



Institute for Energy Economics
and Financial Analysis

The electrification of everything

The financial case for fast, efficient
and flexible electrification

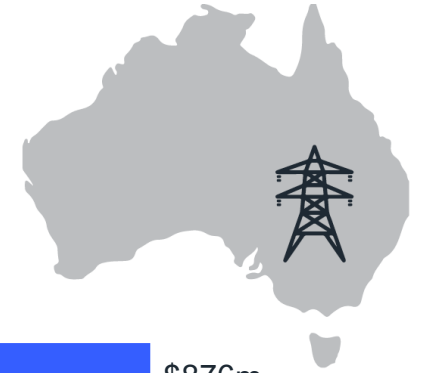
Amandine Denis-Ryan, CEO IEEFA Australia

7 March 2024

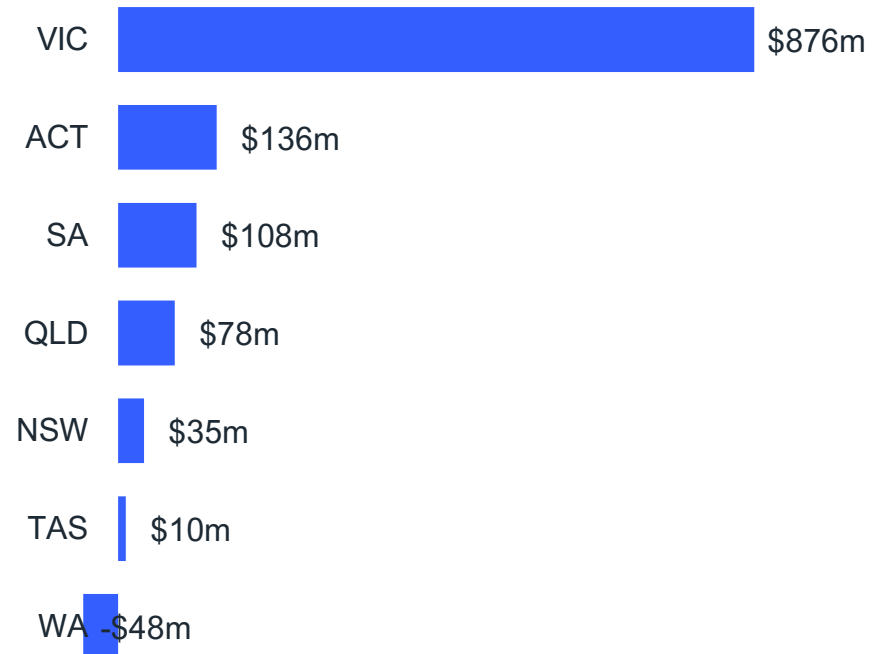


The financial case for fast electrification

Cost of delaying electrification



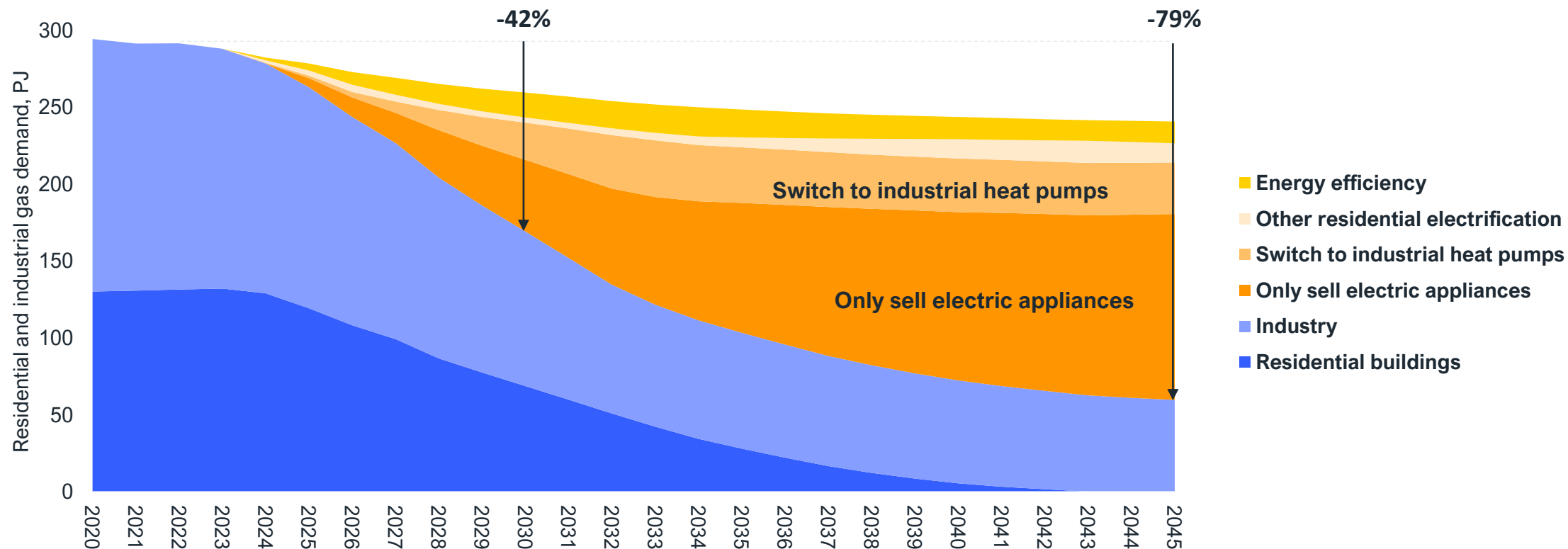
\$1.2b
per annum



Source: Unpublished IEEFA analysis, based on [Managing the transition to all-electric homes \(VIC\)](#)

Opportunity to fill the upcoming gas supply gap

Southern states



Source: IEEFA, [Reducing demand: A better way to bridge the gas supply gap](#)

Avoiding new gas developments is critical

IEA: Locked in oil and gas investment vs gas demand

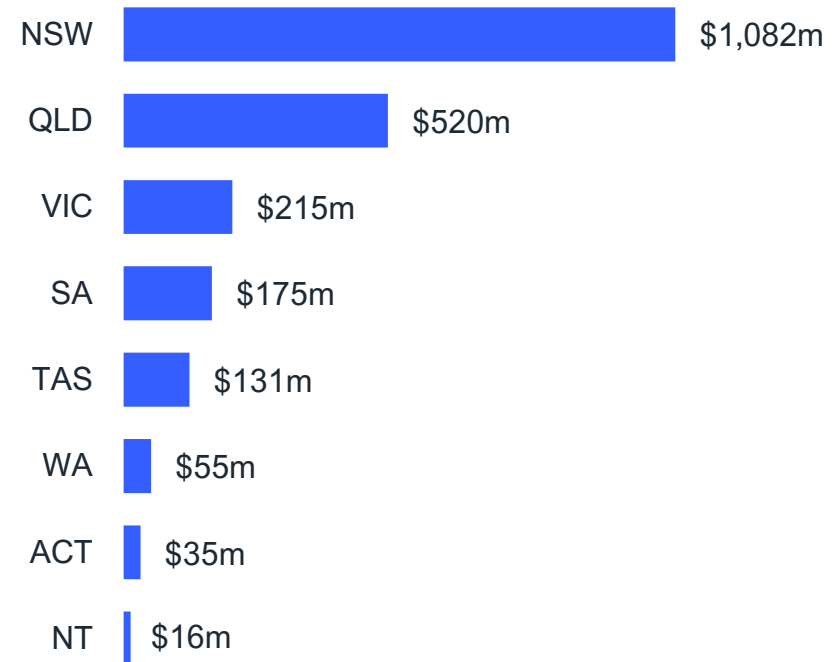
- STEPS (2.4°C): **Sufficient**
- APS (1.7°C): **Significantly higher** than needed
- NZE (1.5°C): **Double** what is needed

Source: IEA, [World Energy Outlook 2023](#)

**We need
efficient, flexible
electrification**

Cost of delaying efficiency upgrades

\$2.2b
per annum



Source: unpublished IEEFA analysis

Source: unpublished IEEFA analysis

Energy efficiency can offset electrification

Estimated national residential electricity use change from...

Electrification:

+13%

Energy efficiency:

-20%

Source: IEEFA, [Reducing demand: A better way to bridge the gas supply gap](#); unpublished IEEFA analysis

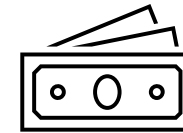
Electric water heating is a large storage opportunity



Flexible demand

22 GW / 45 GWh

per day by 2040



Consumer savings

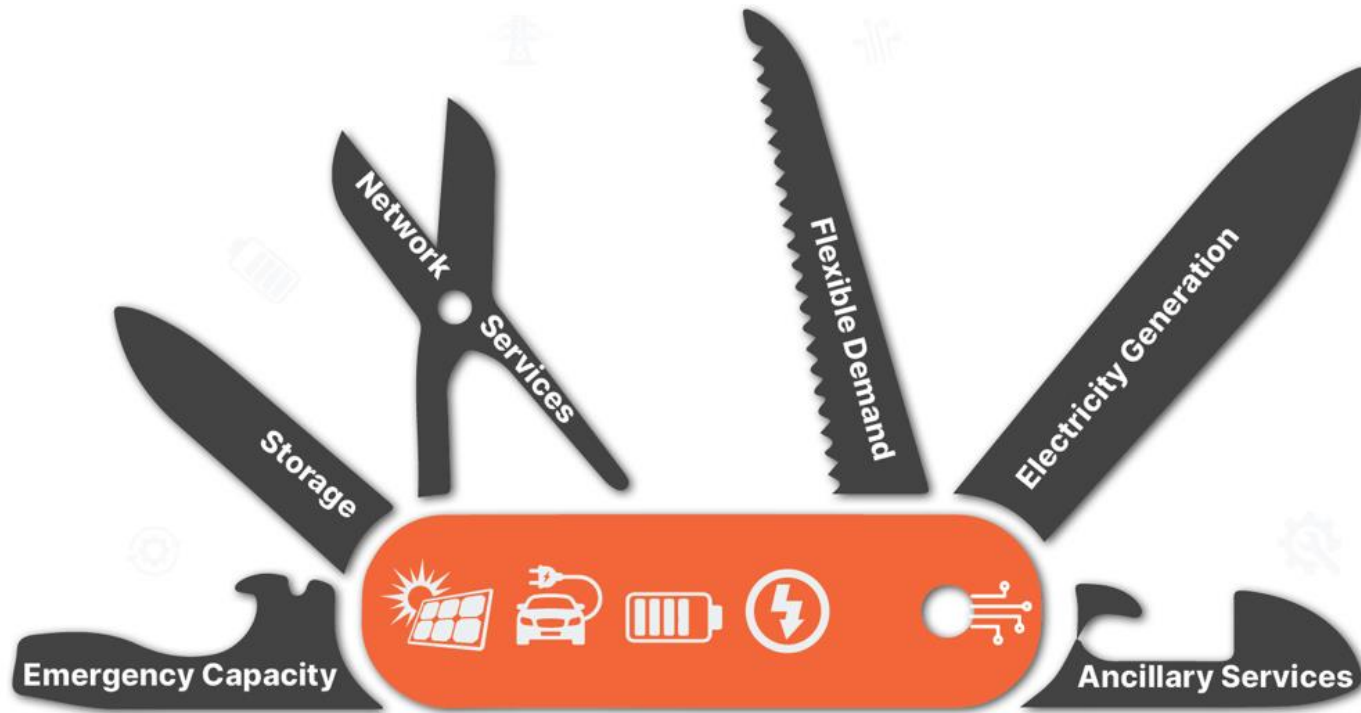
\$6.7 billion

Annually by 2040

Source: UTS, [Domestic hot water and flexibility](#). Rapid electrification scenario

**DER & electrification
can lower costs
for everyone**

DER can deliver large economic benefits



\$11bn¹ in avoided networks costs

\$8bn² in reduced generation and storage costs

\$10bn² in reduced generator super profits

Net present value to 2040

¹ Baringa Partners. Potential network benefits from more efficient DER integration. 18 June 2021.

² NERA Economic Consulting. Valuing Load Flexibility in the NEM. 1 February 2022.

IEEFA

Source: IEEFA, [DER could provide \\$19 billion economic boost by 2040](#)

Electrifying & DER could increase networks utilisation

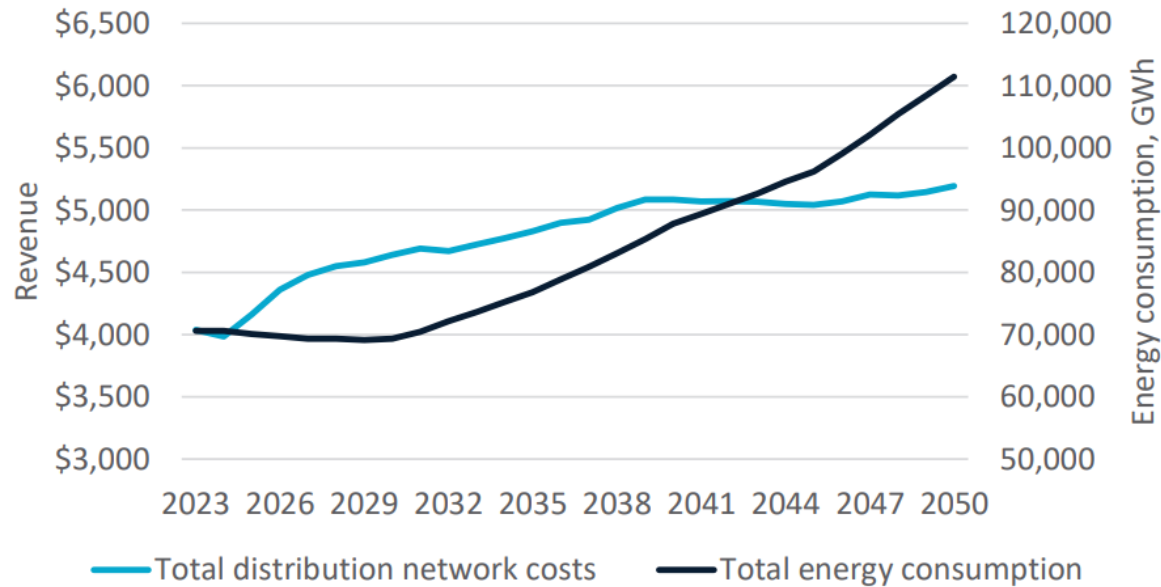
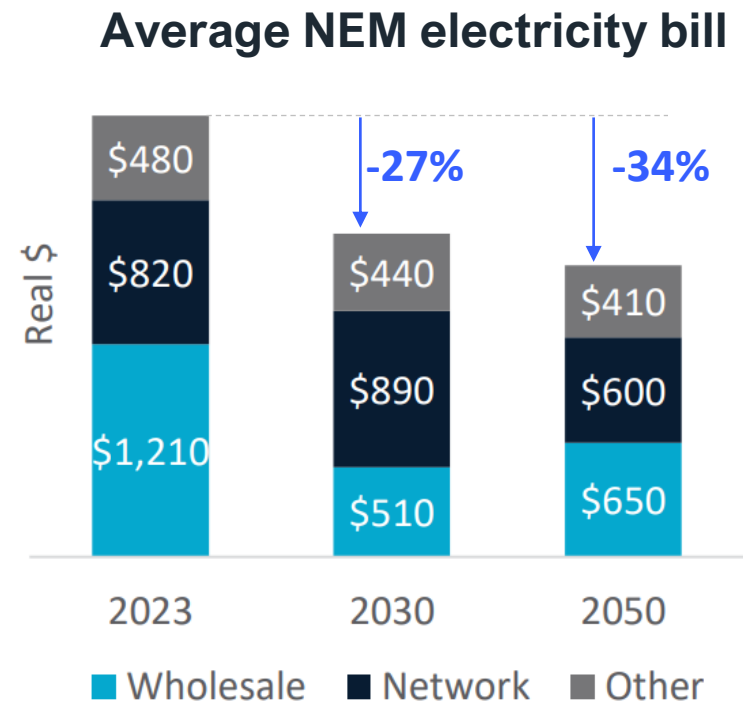


Figure 3-6 Distribution network consumption and costs in *Well-coordinated*



Source: CSIRO, [Consumer impacts of the energy transition: modelling report](#)

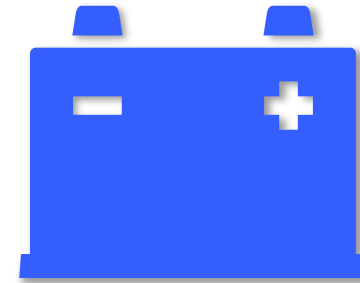
EVs are likely to drive a big part of those benefits

By 2050,



EV fleet battery capacity

= 4 x



NEM storage needs

Source: EnX for ARENA, [V2X.au Summary Report: Opportunities and Challenges for Bidirectional Charger in Australia](#)

More action is needed to capture this potential

- DER, flexibility & energy efficiency **standards**
- Mandating **all-electric** homes & appliances
- Hot water & EVs integration **strategy**
- Ensuring a **smooth transition**: supply chains & skills, hard-to-electrify homes and financing solutions

Source: IEEFA, [Reducing demand: A better way to bridge the gas supply gap](#), [Managing the transition to all-electric homes](#), [Growing the sharing energy economy](#).



Contact

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