

# Victoria Energy Policy Centre

Launch address

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Victoria University, Melbourne

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**Victoria  
Energy Policy  
Centre**

[vepc.org.au](http://vepc.org.au)



# Outline

- About us
- Research priorities
  - Retail markets
  - Network regulation
  - Wholesale and environmental markets
  - Gas markets
- The National Energy Guarantee

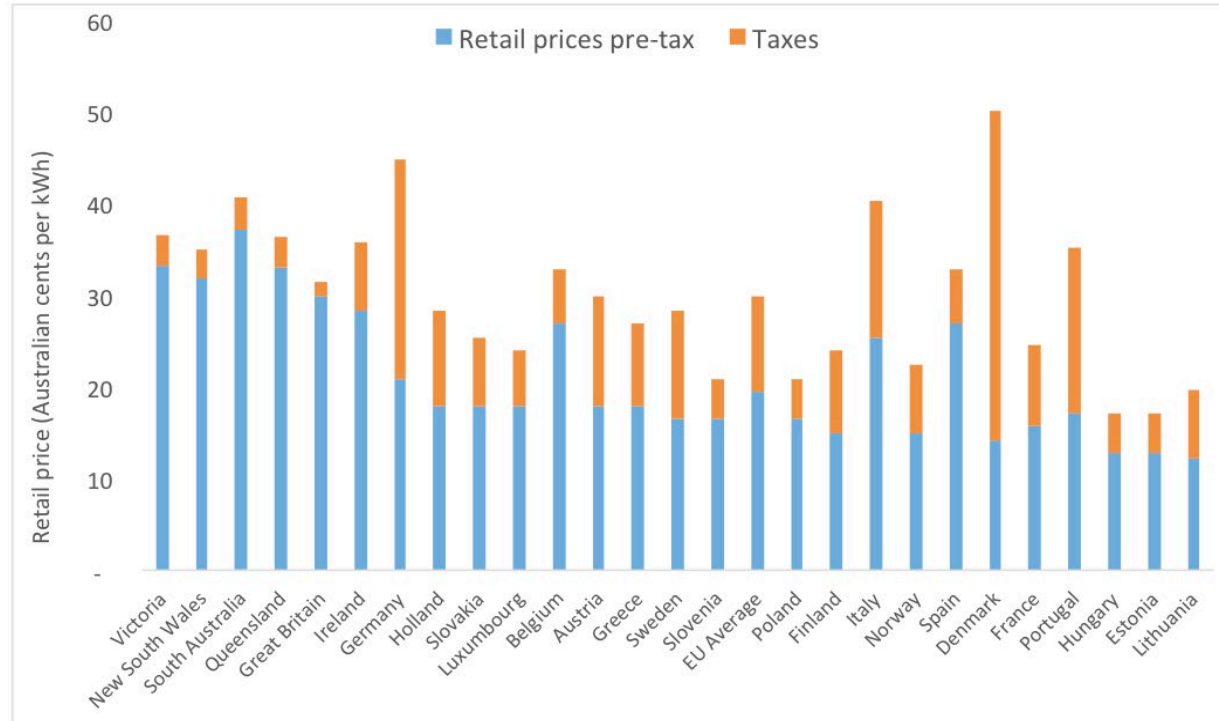
# About us

- “We manufacture public goods that support better energy policy”. Outputs are evidence and ideas disseminated through workshops, forums, presentations, blogs, podcasts, apps, working papers, published papers.
- Main discipline is economics, but encourage collaboration between experts from different academic traditions.
- Enthusiastically pursue international links.
- Publicly active in policy debate.
- Five research staff, two to three PhD candidates, plus admin and media/comms support.
- We welcome secondments from government and industry.
- Data science will play big role in much of our work.

# Our research priorities in retail markets

# Typical residential electricity prices in Australia (before tax) now the highest in the world in all states where retail markets exist

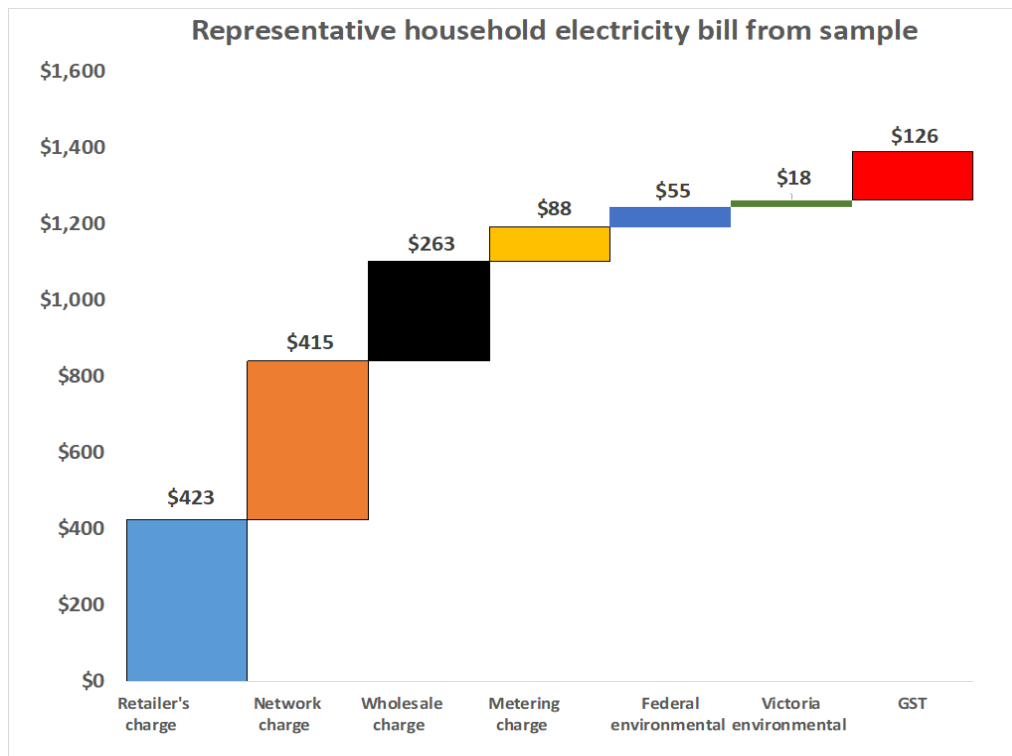
Typical retail electricity prices in 2017 at market exchange rates



Source: Mountain, 2017a

# The retailers' charges for their services is an important part of the explanation

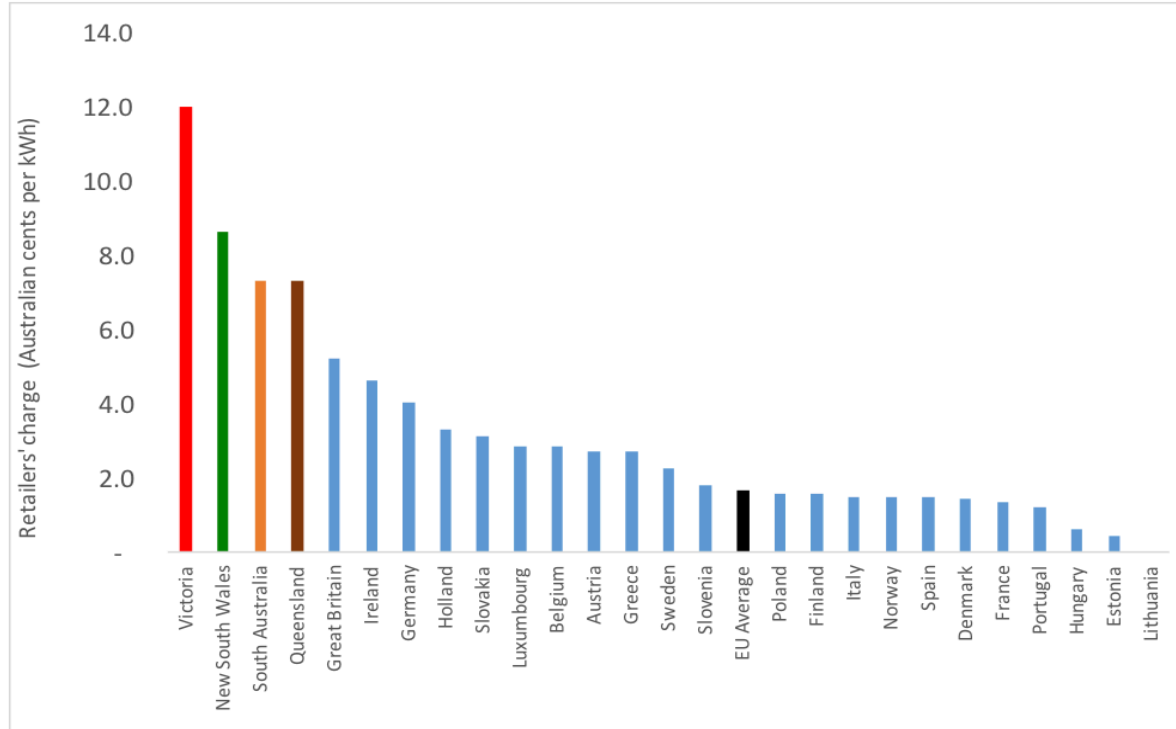
Bill break-down typical residential electricity customer in Victoria in May 2017



Source: Mountain, 2017a

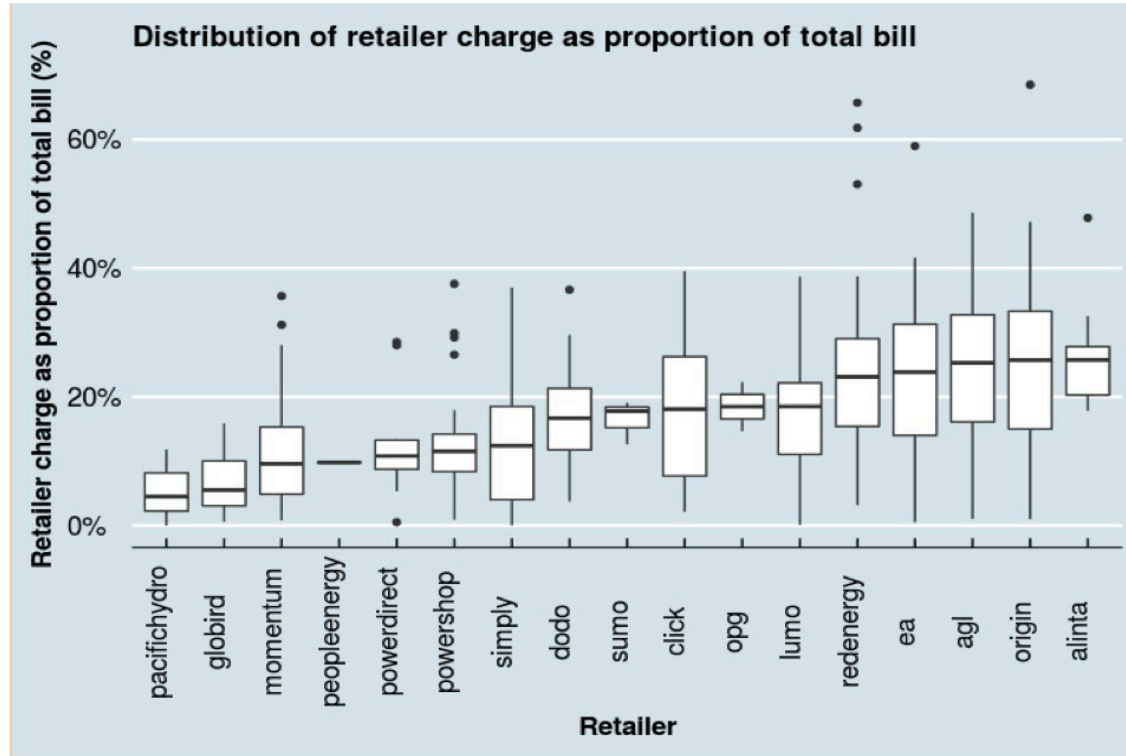
# ... and the retailers' charge for their services seem to be much higher in Australia than elsewhere

Retailers' charge for typical residential electricity user



Source: Mountain, 2017a

# But there is high dispersion in retailers' charges for their services



Source: Mountain, 2017a



# Retail markets research program

## Hypothesis

- High search costs ➡ high customer acquisition cost ➡ high price dispersion (and high average costs).
- But most importantly also, those least able to pay are typically those most adversely affected.

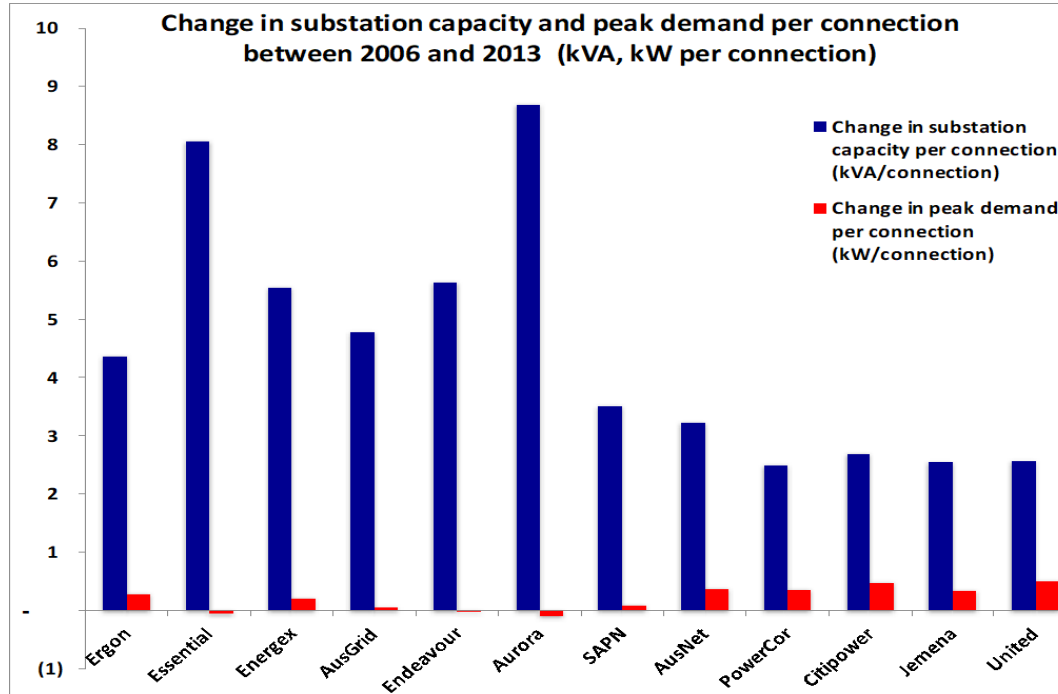
## Research questions

1. Search costs: causes, dependencies and changes over time.
2. Can search costs be reduced and if so, how?
3. If not, what is the size and distribution of the costs and benefits of different approaches to re-regulation and/or structural change?

# Our research priorities in network regulation

# Generalised and large capacity surpluses are a key feature of our electrical networks

## Distribution network service providers in the NEM



Source: Mountain, 2017

# Continued rapid expansion of distributed solar capacity is likely

## Installed capacity projections (MW)

Neutral Rooftop PV uptake as in Neutral, Strong and Weak scenarios

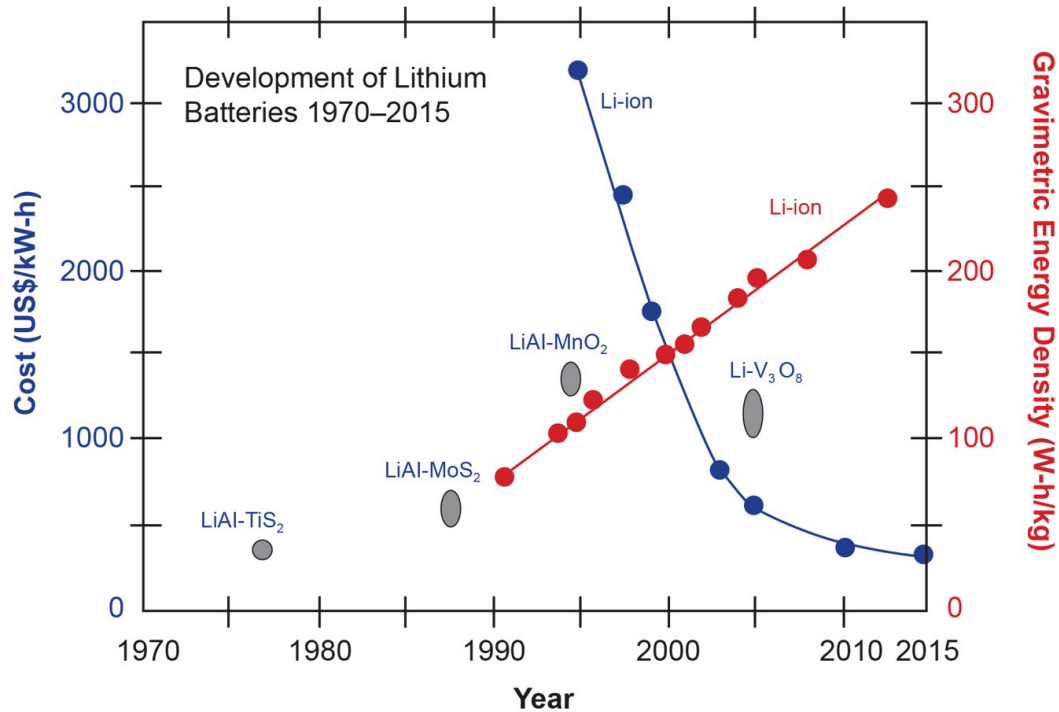
	2017-18	2029-30
NSW	2,265.6	8,552.7
QLD	2,985.1	6,959.1
SA	861.7	2,566.4
TAS	153.6	297.9
VIC	1,669.0	4,996.8

AEMO expects continued expansion in distributed energy

Source: AEMO, Integrated Systems Plan assumptions workbook

- 2017 record year for small scale solar installation. Capacity installed in first five months of 2018 already exceeds 2017 total.

# Distributed and large scale batteries have come of age



Crabtree et al, Materials Research Society, Volume 40, December 2015

# Network regulation research questions

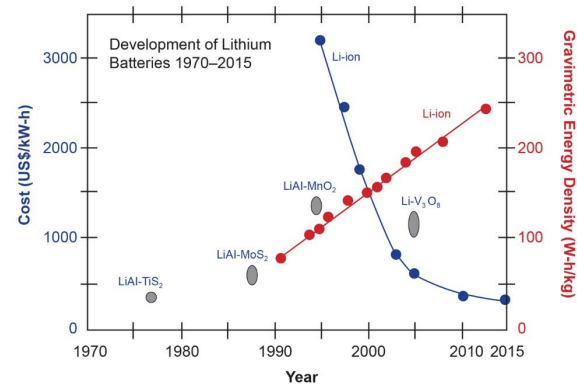
1. How to regulate what was once a monopoly but is increasingly challenged by substitutes?
2. How to deal with the dead-weight of excessive past expenditure in distribution (though less relevant to Victoria)?
3. How to fund transmission expansion needed for increasingly remote renewables?
4. Institutional questions:
  - a. Bifurcation of economic regulation between two agencies, and federalisation of distribution regulation?
  - b. The normative approach in view of its demonstrated distributional and efficiency failures?
  - c. The relationship between regulation and ownership?

# Our research priorities in wholesale markets

# Wholesale markets are being disrupted by rapid technology change

- Wind and solar generation currently being purchased on long-term contracts at 20–40% below 2017 wholesale market prices.
- Australia's coal generation fleet is old, dirty and inefficient. Coal generation is increasingly difficult to fund/insure and carries ever higher brand risk. Consequently, rapidly diminishing number of willing owners.
- We expect average cost of new wind and solar to soon dip below marginal cost of some, and average cost of most, *existing* coal and gas generation.

- And a revolution in storage is underway

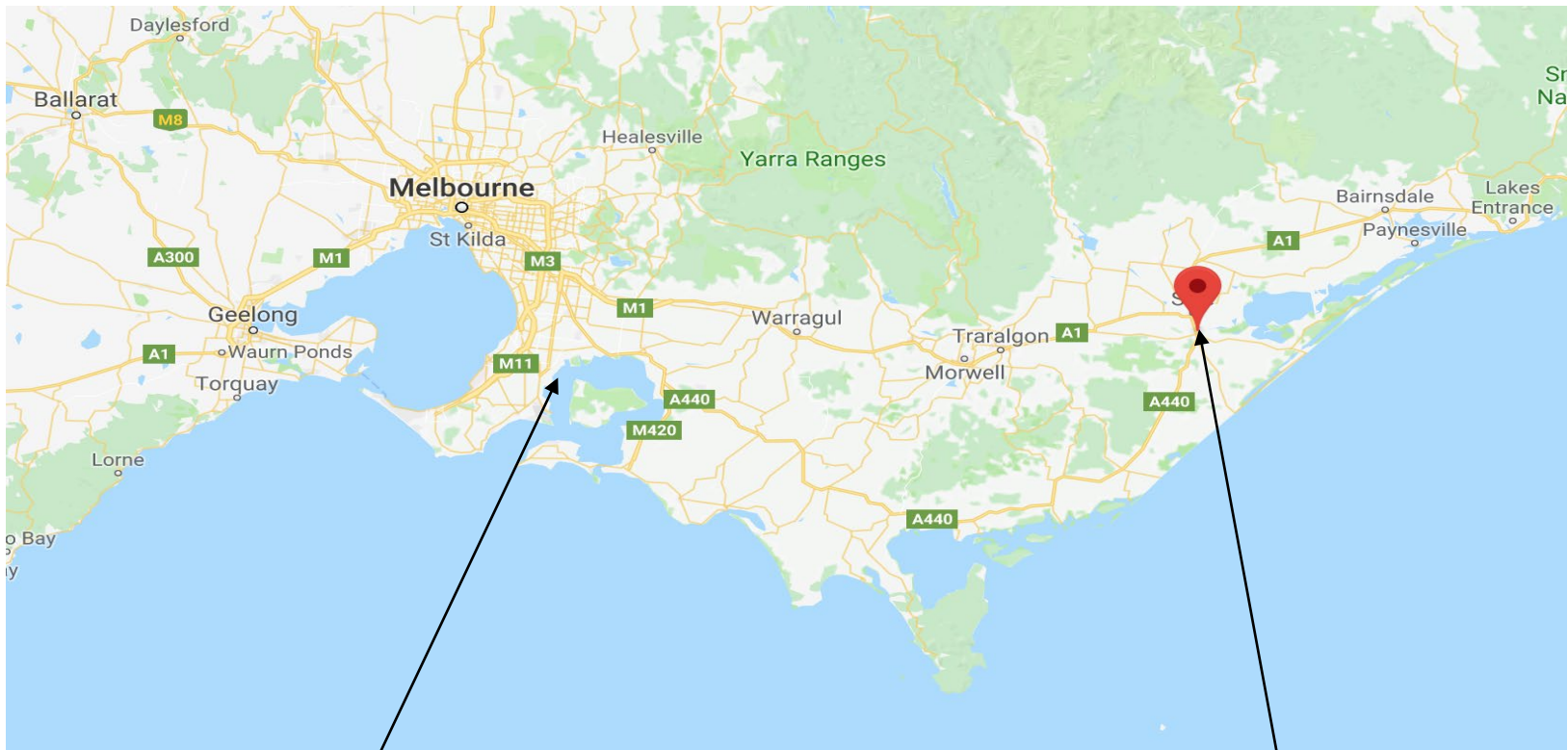




# Wholesale markets research program

1. How to arrange wholesale markets when the marginal cost of production (and the market clearing price) is increasingly frequently zero or negative?
2. The economics of storage?
3. The relative economics of centralised and decentralised supply?

# Gas



AGL is planning a floating liquefaction plant to import LNG from Australia and elsewhere, here.



**Why?**

The majority of Victoria's gas comes from the offshore Gippsland Basin and lands here.

# The National Energy Guarantee

# A short history of the National Energy Guarantee

- **June 2017:** Finkel Report recommends Clean Energy Target (agnostic on emission reduction target but uses Australia's Paris Commitment of 26–28% below 2005 levels by 2030 in quantifying).
- **October 2017:** Government rejects Finkel recommendation for CET, appoints Energy Security Board which recommends NEG.
- **November 2017:** Initial NEG proposal.
- **April 2018:** Revised NEG proposal.

# Political context

- Long-standing (federal) disagreement between Government and Opposition on:
  - Importance of GHG reduction, and
  - Contribution of electricity sector to country-wide GHG reduction.
- Industry, civil and customer groups demand “bi-partisan agreement”. BUT
  - Consensus on the destination – GHG reduction target for electricity sector – as elusive as ever.
  - With no agreement on the destination, effort has shifted to finding agreement on the way to get there.

# How is the NEG meant to work ?

- **Reliability Guarantee:**
  - Obligation on retailers to procure enough capacity to meet their demand (sort-of). In practice unlikely to operate – AEMO to procure “strategic” reserves (if needed).
- **Emissions Guarantee:**
  - Electricity retailers to reduce emission intensity (tonnes CO<sub>2</sub>-e per MWh sold) below a hurdle.
  - Obligation on retailers to buy (from generators) the right for those generators production to be assigned to that retailer’s account.
  - If retailers don’t contract they will be assigned avg. emission intensity of unassigned generation.
  - National and international emission permits possibly allowed.
  - No financial penalty for non-compliance.
  - Targets to 2030 fixed before 2020.
- In pantheon of emission reduction policies, no precedent anywhere, ever for emission guarantee approach.

# Concerns

- **Emission targets:** Government forecasts NEG will not reduce coal generation and will only slightly increase renewable capacity, relative to BAU. Why bother?
- **No financial penalty for non-compliance:** undermines price discovery (as intended) and policy credibility.
- **Windfall gains paid by consumers:** for pre-RET renewables/low emission gen (Snowy and Tas Hydro).
- **Poor price discovery:** by design, emission price is obscured. Hard to see how aggregation or financial instruments will develop.
- **No banking:** inability to bank or borrow means use-it-or-lose-it, and so more volatile prices.
- **Transaction costs:** buyers and sellers finding each other for trade of non-standardised product.
- **Administrative costs:** New registry, compliance, enforcement.



- An approach without precedent intended to make little difference to electricity GHG emissions relative to BAU.
- Will impose costs (probably large) elsewhere in the economy in order to deliver Paris Commitment GHG emission reductions.



# How might the NEG be improved?

1. Seek the lowest cost emission reductions across the economy. This will mean an electricity emission reduction target far above the economy-wide emission reduction target.
2. If the policy is to place obligations on customers, via retailers, then do so in the most efficient way:
  - a. Use a standardised tradeable currency (a certificate) rather than obligation to associate.
  - b. Include financial penalty for non-compliance.
  - c. Prevent windfall gains.
  - d. Minimise administrative costs.
  - e. Maximise price transparency and opportunity for trade.
3. Arrangements that achieve this have been operating in Australia since 2001.

# Thank you

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