

Market transformation and the role of distributed energy resources

Lauren Vincent
Business Development and Transactions



Australian Government
Australian Renewable
Energy Agency

ARENA

Australian Renewable Energy Agency

Independent Board works to the ARENA Act 2012
Investment & market orientated Board, CEO and CFO

PURPOSE



Accelerate Australia's
shift to a sustainable,
affordable and reliable
energy future

PORTFOLIO

\$1.18 billion funding
committed to support **over
377 projects**

185 completed projects
+160 active projects
(incl scholarships,
fellowships)

PIPELINE

\$500m funding available
to support innovative
energy technologies

148 active projects in
our pipeline

Knowledge Sharing | Collect, analyse, interpret and disseminate



INVESTMENT PRIORITIES



DELIVERING SECURE AND
RELIABLE ELECTRICITY



ACCELERATING SOLAR
PV INNOVATION



IMPROVING ENERGY
PRODUCTIVITY



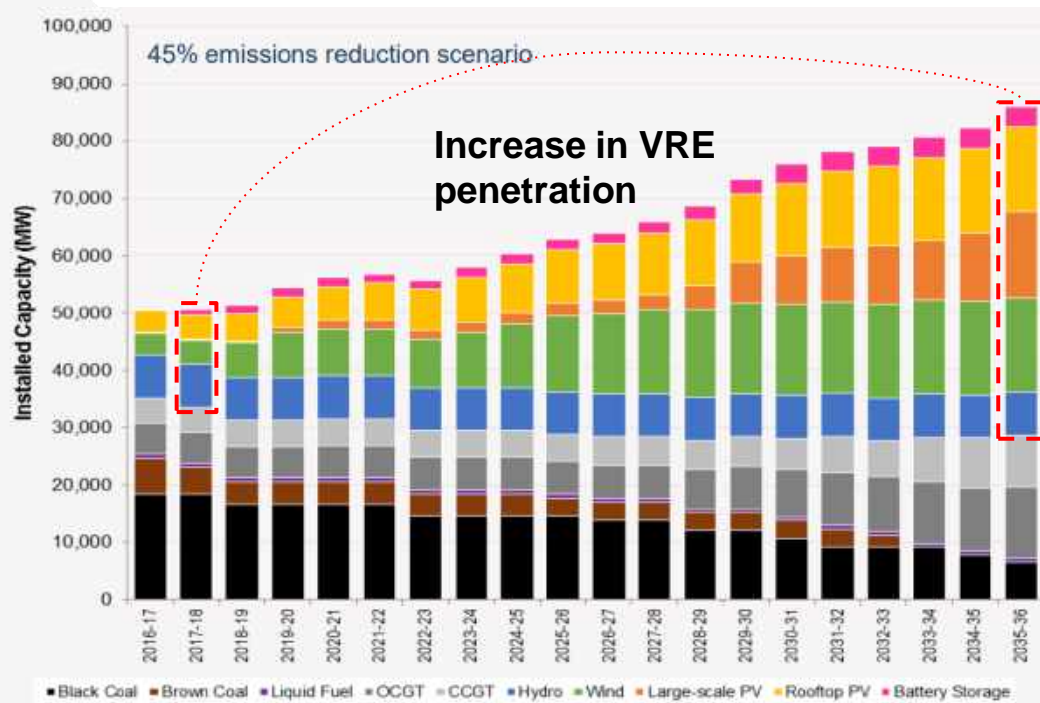
EXPORTING
RENEWABLE ENERGY

Overview of Australia's Energy Market

- Management and trading of Australia's electricity is split across three markets
 - National Electricity Market (NEM) - QLD, NSW, VIC, SA & TAS
 - Wholesale Energy Market (WEM) - WA
 - Interim Northern Territory Energy Market (I-NTEM) (since 2015)
- Created to manage centralised, large scale, power plants with synchronous generation
 - Coal, gas, hydro turbines
 - Passive consumption
 - One way power flows
 - Slow response times with minimal flexibility
 - Aging infrastructure



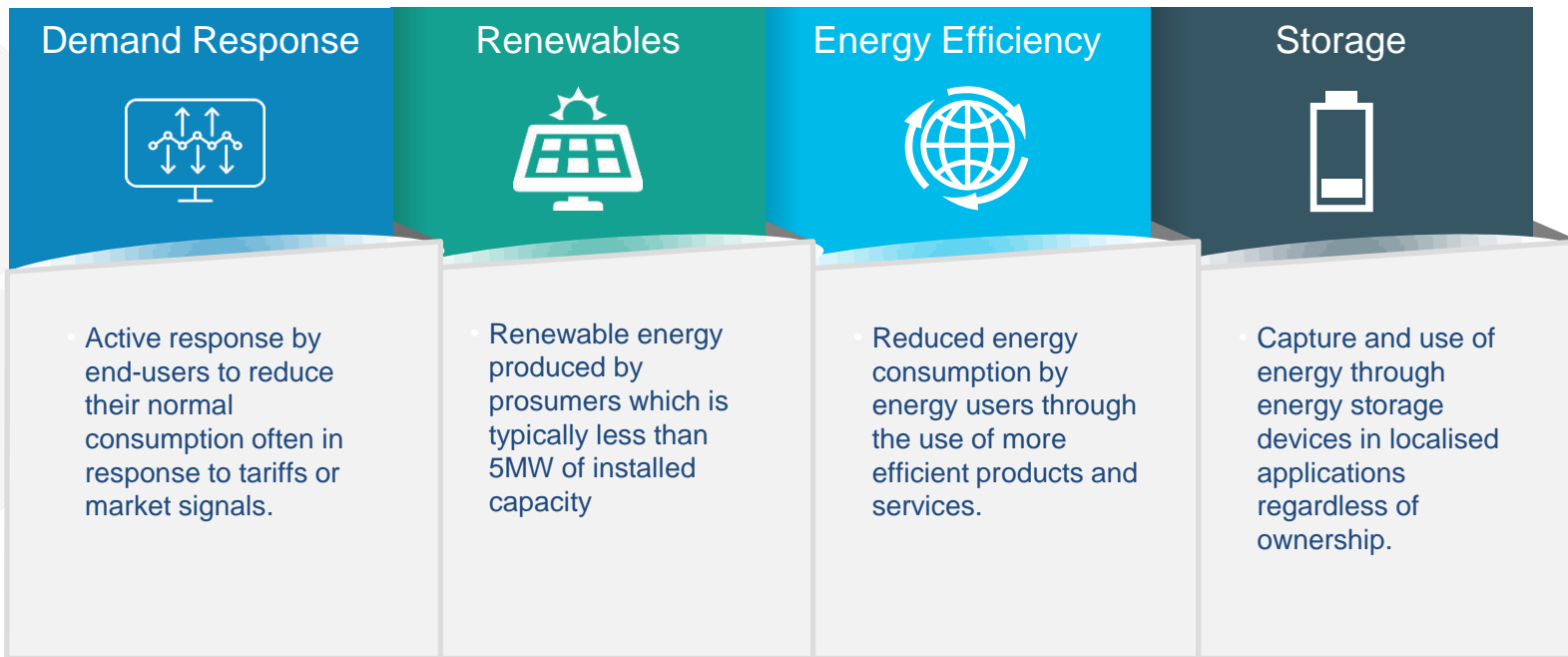
Australia's energy mix is changing



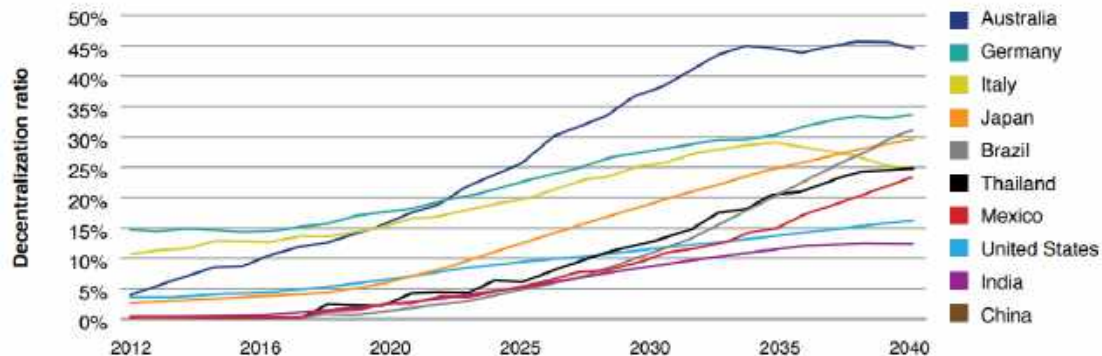
- Changing mix of generation
- Variable and non-synchronous generation expected to increase overtime
- Retirement of coal-fired power stations
- Distributed resources (mainly solar) to drive significant growth
- Storage will also be key in transition



Forms of DER



Australia is set to be a world leader in DER



Source: Bloomberg New Energy Finance 2017

- Australia has the highest rooftop solar PV installed per capita in the world
- Poses significant operational challenges
- Transitioning to a customer driven system
- Reverse power flows
- Innovative approaches to DER coordination and orchestration needed

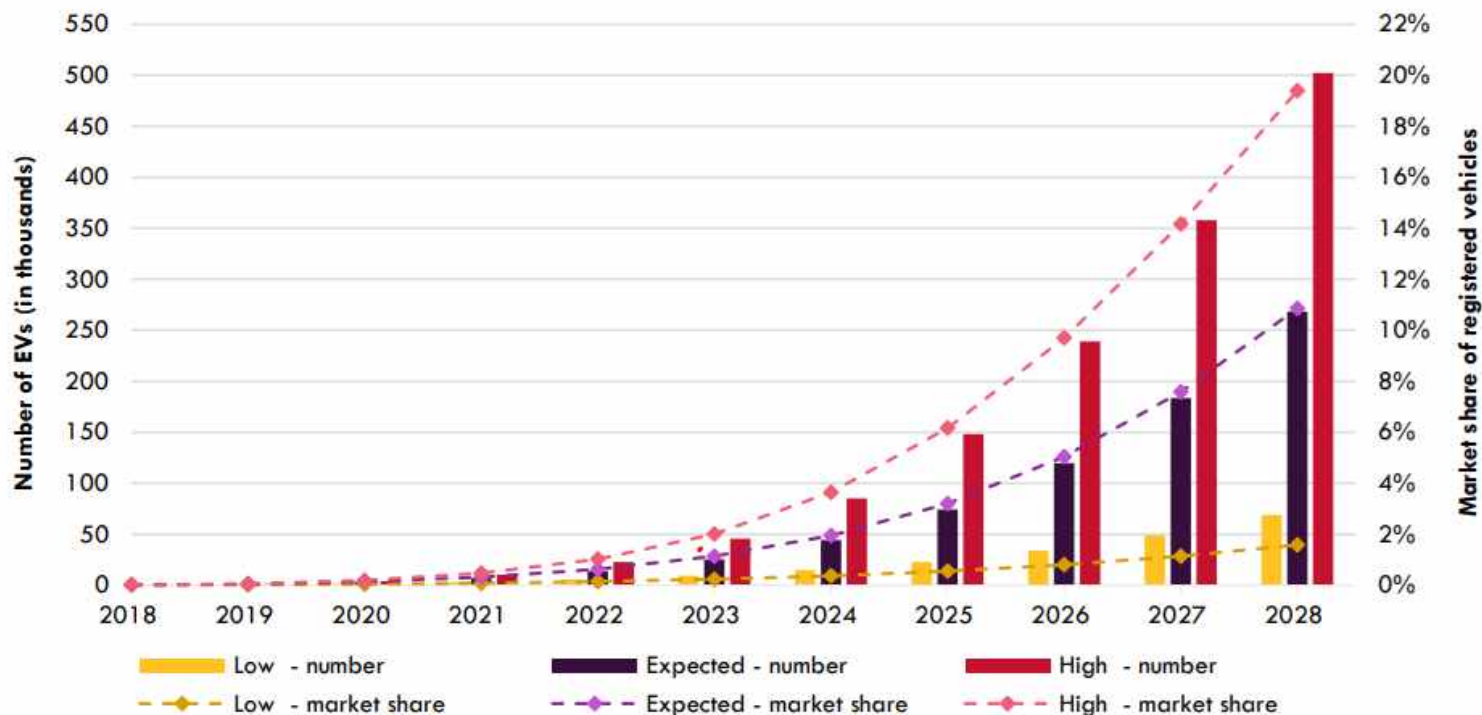


Changing customer demand profiles

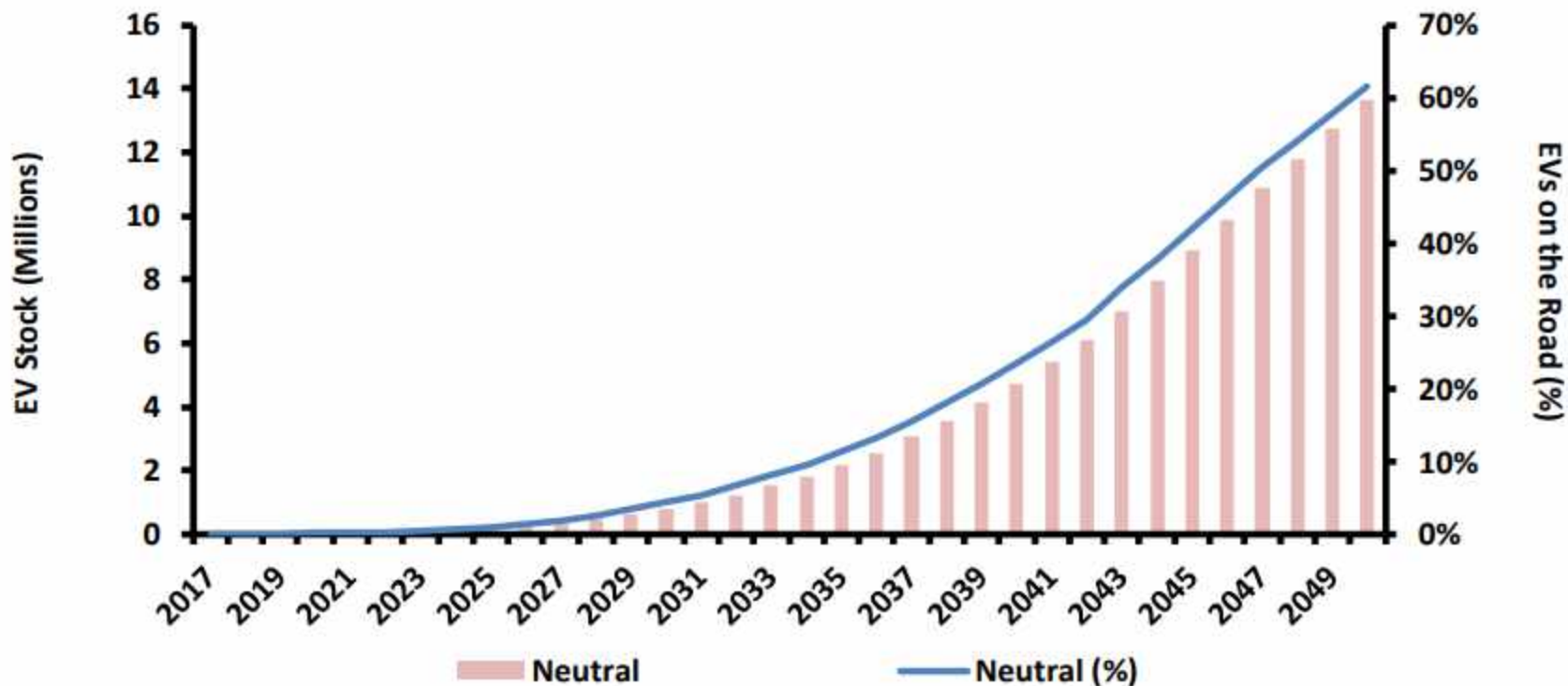


Source: AEMO and Energy Networks Australia 2018; Open Energy Networks Consultation paper

The Rise of Electric Vehicles

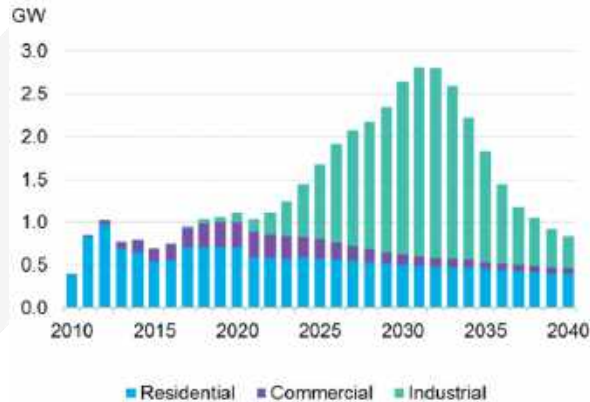


The Rise of Electric Vehicles



Market Opportunities

- Industry forecasts that by 2027 DER could have a cumulative market value of \$158b
- DER could contribute up to 50% of the NEM's value in 2050
- In the future expect DER to be “active” as well as “passive”
- Industrial users will take over residential as leading PV owners





Thank you

www.arena.gov.au



Australian Government
Australian Renewable
Energy Agency

ARENA