

MANAGING A RENEWABLES GRID

An Australian Experience

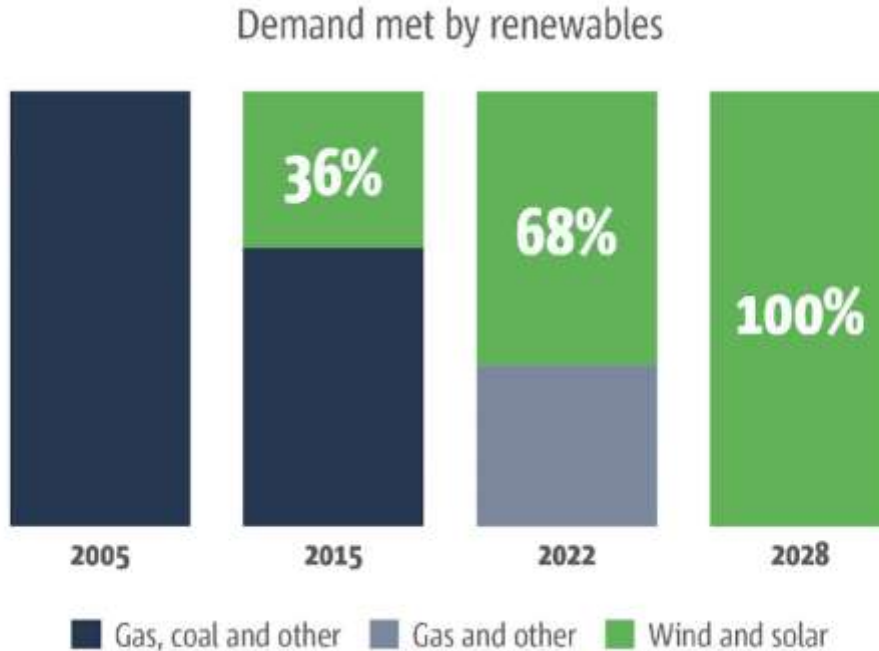
August 2022

JOHN GRIMES
Chief Executive,
Smart Energy Council



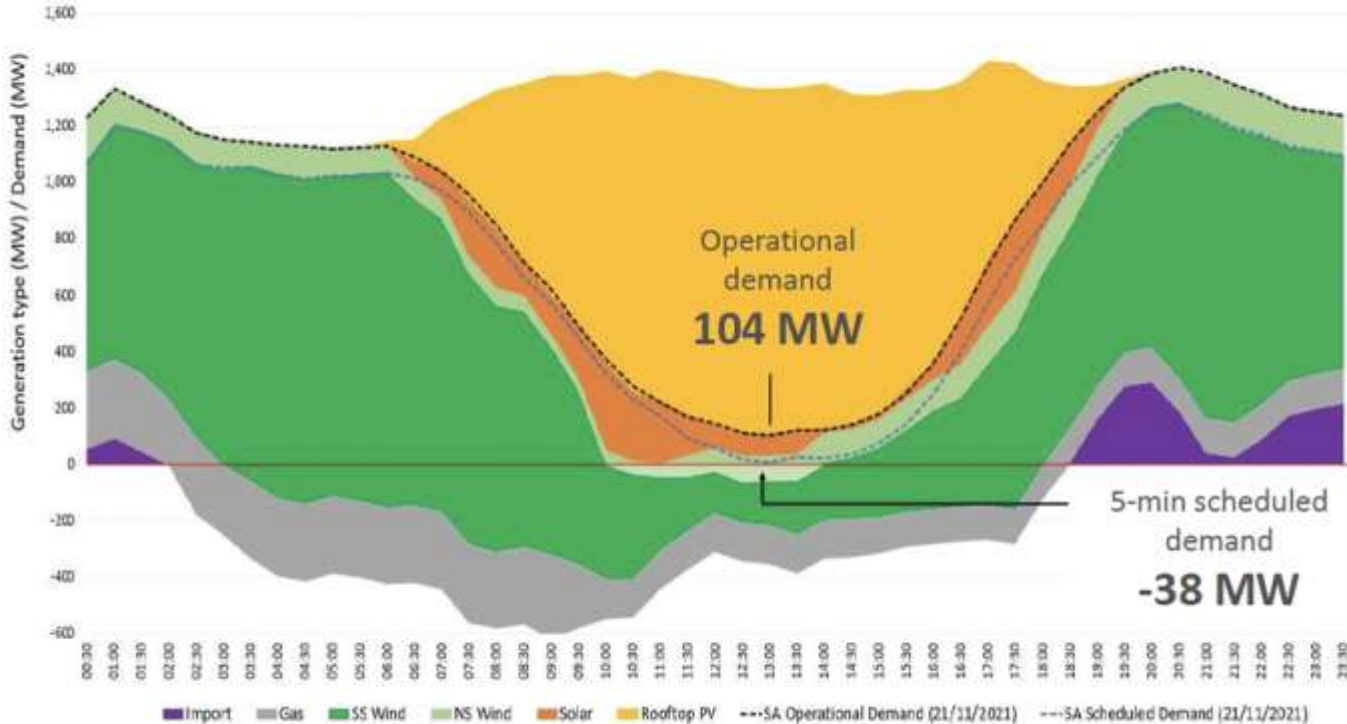
SETTING THE SCENE

South Australia's profound transition to renewable electricity



SETTING THE SCENE

21 November 2021



All of South Australia's power comes from solar panels in world first for major jurisdiction

77% rooftop solar PV

THE RISE OF ROOFTOP SOLAR



3.5 million systems

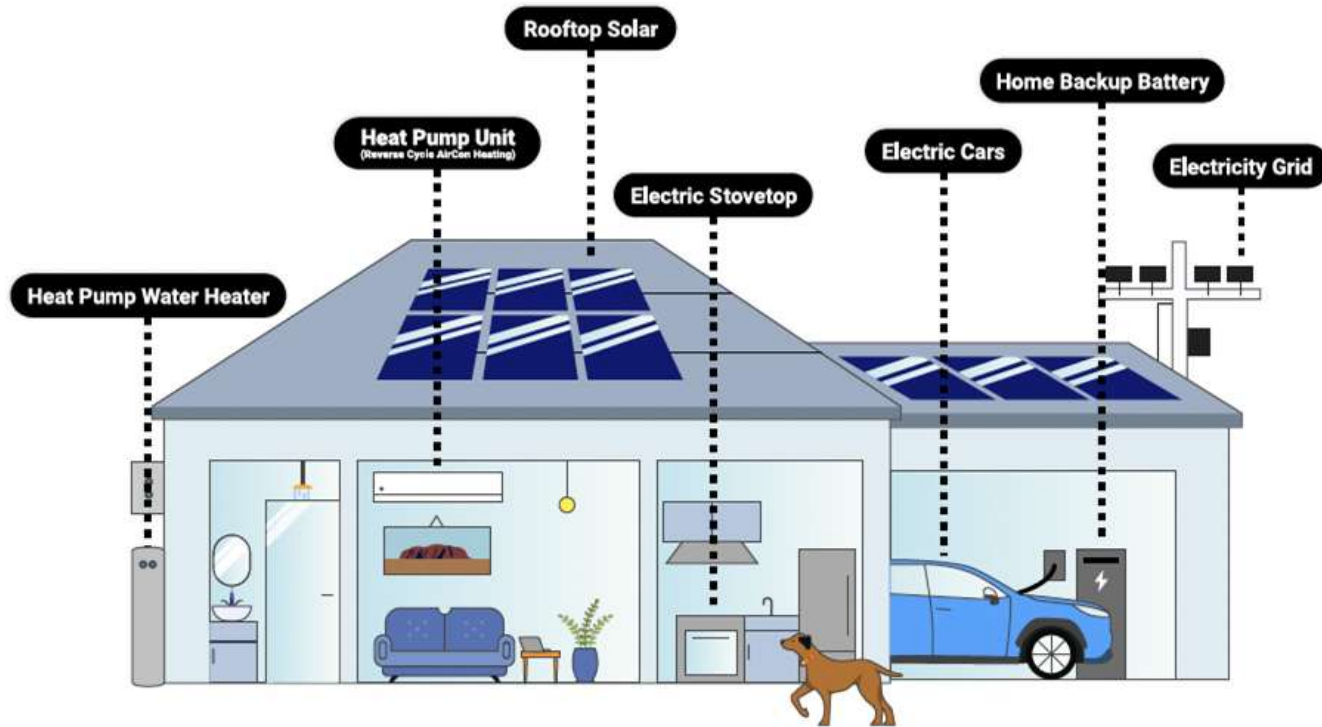


60 million panels

Solar PV = 27GW



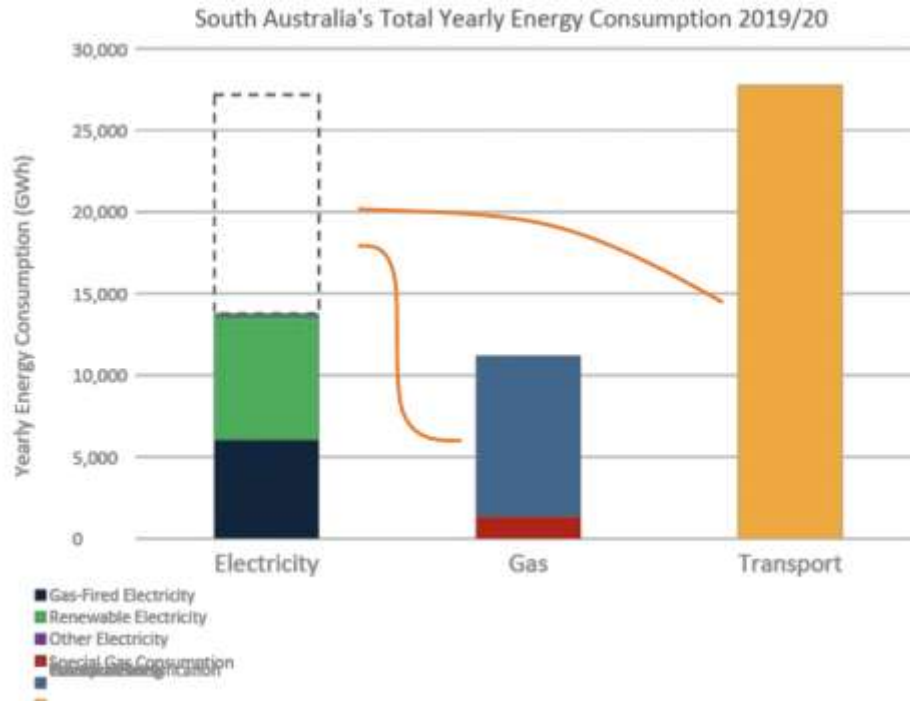
KEY LESSONS FROM AUSTRALIA



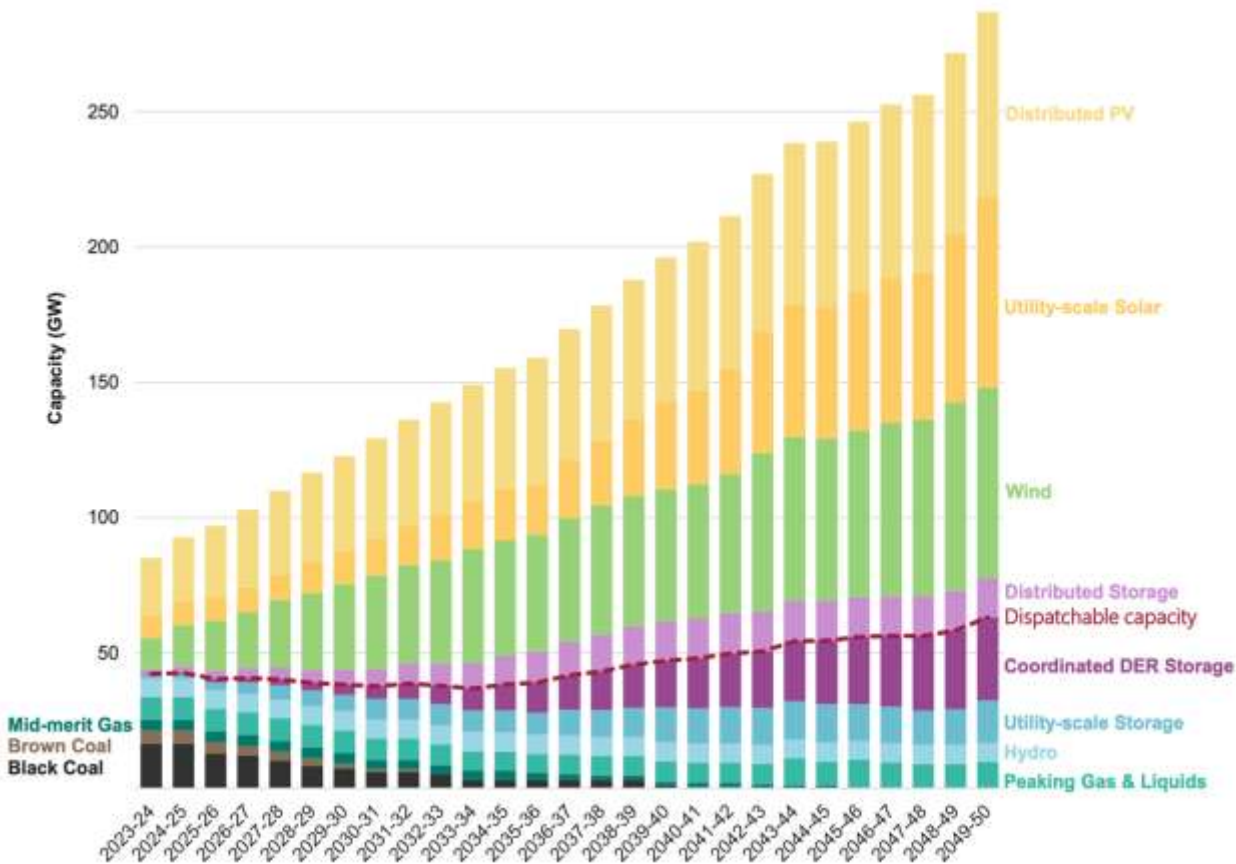
Household Transition Underway - Electrify Everything!

ELECTRIFY EVERYTHING....

However, this will require the distribution network to carry vastly more energy

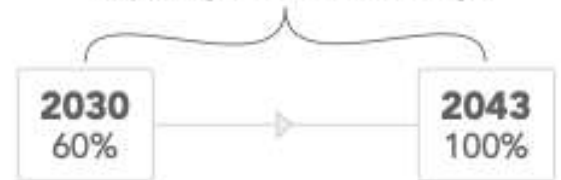


SETTING THE SCENE - 82% BY 2030



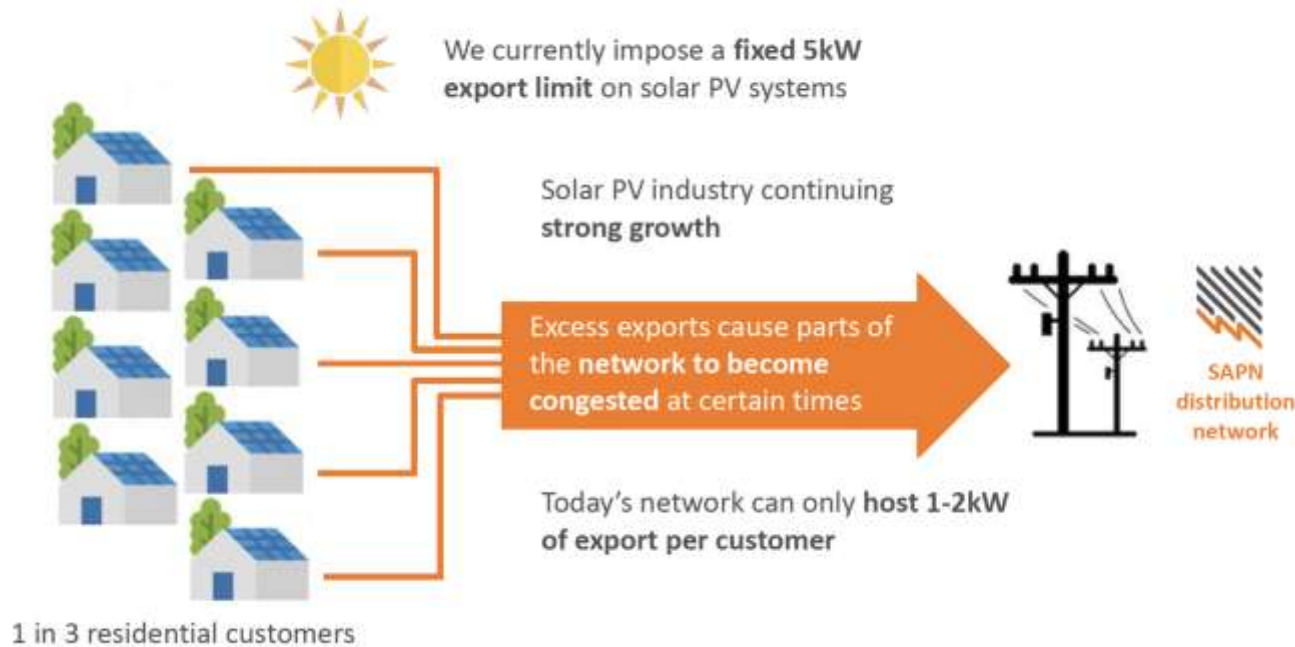

Coal generation
to be withdrawn

Capacity to be retired by:



2 WAY ENERGY FLOWS

We are seeing challenges on local networks

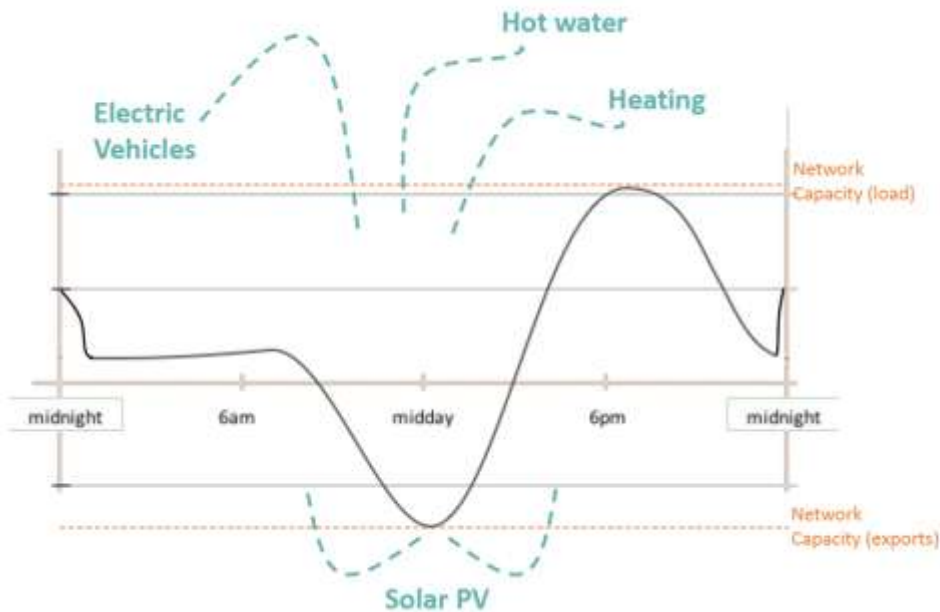


Dynamic Exports

Solar Shut Off

'STUFF THE DUCK'

Fill - our opportunity and challenge



- Our investment in capacity to meet air-conditioning demand means we have enough spare for **ALL** these new applications
- Our challenge is to fit this into the current network
- Doing so would increase energy throughput and lower costs
- However it's not trivial!

Encouraging supply and demand flexibility is key to an efficient renewable energy power system

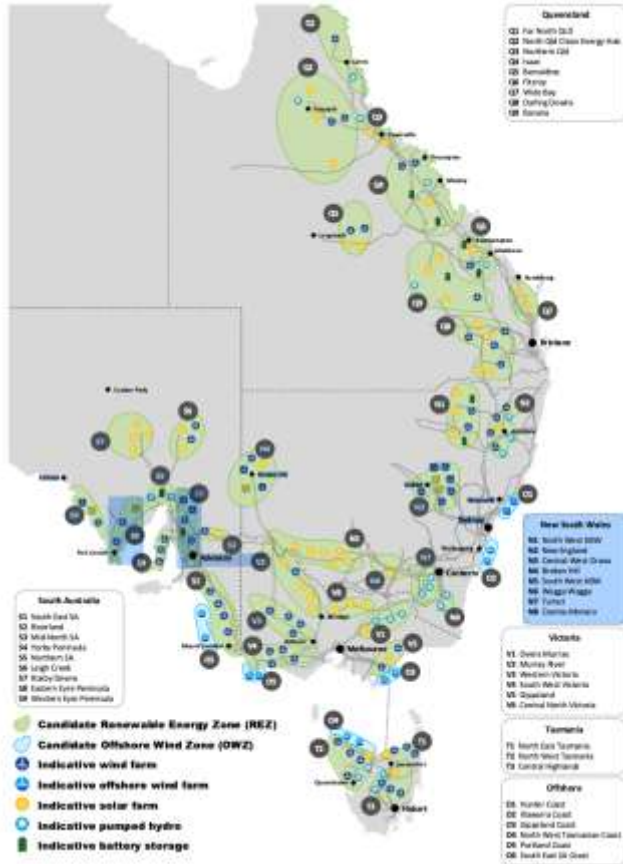
STORAGE, STORAGE, STORAGE



Utility Scale Batteries,
hydro storage, Virtual Power
Plants (VPP's)

640GWh by 2050

MASSIVE TRANSMISSION BUILD OUT



Renewable energy zones

Wind/solar zones

Integrated storage

High voltage power lines

BUT THAT'S NOT ALL....

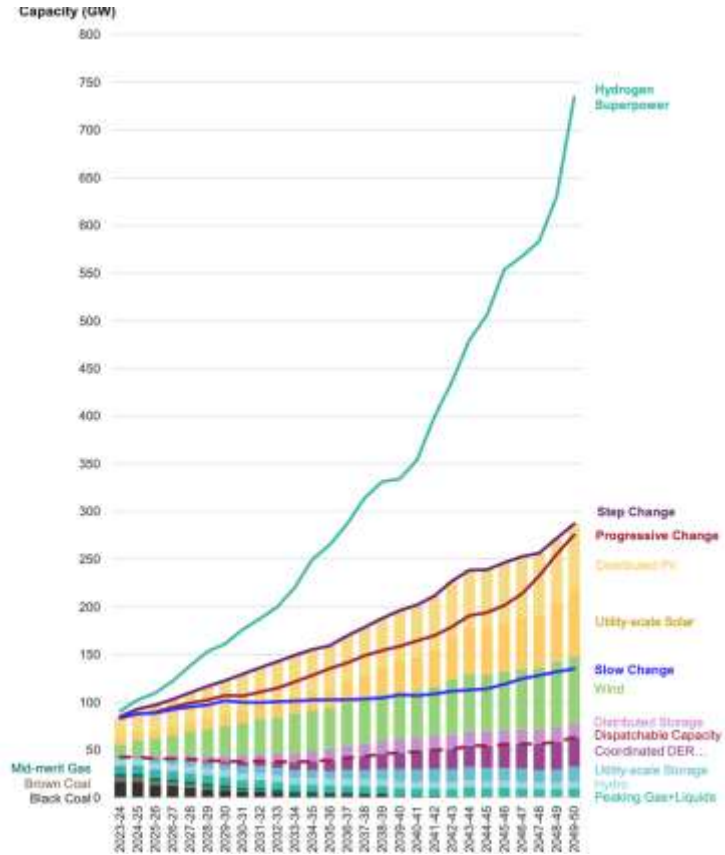


AUS vs GER

**2.6 times
more!**



RENEWABLE HYDROGEN - THE WILDCARD



Suncable

Asian Renewable Energy Hub

ZERO CARBON CERTIFICATION SCHEME



**RENEWABLE
HYDROGEN**
HYDROGEN AUSTRALIA

HYDROGEN AUSTRALIA – ZERO CARBON CERTIFICATION SCHEME



**UN COP26 High
Level Champions**



Power Ledger



Green Hydrogen Catapult



EXPERT ADVISORY SERVICES

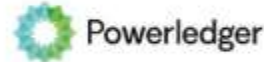


Motherson – SMR: Renewable Hydrogen Scoping Study (Puneet Saim, Executive Vice President; Scott Hamilton, Hydrogen Australia; Andrew Clayton, SMR; Matt Harkness, SMR)



- Market, policy & project intelligence
- Introductions to technology partners
- Business development scoping studies
- Connecting with governments
- Sourcing public & private investment

Platinum Members





CONFERENCE & EXHIBITION

130 Speakers
6K Delegates
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& sponsors

A FUTURE BUILT ON SMART RENEWABLE ENERGY

Smart Energy Council is the
independent body for the
Australian smart energy industry.

smartenergy.org.au

