Social License to Automate Task

Dr Declan Kuch and Dr Sophie Adams (UNSW)

Our Research: Social Scientists

Dr Declan Kuch (UNSW)

Dr Sophie Adams (UNSW)

A/Prof Megan Farrelly (Monash)

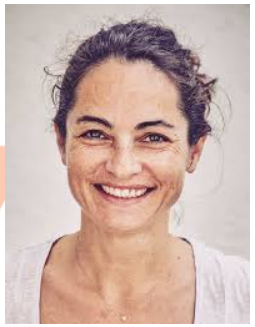
Expertise in public engagement with infrastructure

Dr. Kuch: Climate and energy policy, coal and unconventional gas, economic sociology, socio-legal studies

Dr. Adams: geography, climate policy, resilience theory, Foucault studies

A/Prof Farrelly: geography, public engagement with water infrastructure

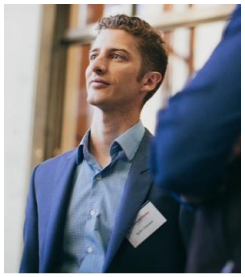
Our Research: Engineering



Dr Anna Bruce

A/Prof Iain MacGill

Dr Mike Roberts (UNSW)



Scott Ferraro (Monash)

Expertise in electricity market design and policy

Dr Bruce: renewable energy systems, development,

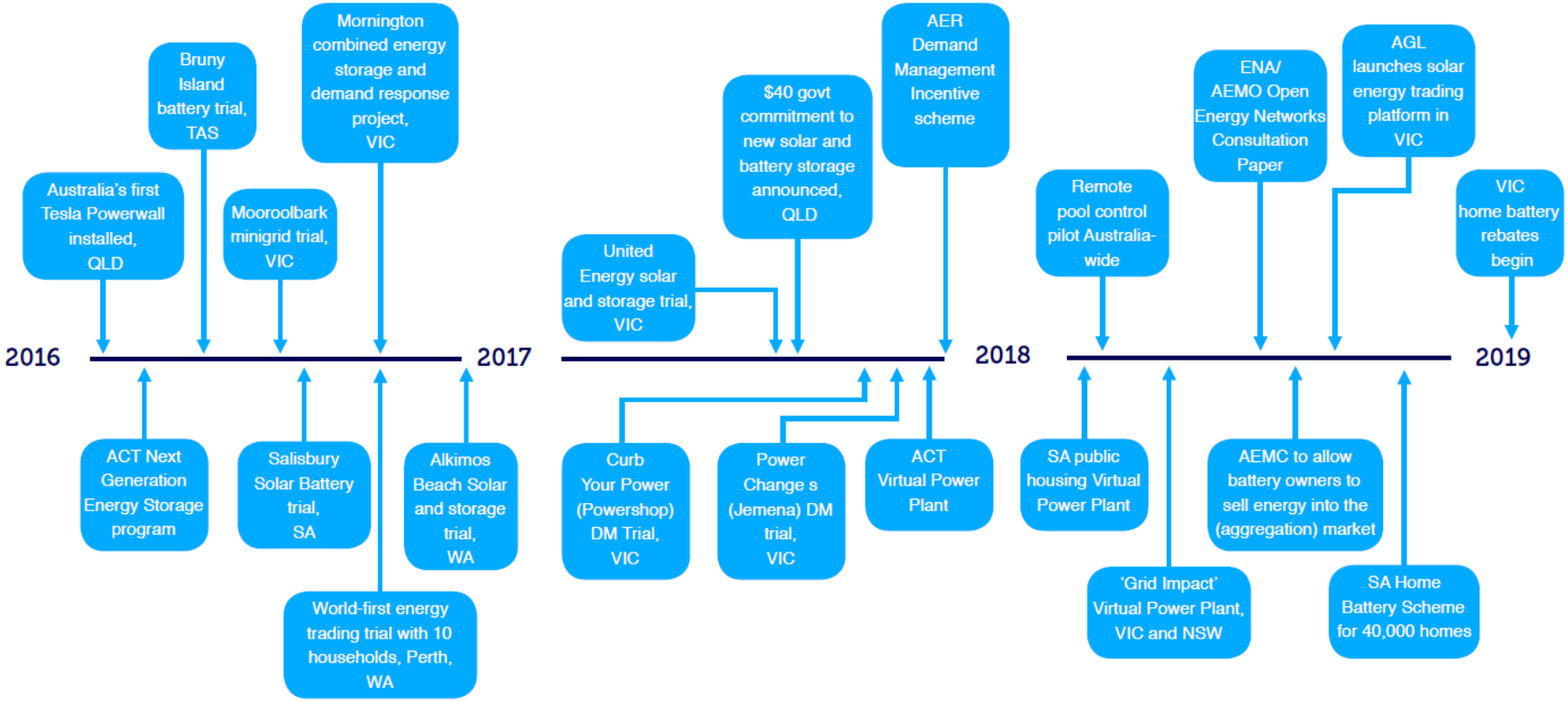
A/Prof MacGill: power systems engineering, market design, climate and energy policy

Dr. Roberts: residential energy, home energy systems

Scott Ferraro: Monash NetZero project

Case Studies: Automation/DSM

Figure 1. Sample of household solar and demand management initiatives and announcements in Australia 2016-2018



Australian Research Partners

UNIVERSITY of TASMANIA
AUSTRALIA

ENERGY CONSUMERS AUSTRALIA

renew.

MONASH University

energy efficiency COUNCIL

public interest ADVOCACY CENTRE

International Partners

Zürcher Hochschule für Angewandte Wissenschaften
zh aw School of Management and Law

AIT AUSTRIAN INSTITUTE OF TECHNOLOGY

KTH VETENSKAP OCH KONST

TU Delft

UNIVERSITÉ DE GENÈVE

In discussions/ Pending:

ASU Arizona State University

NUS National University of Singapore

Themes within the literature on automation for DSM	Observations	Relevant sources	Hypothesis	Possible approaches and cases for investigation
The load flexibility achieved through automation	As an alternative to behavioural change or manual response approaches in DSM, automation (both semi-automation and direct load control) is designed to achieve flexibility on behalf of the user, reducing the need for their active engagement. However, automation itself also necessitates new forms of user engagement, including managing automation technologies (e.g. programming smart appliances) and changing household practices to accommodate an automated flexible load. Studies of existing and prospective users have documented a variety of responses to what automation does or would require of them.	Some users have e.g. expressed 'fears about the time and energy required' to manage the automation technologies themselves (Paetz et al 2012). At least some of the householders participating in existing DSM programs have experienced the changes to their household practices associated with load shifting as inconvenient and disruptive (Pallesen and Jenle 2018; Christensen and Friis 2016), while focus group participants in studies exploring perspectives on the prospect of automation have raised concerns about possible disruption to important practices such as family mealtimes (Murtagh et al 2014; Paetz et al 2012).	Users are open to some modes of engagement more than others, or only in specific conditions. A lack of receptiveness to automation can stem from resistance to the forms of engagement required of users (perhaps more than from the principle of automation in itself).	

Data Collection Hypotheses

1. **Context is critically important:**

   Users are open to some modes of engagement more than others, or only in specific conditions. A lack of receptiveness to automation can stem from resistance to the forms of engagement required of users (likely to be more important than from the principle of automation in itself).

2. **Time frames matter:**

   Users accept automation to achieve load flexibility of only some energy consumption practices and within some time frames.

3. **Preference for levels of 'visibility' will vary:**

   Direct load control may in fact be the preferred form of automation for some users where it can keep load shifting and shaving 'invisible' or imperceptible

Data Collection Hypotheses

4. Ability of users to retain **control** will impact receptiveness to automation
5. Fair **Compensation** through money or recognition will influences users' willingness to cede control
6. Why: **Transparency about the rationale** for automation in DSM, as well as about the ways in which **different actors may benefit from it**, can increase receptiveness to automation.
7. Ownership (in broadest sense) matters: **A sense of a stake in successful DSM**, and ownership over how it is undertaken, can increase receptiveness to automation.

Key Challenges

- For retrofits with households, technology rollout (batteries etc.) are often non-linear. How do you work with installers and technology developers effectively to keep their interest?
- Is the challenge **scaling up** or **scaling *out?***
  - If up, consult literature on regulatory theory in your area – expect issues of consumer rights, market power, labour rights to require attention.
  - If out, build networks sensitive to the issues in local domains

Questions, comments, suggestions:

d.kuch@unsw.edu.au