Designing from the Plug to the Power Station

IREE 2019

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ENERGY CONSUMERS AUSTRALIA

The Changing Energy Landscape

- Challenges and Opportunities

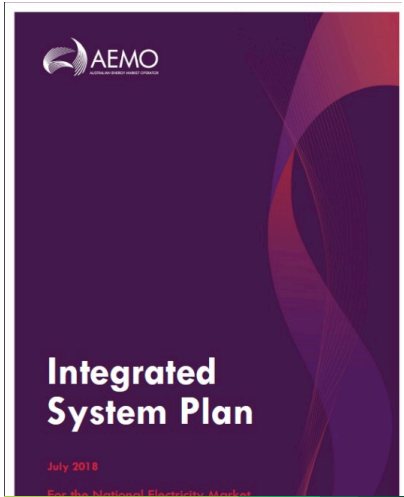
1. New for old, asset replacement
2. Rewarding consumers
3. Building a flexibility services market, and no-one left behind

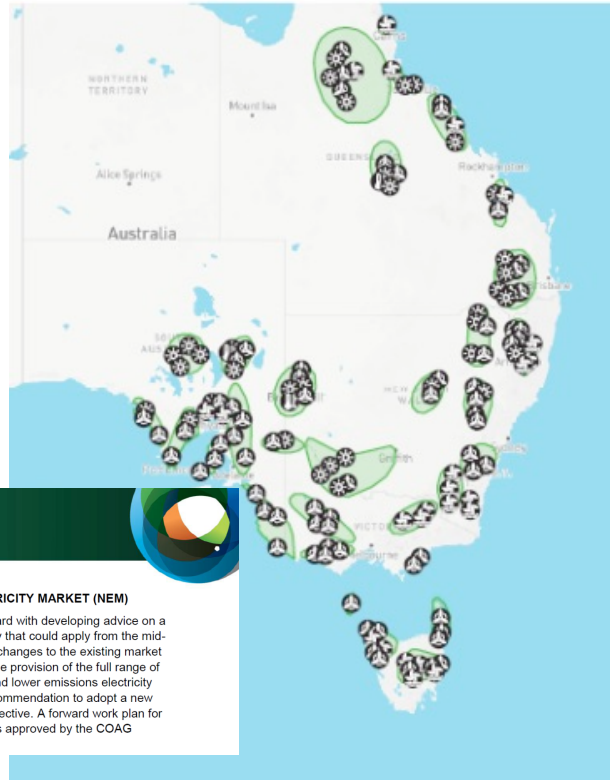
The journey from electrification towards the “decarbonisation” finish line

“There is the beginning, the middle and another beginning””

New for old, asset replacement

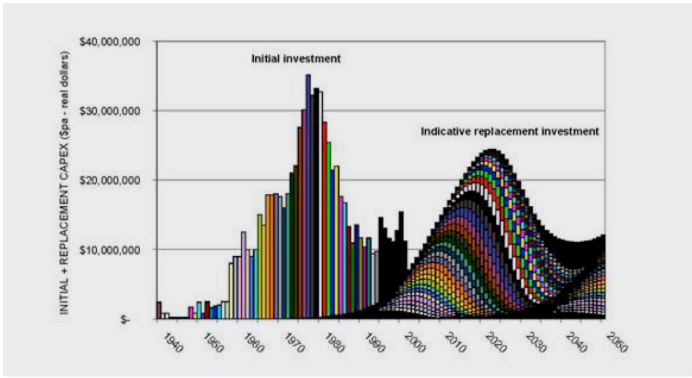
Challenge 1 – avoid a "trickle down" design for the new energy system





POST 2025 MARKET DESIGN FOR THE NATIONAL ELECTRICITY MARKET (NEM)

The COAG Energy Council has tasked the Energy Security Board with developing advice on a long-term, fit-for-purpose market framework to support reliability that could apply from the mid-2020s. By the end of 2020, the ESB needs to recommend any changes to the existing market design or recommend an alternative market design to enable the provision of the full range of services to customers necessary to deliver a secure, reliable and lower emissions electricity system at least-cost. Any changes to the existing design or recommendation to adopt a new market design would need to satisfy the National Electricity Objective. A forward work plan for this project is set out at Appendix 1. This forward work plan was approved by the COAG Energy Council at its December 2018 meeting.



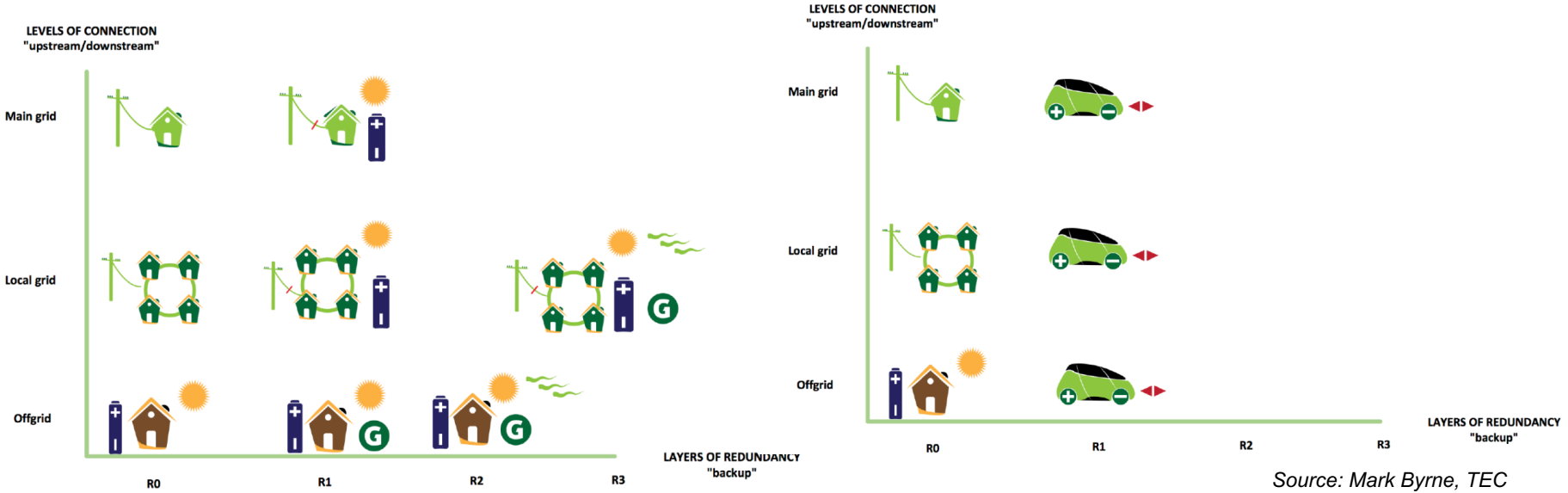
Source: AER, Andrew Reeves, Presentation to the Asia Pacific Partnership on Clean Development and Climate, 4 November 2010

5 AEMC, 2013 Residential Electricity Price Trends, p.24; ENA analysis
6 Productivity Commission, Inquiry Report, Volume 2, Electricity Network Regulatory Frameworks, p. 346

Target high capacity utilisation of <u>all</u> system assets in the cost-benefit (business) case, using real options analysis to deal with "unknown, unknowns".

Rewarding consumers

Challenge 2 – another beginning includes scaling local "consumer power" stations

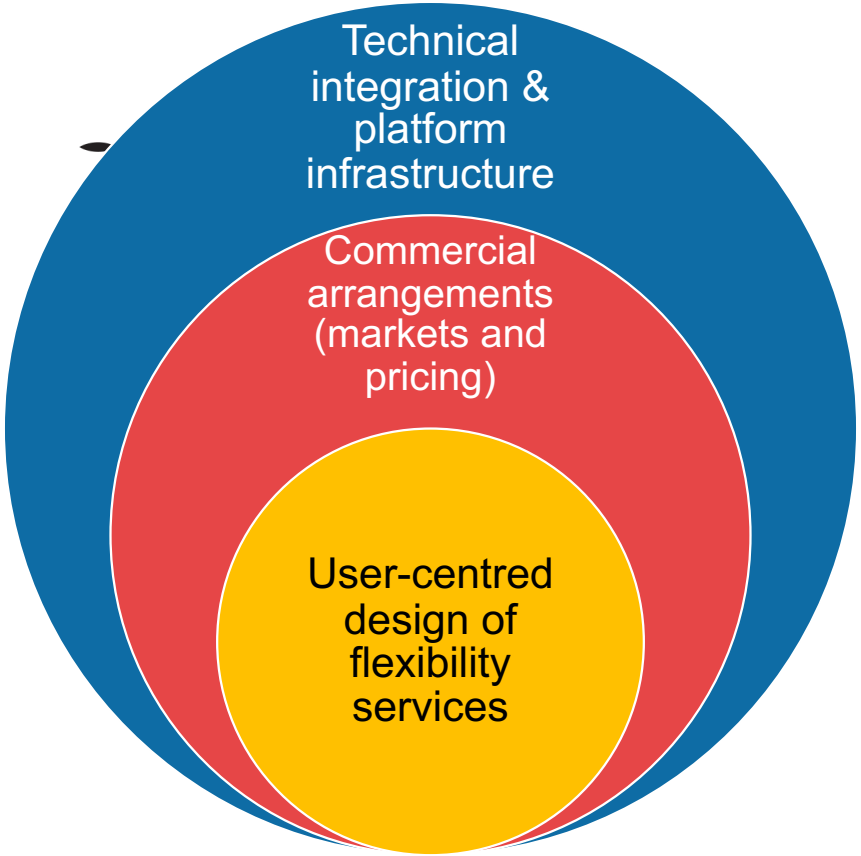


Source: Mark Byrne, TEC

Not only commercial and industrial consumers (through "own" demand management and other demand response mechanisms), but 10 million small consumers accessing value (rewards) through a services market that aggregates loads (shifting and shedding) and on-site generation and storage (including electric vehicle fleets, microgrids, virtual power plants) to provide energy system (and decarbonisation) benefits.

Building a flexibility services market

Challenge 3 – designing for citizens to enable demand to "flex"



Testing new products, services and business models in the wild

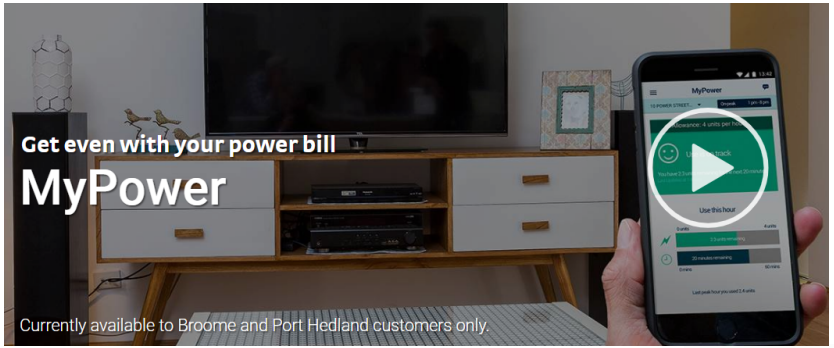
CATAPULT Energy Systems

WELCOME TO THE GREEN VILLAGE

Creating a sustainable future together

Living Lab

Innovation in rewarding consumers for flexibility
"*War on waste and fuel poverty*"



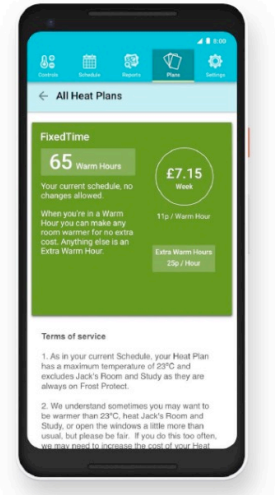
"Cooling" plans

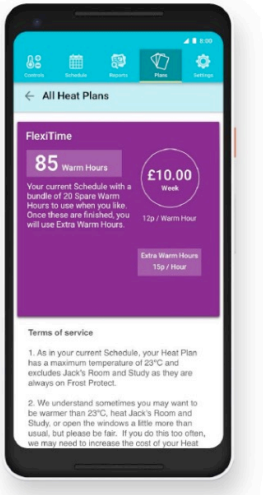
"Heating" plans

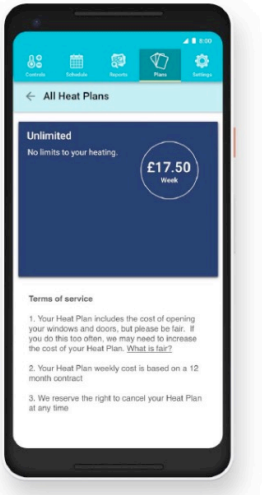
CATAPULT Energy Systems

Individualised for:

- Comfort (homes)
- Competitiveness (businesses)
- Convenience
- Cost
- Carbon

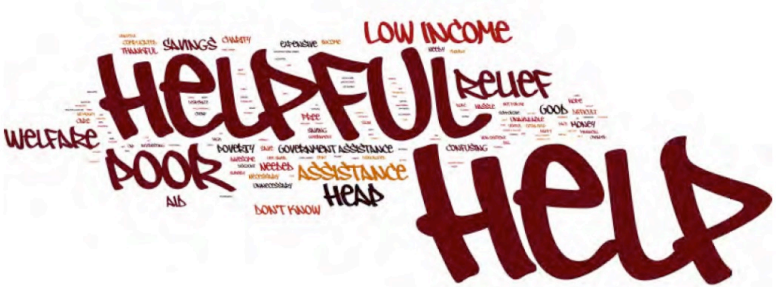






No-one left behind

Targeted measures for vulnerable consumers



Opportunity to look to Australian and international research and experience

Targeted measures that deal with the lived experience of consumers experiencing difficulties in paying their energy bills bill including interrelationship between changes in retail pricing and:

- household budgets;
- family circumstances including poor health;
- poor housing quality; and
- inefficient appliances.

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