

# ELECTRICITY NETWORK TRANSFORMATION ROADMAP

2017-27

## The Roadmap Final Report

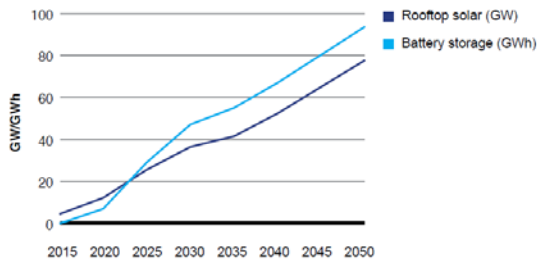
Based on two years work and extensive consultation the Roadmap identifies the complex challenges facing Australia's electricity system in the face of diversified energy supply and identifies a strategy for the future, as well as a deliverable plan to achieve it.

The report finds that with a co-ordinated plan in 2050:

- Customers retain security and reliability essential to lifestyle and employment
- Networks pay distributed energy resources customers \$2.5 billion per annum for grid support services by 2050.
- Electricity sector achieves zero net emissions by 2050
- \$16 billion in network infrastructure investment is avoided by management of distributed energy resources like solar and batteries
- Reduction in cumulative total electricity network expenditure of \$101 billion by 2050
- Network charges 30% lower than 2016
- \$414 annual saving in average household electricity bills (compared with roadmap counterfactual, business as usual, pathway)
- A medium family who cannot take up distributed energy resources is over \$600 p.a. better off through removal of cross subsidies.

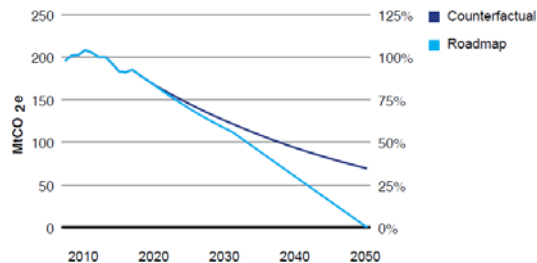
### Rooftop solar and battery storage adoption

Projected uptake of solar PV and battery storage to 2050



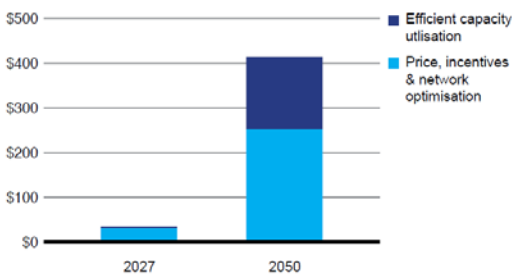
### Carbon abatement

Assumed greenhouse gas pathways under the Roadmap and Counterfactual scenarios (Left axis: emissions, Right axis: percent abatement relative to 2005 emissions)



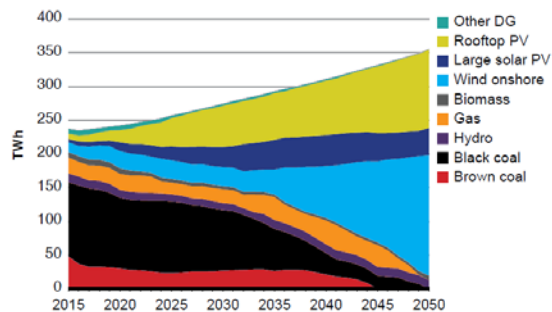
### Savings for customers





Projected savings in average residential bills (in real terms) under the Roadmap scenario



### Electricity generation mix

Projection of Australia's changing electricity generation mix to 2050



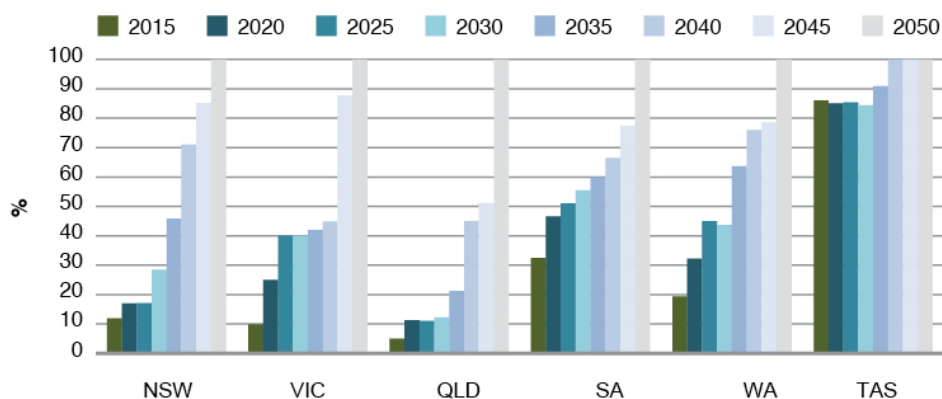
	Counterfactual			The Roadmap		
	Active \$	Passive \$	The Gap \$	Active \$	Passive \$	The Gap \$
Working Couple 	\$1,346	\$1,811	\$465	\$1,123	\$1,422	\$299
Medium Family 	\$1,816	\$2,601	\$785	\$1,428	\$1,988	\$560
Large Family 	\$2,794	\$3,950	\$1,156	\$2,346	\$2,734	\$288
Single, Retired 	\$1,058	\$1,730	\$672	\$883	\$1,355	\$472

Residential bill outcomes for selected Australian household types in 2050 under the counterfactual and Roadmap scenarios

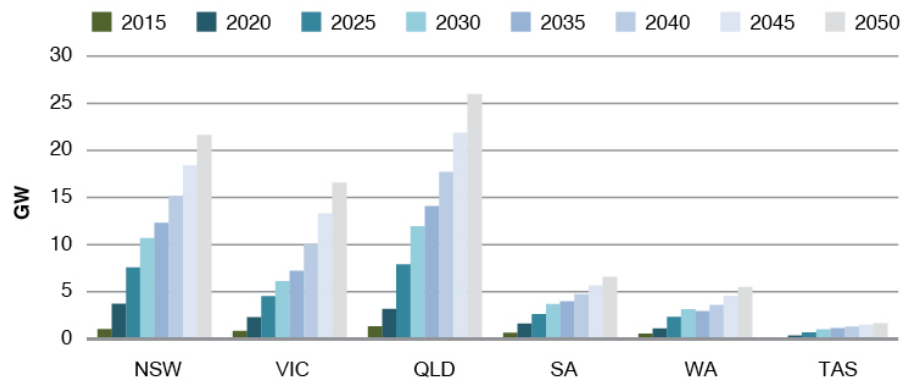
### Regional Analysis Snapshot

	Projected renewable generation mix by state (%)			Greenhouse gas emissions reduction (%)			Installation of rooftop solar by state (GW)			Installation of onsite-battery storage by state (GWh)		
	2017	2030	2050	2017	2030	2050	2017	2030	2050	2017	2030	2050
NSW	14	28	100	8	39	100	2	11	22	<0.5	6	24
VIC	16	40	100	24	54	100	1	6	17	<0.5	6	22
QLD	8	12	100	0	21	100	2	12	26	<0.5	10	30
SA	44	55	100	11	42	100	1	4	7	<0.5	4	9
WA	19	44	100	14	33	100	1	3	6	<0.5	2	7
TAS	86	84	100	20	20	100	0	1	2	<0.5	1	2

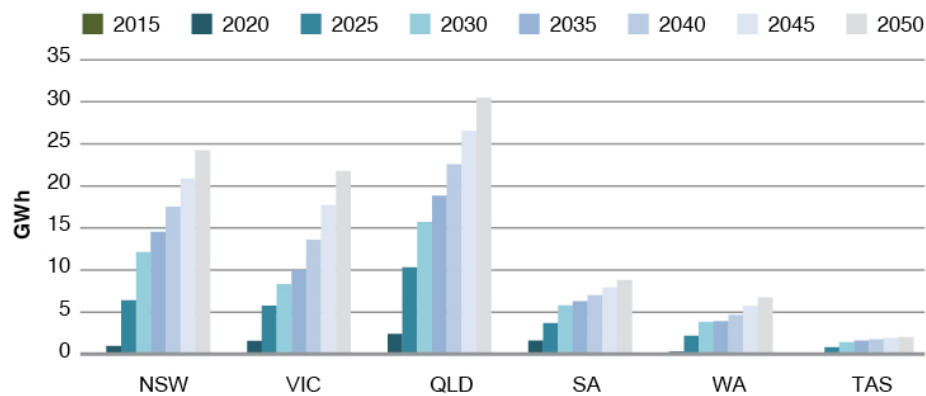
Figure 29: Projected renewable generation as a share of state generation under the Roadmap scenario.



**Figure 34:** Projected installations of rooftop solar by state.



**Figure 35:** Projected installations of on-site battery storage by state



## About the Electricity Network Transformation Roadmap

Australia's national science agency CSIRO and the peak national body representing gas distribution and electricity transmission and distribution businesses in Australia, Energy Networks Australia have partnered to develop an Electricity Network Transformation Roadmap (the Roadmap).

Energy Networks Australia has developed an action plan to achieve the Roadmap's 45 milestones. Networks are currently working on project plans for 11 flagship programs. Work will start on the highest priority projects in the coming months.

The final report is the product of more than two years of collaborative work carried out by Energy Networks Australia and CSIRO. More than 200 different industry representatives contributed at over 14 workshops and webinars held as part of the public consultation process. Information on the Roadmap has been viewed more than 30,000 times during the development process.

For more information go to [www.energynetworks.com.au/roadmap](http://www.energynetworks.com.au/roadmap)