demand at peak – how relevant is it that a customer uses the network for air-conditioning, selling PV energy, or charging an EV?

Telecommunications networks have faced similar economic challenges and approach the issue very differently, but they also have different rules.

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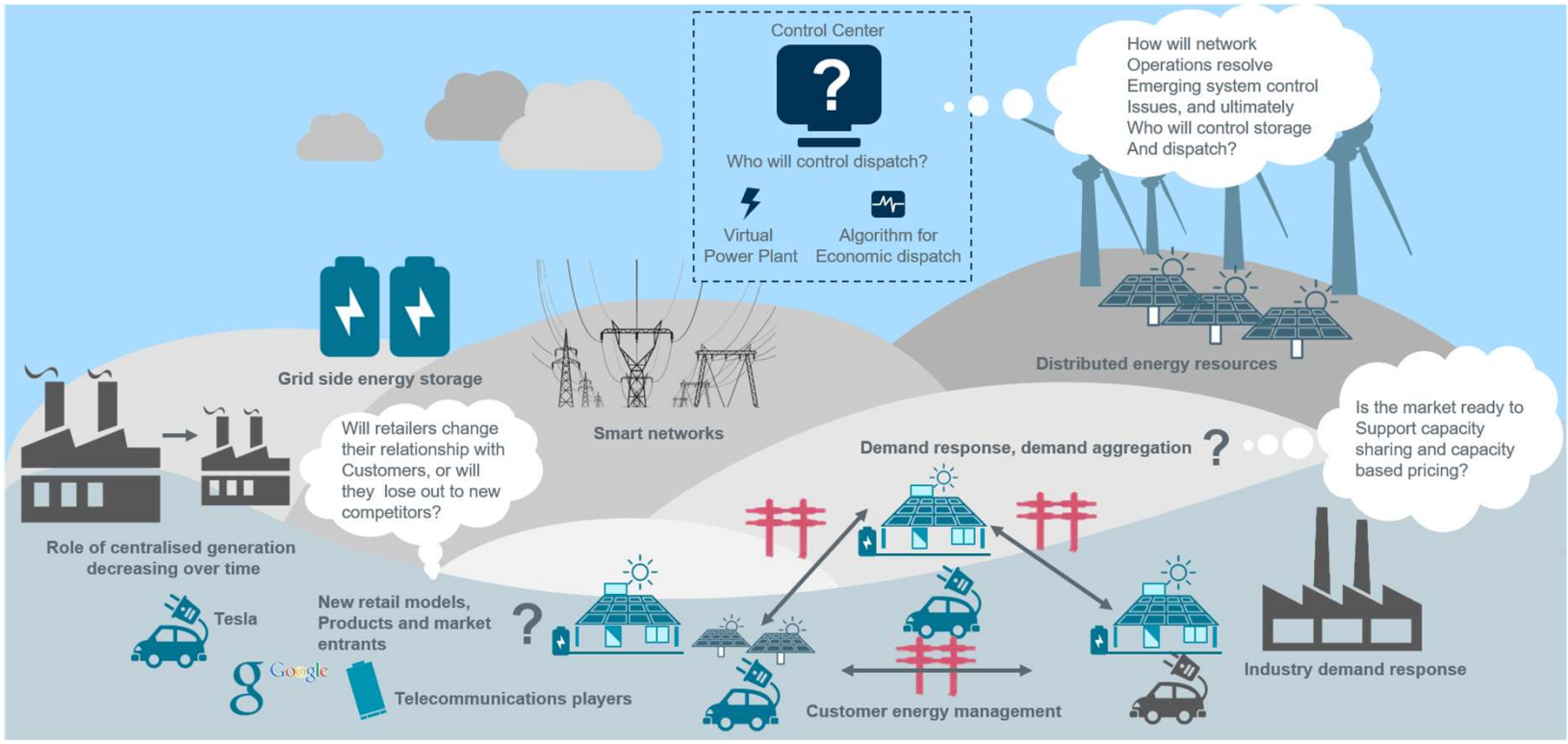

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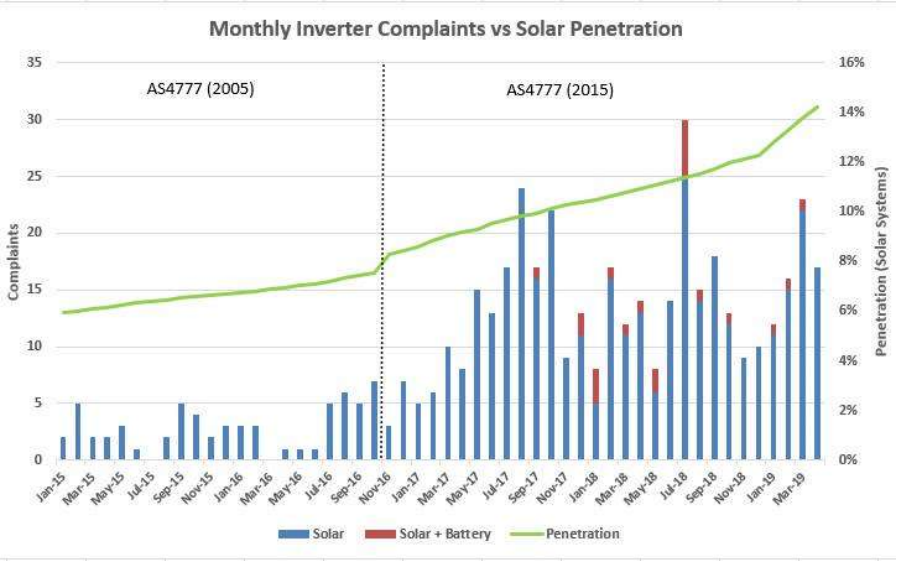

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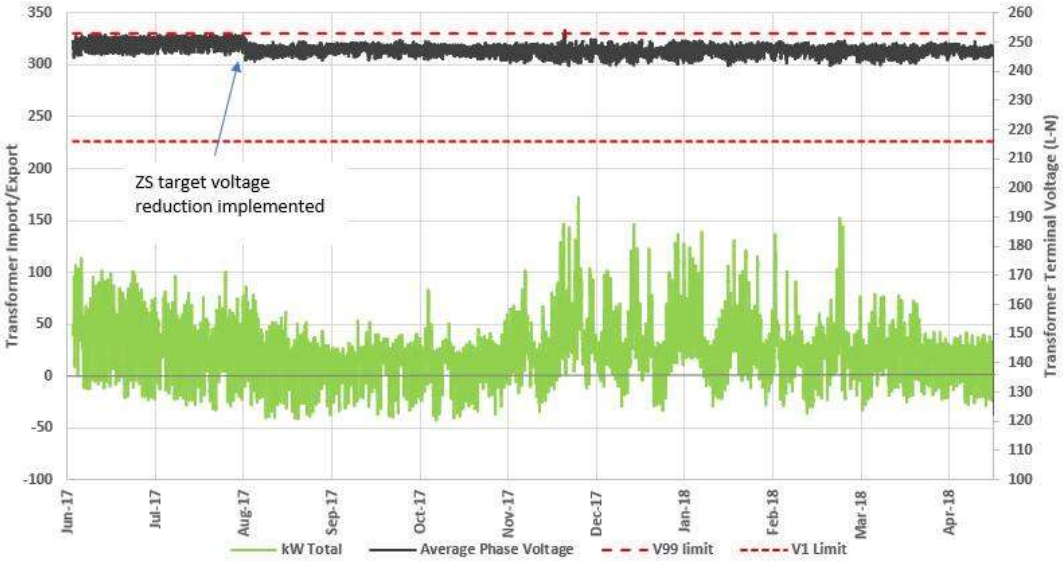

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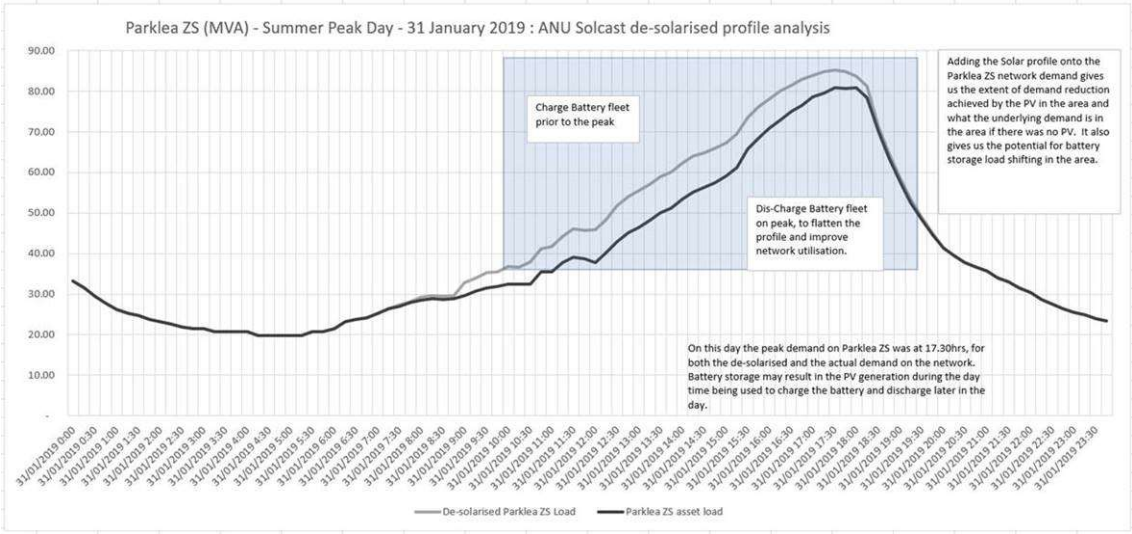

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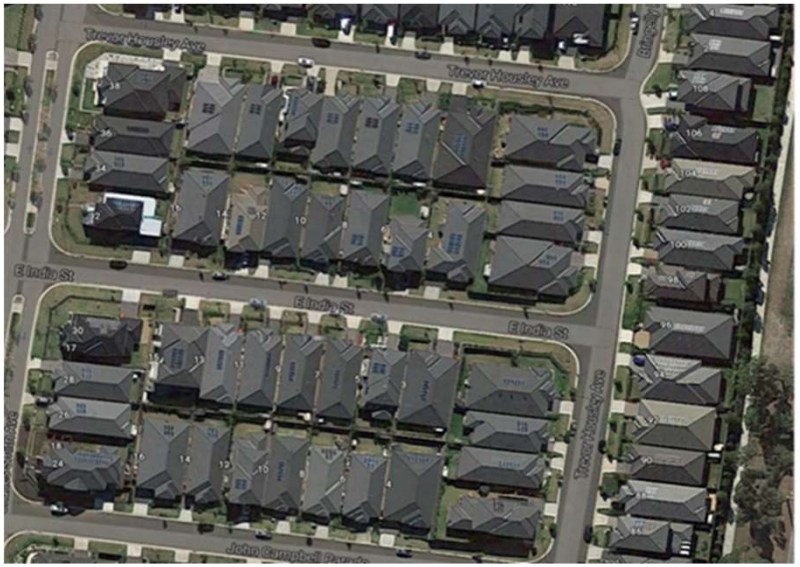

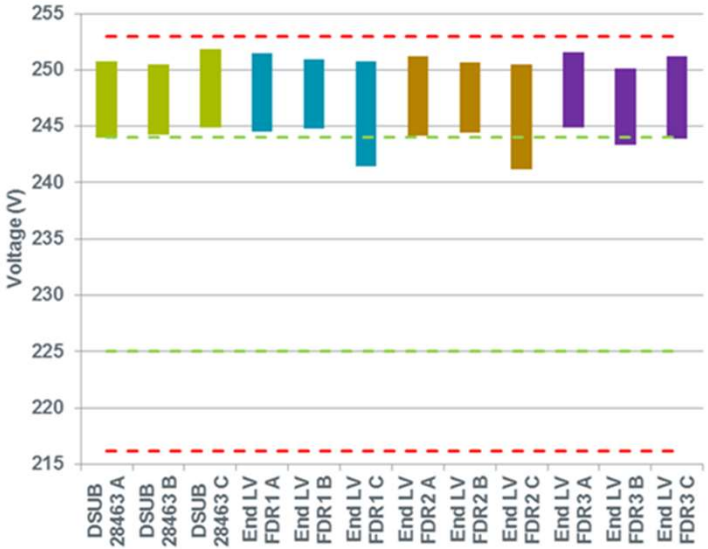

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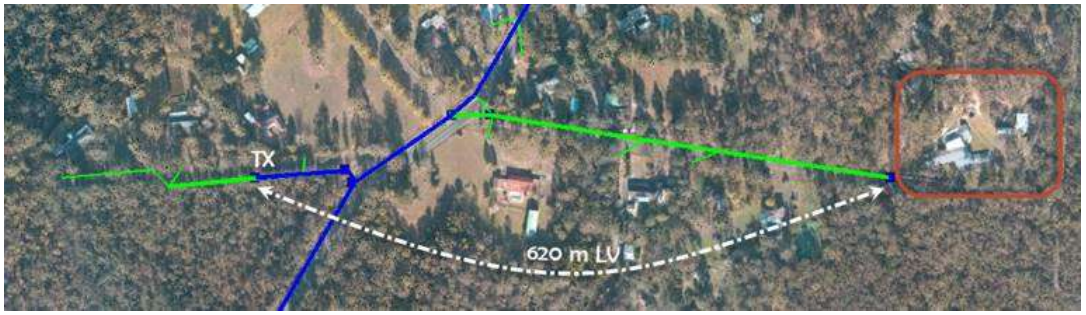

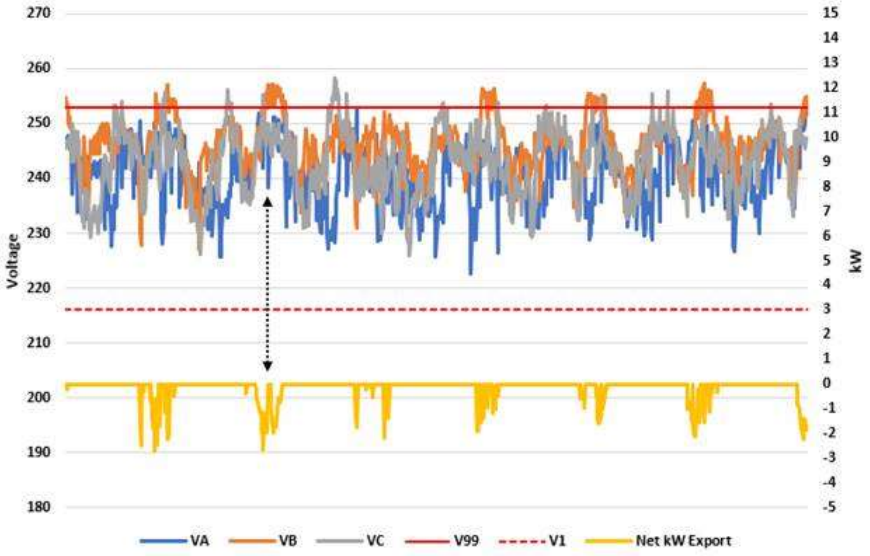

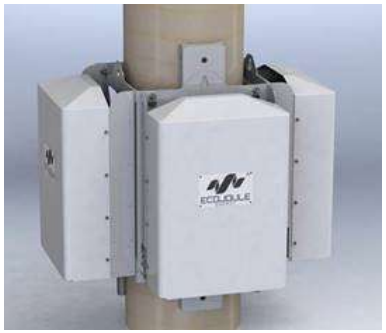

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