Business Power Flex

RACE for 2030 BUSINESS

Australia's transition to a renewables powered grid creates a challenge of grid reliability through an oversupply of renewable energy during the day, known as minimum net demand.

This project aims to complement network-based solutions to this problem by identifying and testing opportunities to shift business energy demand into this daytime oversupply period, known as flexible demand.

Griffith UNIVERSITY Queensland, Australia
UTS
agl
SEELEY INTERNATIONAL
Sydney WATER
Australian Government
Department of Industry, Science and Resources
AusIndustry
Cooperative Research Centres Program

RACE brings together the whole energy value chain to coordinate and facilitate

- Knowledge sharing
- Market transformation
- Impact

The opportunity

Our electricity grid is changing.

Australia has a target of 82% renewable electricity generation by 2030 and locally installed photovoltaic (PV) solar generation will play a major role. The Australian Energy Market Operator (AEMO), has identified a number of challenges relating to minimum grid demand when local PV reduces the need for grid based electricity during the day. Shifting consumption from business into the middle of the day during non-peak times using various forms of flexible demand (FD) can reduce system costs and improve grid stability.

This project will assist different Commercial and Industrial (C&I) users to identify the optimal combinations of flexible demand, embedded generation and storage to minimise cost and greenhouse emissions by better aligning supply with demand.

Initial pilots will consider options for three partners (Seeley International, AGL and Sydney Water) in a range of locations including commercial building, sports stadium, university campus, supermarket, airport, cold store, and water pumping. The Sydney Water pilot will also look at EV integration.

The project team is actively looking for additional pilots to enhance the industry knowledge base.

For more information please contact tracey.colley@racefor2030.com.au.

The project will:

- Identify and quantify commercial and industrial electricity loads, such as heating, cooling, heat pumps, EV charging and other flexible loads, that can be shifted towards the middle of the day when cheap renewable energy is readily available
- Identify innovative pricing and incentives that signal relative capacity constraints
- Implement at least 3 pilot studies to test identified opportunities and shared findings publicly. Pilot partners are Seeley International, AGL and Sydney Water.

The duck curve:

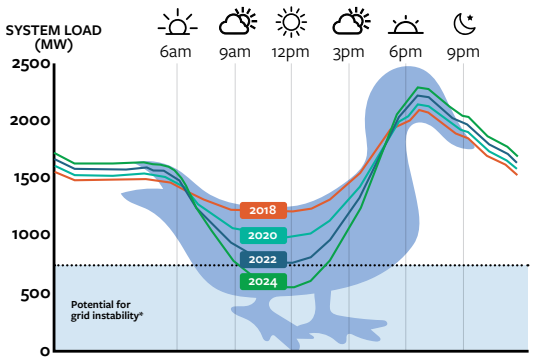


Figure 1: Graphical representation of the duck curve using data from AEMO.

The project description

There are three main project tasks – mapping and valuing potential C&I flexible demand solutions; pilot testing of identified flexible demand options; and working with policy makers and regulators to support the adoption of innovative pricing and incentives. Each task includes comprehensive stakeholder engagement.

There are a number of related RACE research projects which will feed into the Business Power Flex project. These include Sustainable Electric Vehicle Integration (SEVI), Net Zero Precincts, 24/7 TRUZERO and Energy Flexibility for Water Corporations.

The project will identify how to:

- Reduce electricity bills for C&I sites
- Maximise the amount of flexible demand available for different C&I sites
- Smooth C&I electricity demand
- Improve grid stability
- Unlock opportunities for further renewable energy investments
- Enhance transport electrification.

The impact

BUSINESSES

New tariffs

Incentives for daytime demand

'How-to's' for flexible demand

NETWORKS

Stable, safe reliable renewables grid

Enable unlocking investment in renewable energy technologies, especially solar

POLICY MAKERS

Prevent solar and wind curtailment

Ensure investment for a renewables grid

Identify successful mechanisms for flexible demand

Strategies that lead to new policies for a lower cost reliable clean energy transition

2030

$3m

ENERGY COST SAVINGS

15.2

$ktCO_2e$ SAVINGS

2035

$10m

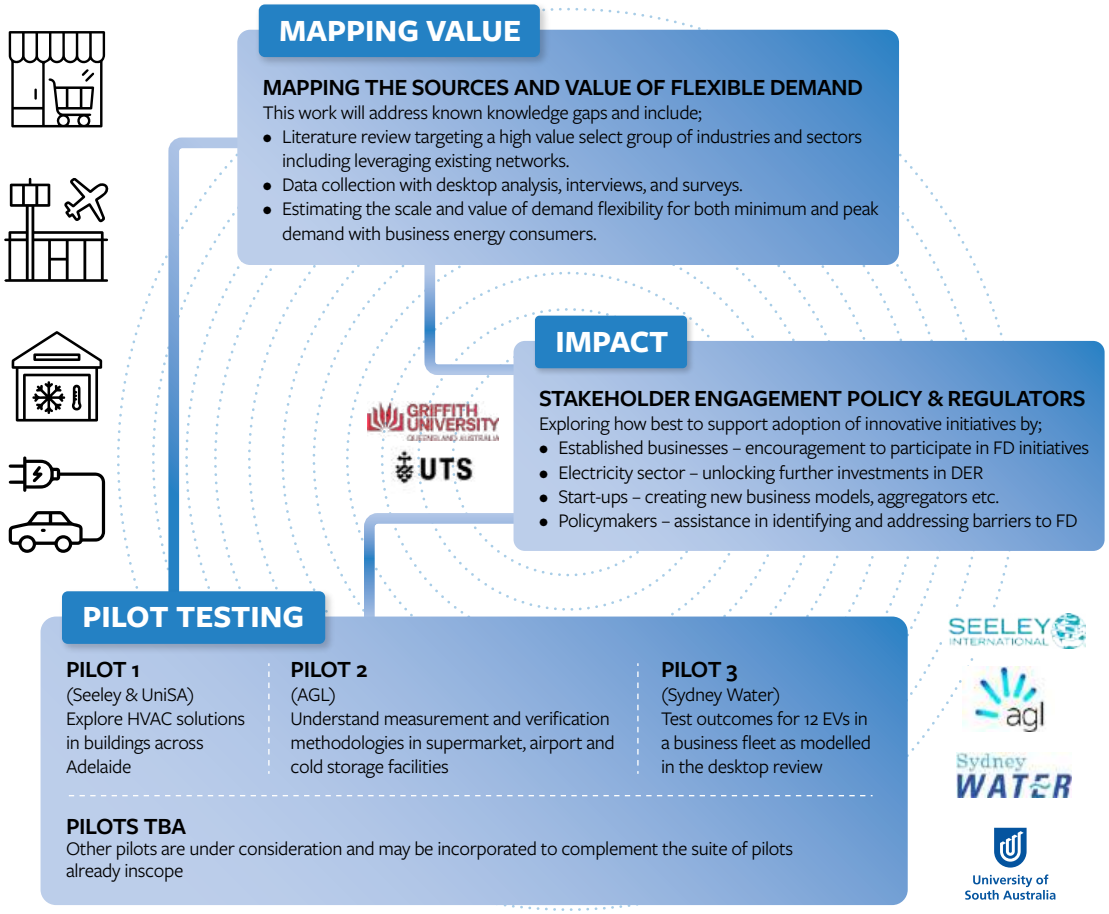
ENERGY COST SAVINGS

29.6

$ktCO_2e$ SAVINGS

Research format

The research format for the project starts with a mapping process which leads to parallel activities of stakeholder engagement and 3 pilots testing identified interventions.



Outputs and outcomes

The outputs will include findings from pilots, case studies and policy papers on:

- Potential flexible demand quantified for customers
- At least 3 pilot projects with Seeley International, AGL and Sydney Water
- Policy and regulations workshop on innovative tariffs and incentives
- Identified flexible demand incentives

The expected outcomes will be:

- Help maintain a stable and reliable electricity network
- Create value and fairness for energy customers
- Minimise the loss of value associated with renewable curtailment
- Leverage new fit-for-purpose flexible pricing and other attractive economic incentives
- Ensure the ongoing transition to decarbonise our grid.