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# Exploring the Social- Spatial Context of the Energy Transition

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# The socio-spatial context of the energy transition

## PROJECT AIMS:

- Visualise the heterogeneity of consumer experience in changing energy market
- User-friendly format – relevant and tailored
- Generate new insights about nature of energy inequality

## POLICY APPLICATION:

- Structural barriers and the characteristics and capabilities that enable consumer engagement
- Understand how competition is working across space and time – winners and losers
- Design market and non-market interventions to address inequalities and encourage engagement
- Helps to monitor the effects of specific policy interventions



# What data did we use and what did we do?

## *PV installations*

- CER: Small-scale Solar Installations Quantity (2010-2018) ÷ Total households 2016
- Relative indicator - Variance from overall Victorian mean by year
- 5 categories: low, medium and high, plus two others for wider variance

## *Broad analysis of spatial dis/advantage (not energy specific)*

- Census data Socio-economic Indexes for Areas (SEIFA)
  - Index of Relative Socio-economic Advantage and Disadvantage 2016
  - Low index score = most disadvantaged, high score = most advantaged. Grouped in quintiles.

## *Socio-demographic and built environment factors elaborate dis/advantage and solar PV uptake relationship*

- 2016 Census Dwelling Structure; Tenure Type; Urban/Rural; House Size; English Proficiency; Age; Pension

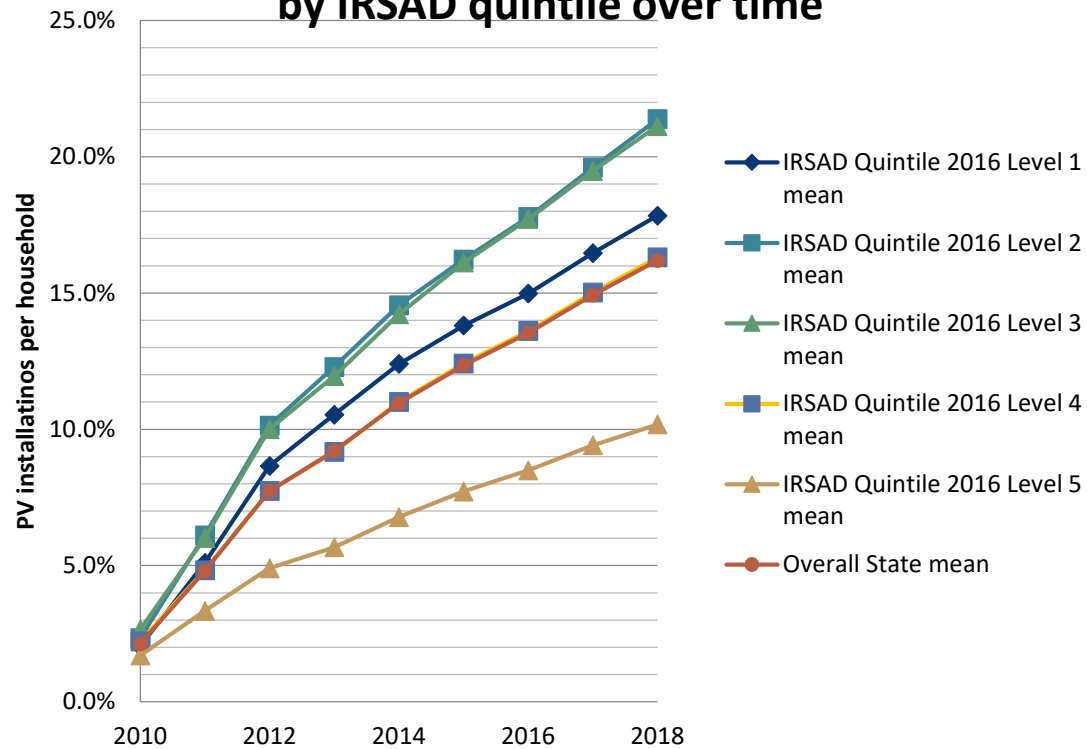
## *Changing energy costs for households over time by network*

- Index time series for reference price of dominant fuel (dual fuel vs all elec)
- Index time series for price dispersion

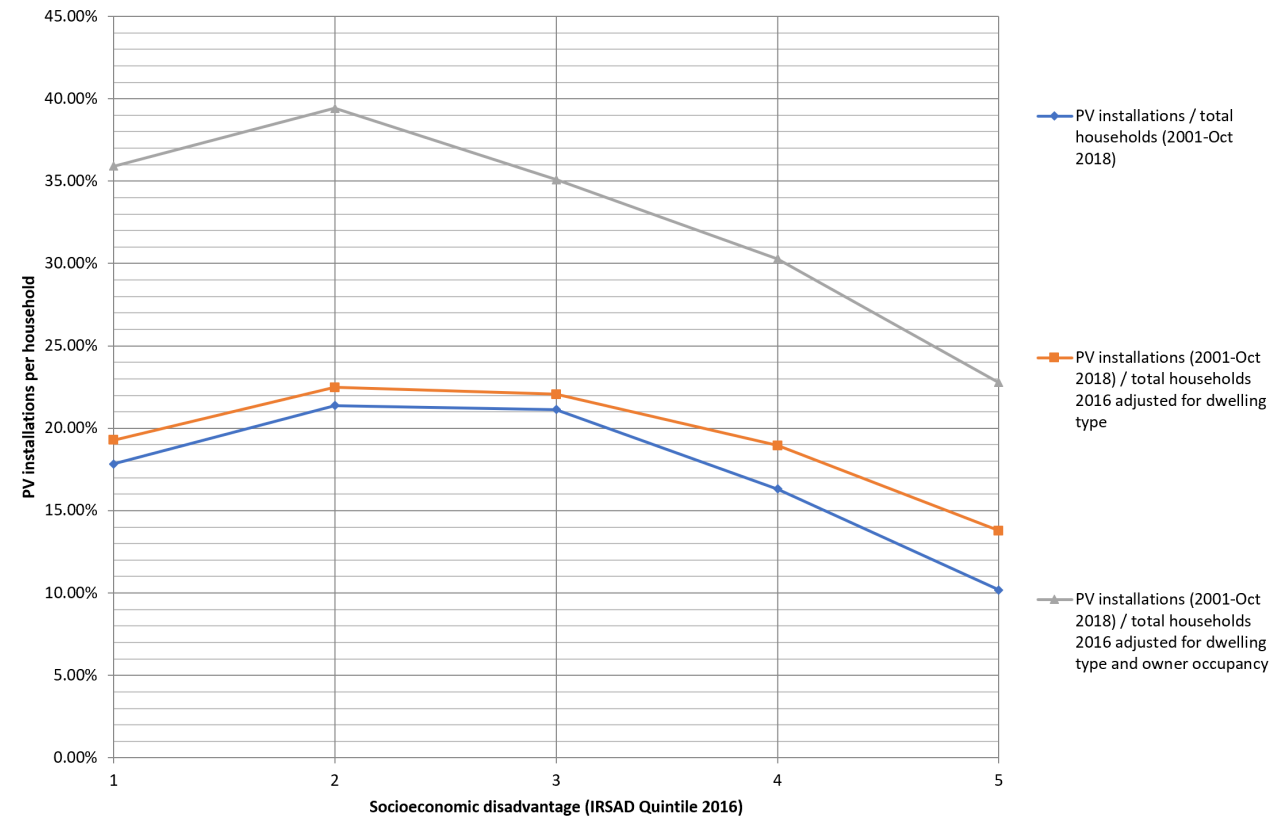


# Household PV installation is not a simple function of social advantage

### State-wide PV Installations per Household by IRSAD quintile over time



### Cumulative PV Installations per Household adjusted for dwelling and tenure





# Data Challenges

## *Scale*

Postcode scale data harder to find data eg tariffs, digital inclusion.

Problematic 'other urban' category

## *Change over time*

Reference points and dangers of small baselines esp rural postcodes

## *Sociodemographic data*

SEIFA IRSAD advantage can offset disadvantage - need to drill down

SEIFA weightings may not be relevant for energy eg lack of English proficiency

## *Changing Built Environment*

Vic gov datasets often superior to ABS data

*User friendly format* - easier said than done with multiple filters – keep it simple?



# What is the dream piece of data?

How is the technology changing for different socio-economic groups?

- Easily accessible postcode data of metering type; and new technology connections (PV, batteries, EV)
  - *Register of Distributed Energy Resources*

How is the social safety net for energy working and evolving over time? Where are the failures?

- Postcode scale data on who is eligible for concessions; how many are actually getting concessions; numbers on hardship programs; collection cycle payment patterns
  - *Industry reporting to State Ombudsman*

How are different interventions shaping market outcomes at the sub-network scale?

- Average cost paid by postcode
  - ???

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# Thank you

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