

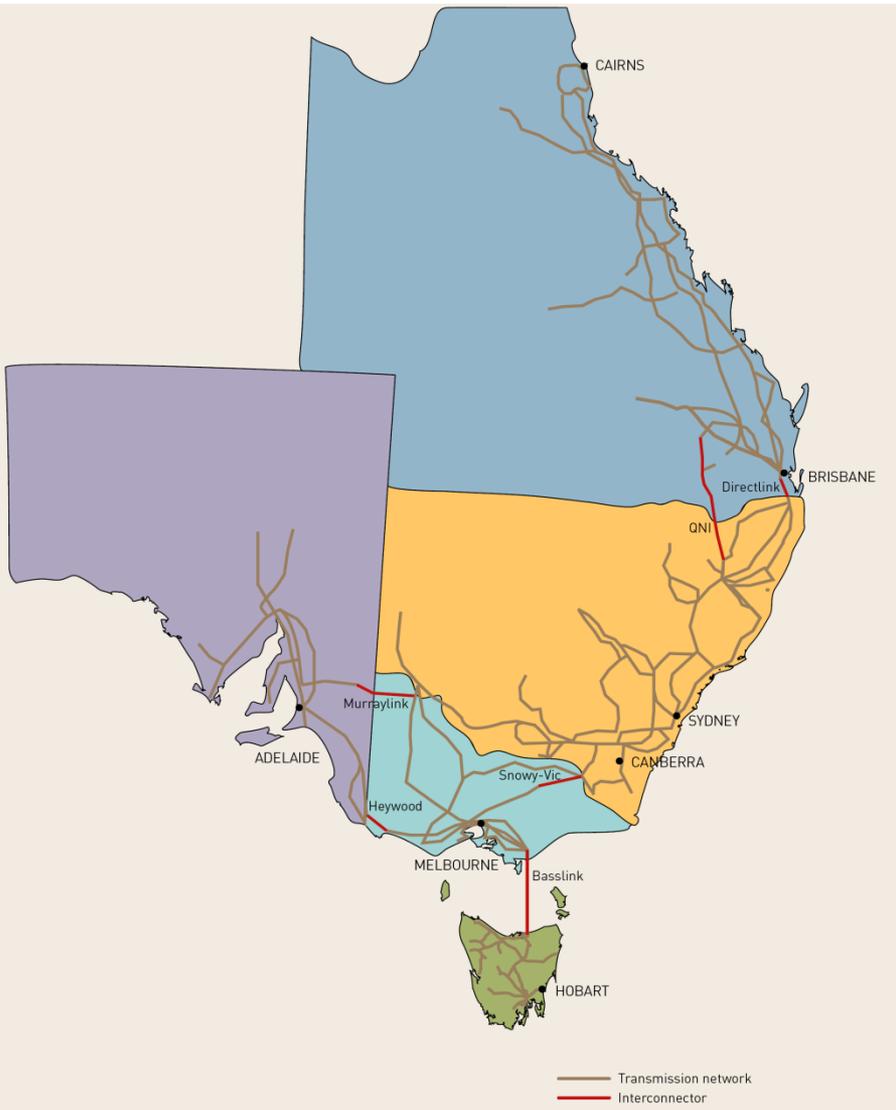


Network investments for the long term interests of consumers

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Australia's Eastern Electricity Market



- Australia's population: ~22.2m
 - 65% in capital cities
 - 90% on east coast
- One of the world's longest interconnected power systems – 4500km over 5 regions
- Electricity sector
 - 200 generators
 - 5 transmission networks
 - 3 interconnectors
 - 13 distribution network

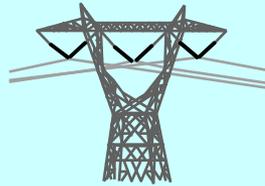
Overview of AER's Roles in Energy

**Wholesale gas
& electricity
markets**



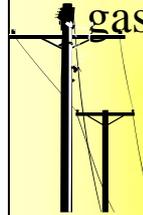
Monitor wholesale
markets and enforce
rules

**Transmission
networks &
pipelines**



Regulate
revenues of
transmission
businesses

**Distribution
Networks for
gas/electricity**



Regulate
revenues of
distribution
businesses

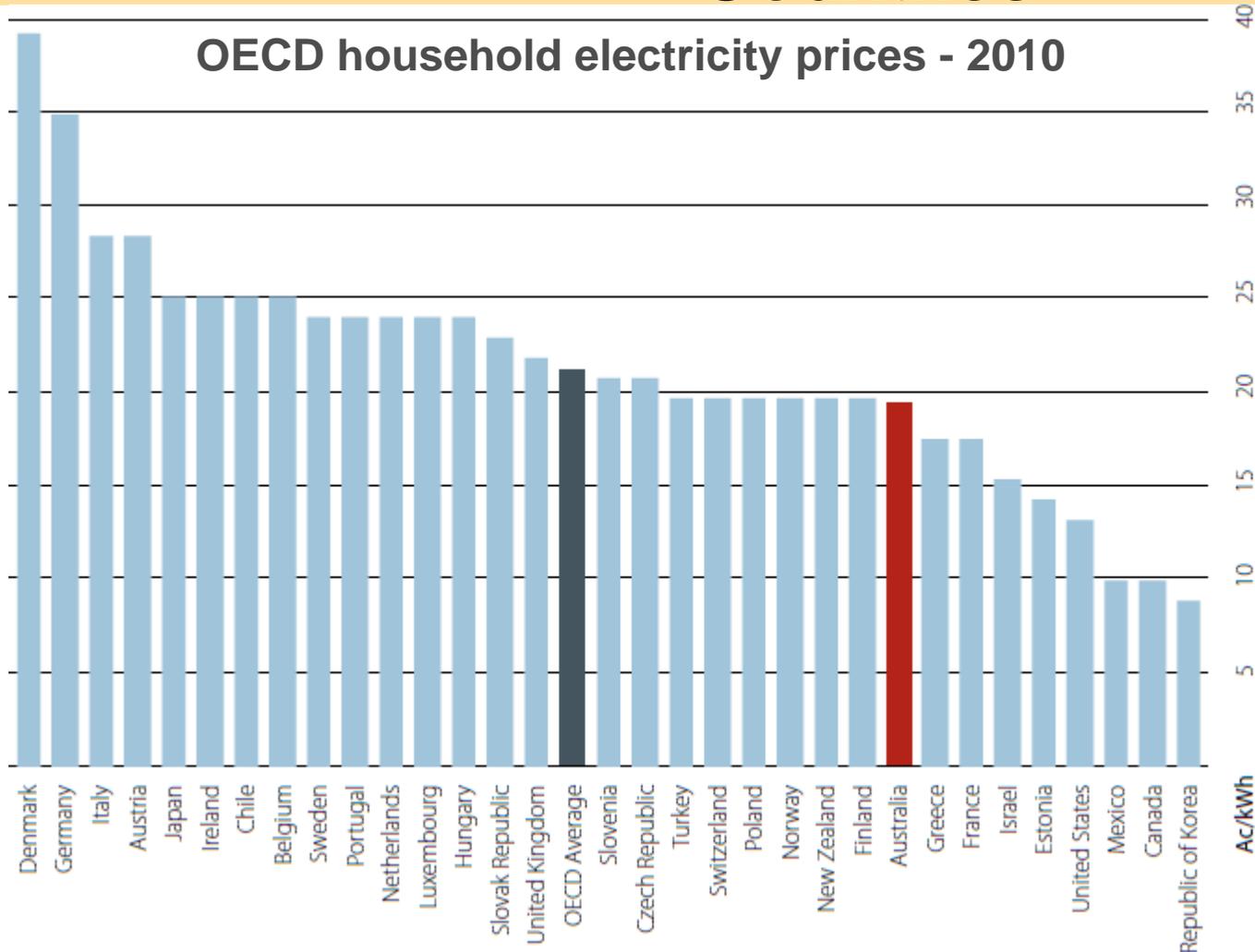
**Retail
& other
distribution**



Regulate non-price
retail activities
(currently in ACT
and TAS)

Low Electricity Prices Relative to OECD Countries

OECD household electricity prices - 2010



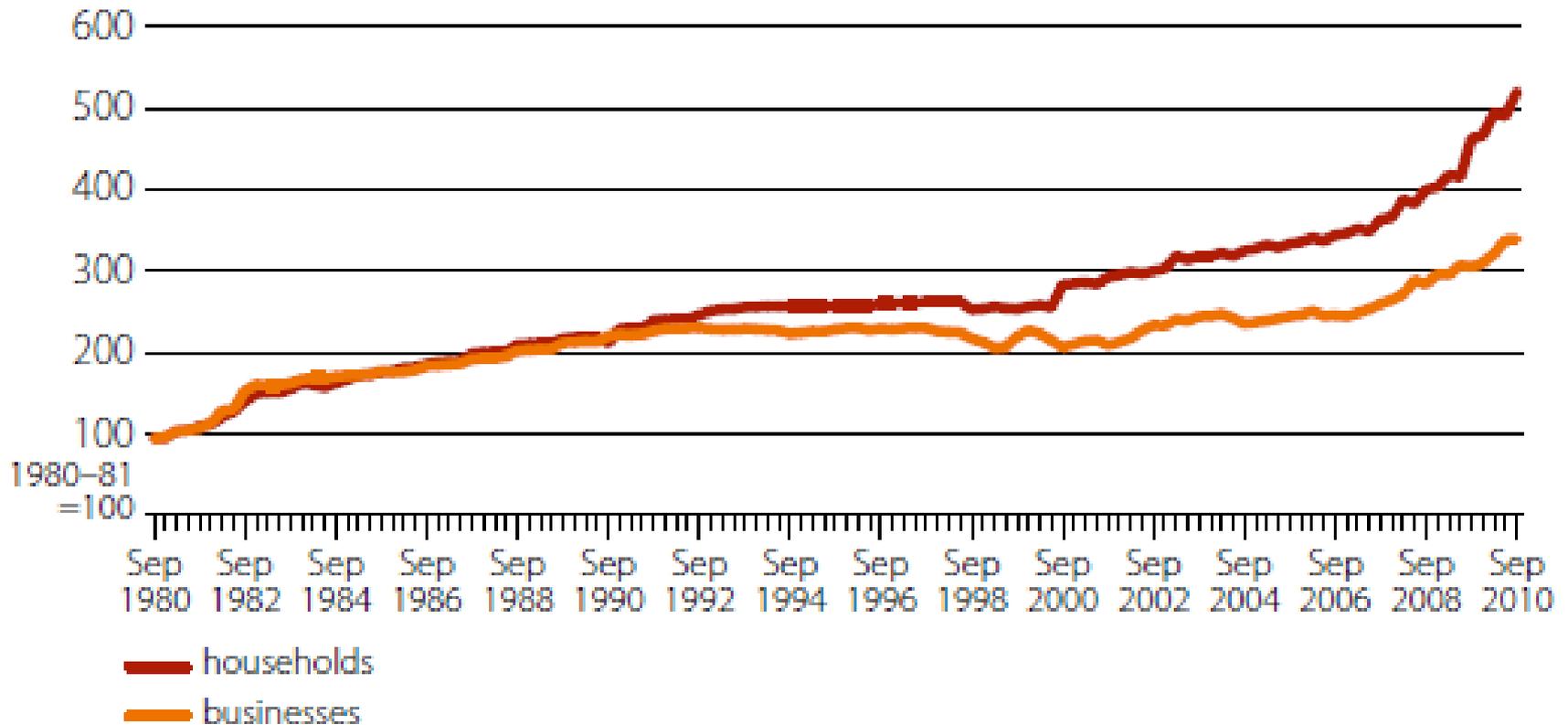
Historically, Australia has enjoyed low household electricity prices relative to OECD countries

Source: AEMC 2011 Future Possible Retail Electricity Price Movements; International Energy Agency 2011 Electricity Prices and Taxes

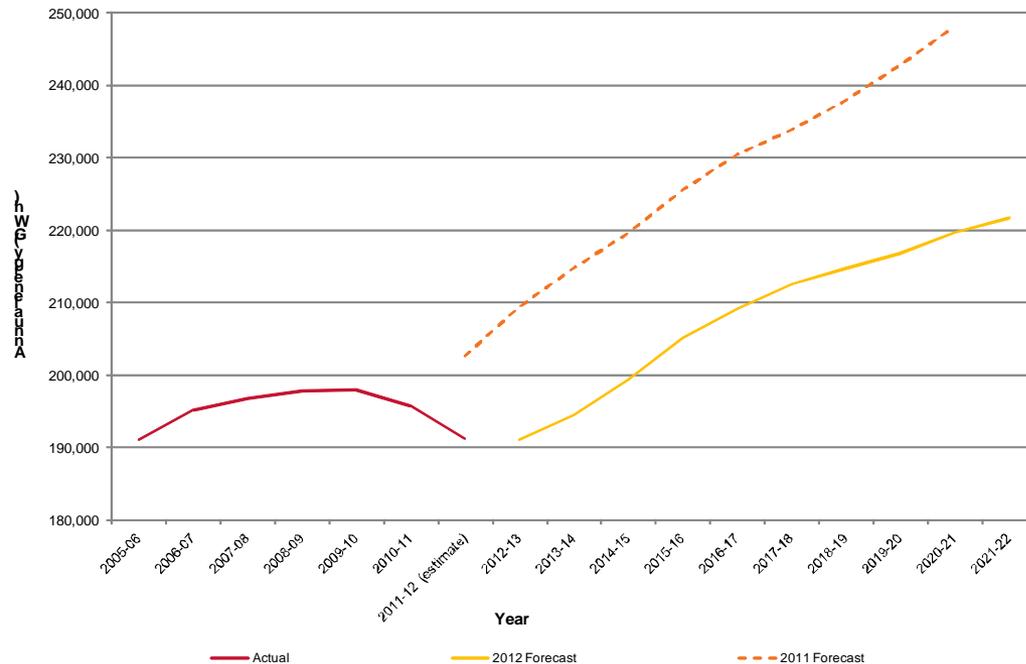
Rising electricity prices across the nation

Prices are now rising and are expected to rise further

Electricity prices for households and businesses
quarterly index

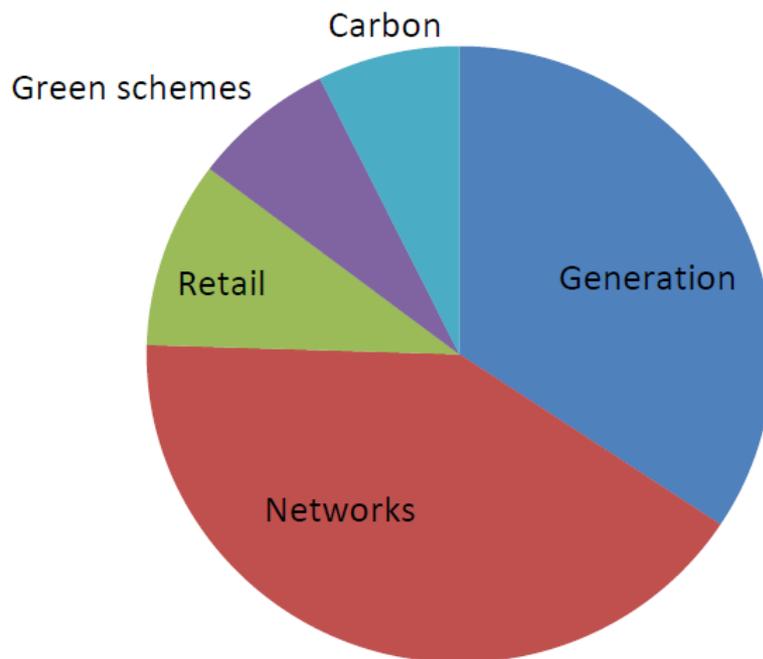


Energy Consumption is Falling



- AEMO estimates energy consumption to fall over the next 5 years due to:
 - Consumers responding to rising electricity prices
 - Energy efficiency programs
 - Increase in solar PV uptake.

Factors Influencing Retail Price



- Generation: 30-40%
- Networks: 35-50%
- Retail: 10%
- Green schemes / carbon prices: 5-10%

Factors Influencing Network Charges

- Capital expenditure
 - Ageing asset replacement
 - Demand Increase
 - New connections
 - Reliability, safety and service standards
- Operating expenditure
 - increasing asset base
 - increasing input costs (labour and materials)
- Cost of Capital (WACC)

Drivers of Distribution Network Costs

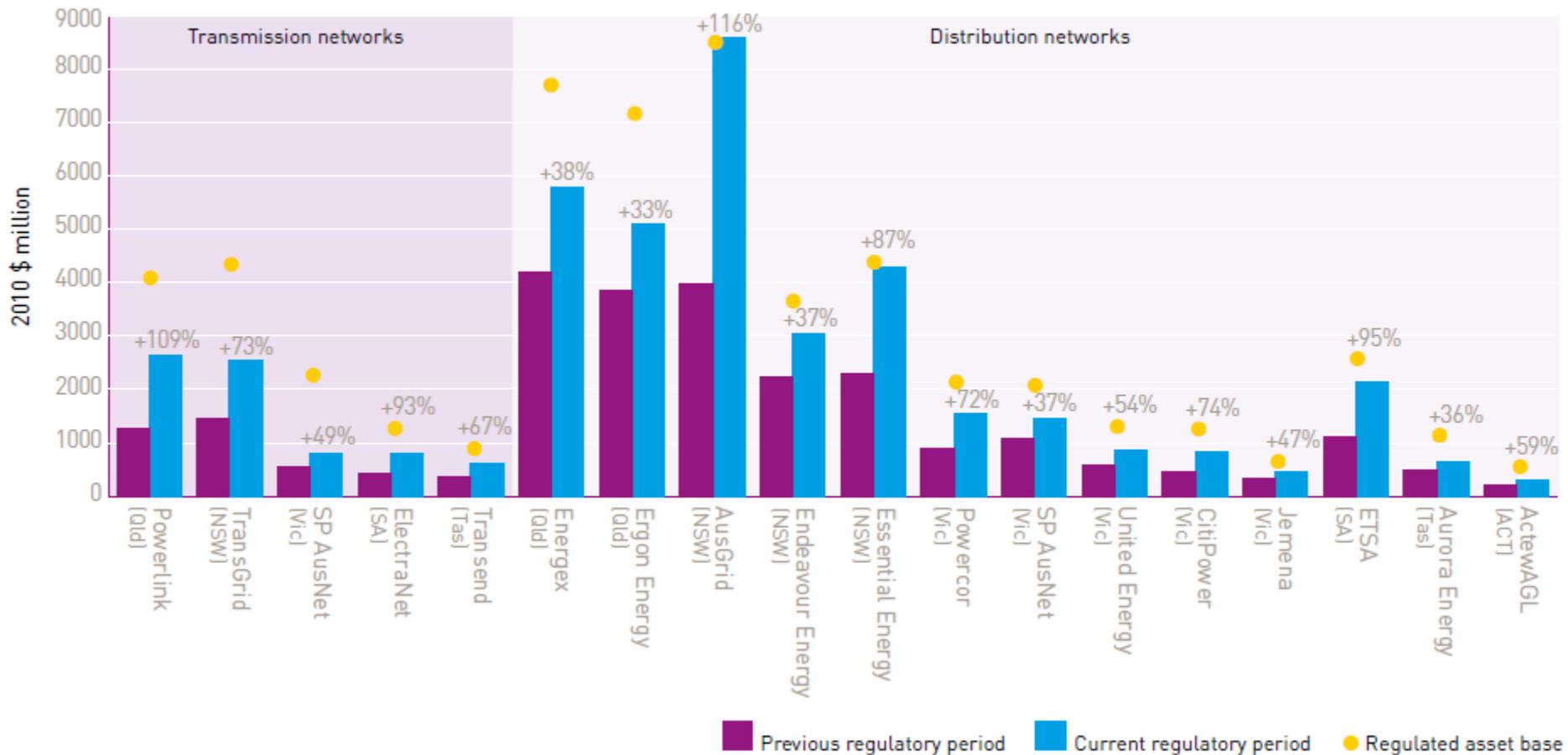
Building block component	Impact on network charges
Growth in sales volumes	0.2%
Higher WACC	4.8%
Total impact of incentive schemes	-1.3%
Opex overspends/underspends during previous regulatory period	1.4%
Increases in forecast opex	4.8%
Capex overspends/underspends during previous regulatory period	3.4%
Increases in forecast capex	13.5%
Other factors incl. difference between actual rev. & allowances**	-3.6%
Total increase in average revenue over 5 year period	23.5%

Figures describe impact of AER final decision. It does not include adjustments following Tribunal decisions.

** This row shows the impact of aligning forecast tariff revenues in the final year of the previous regulatory period with benchmark costs for that year. This can be influenced by energy consumer forecasting errors, adjustments for final year capex forecasting errors, and differences between smoothed and unsmoothed revenue requirements.

Growth in Network Investment

Electricity network investment



Regulatory and Planning Instruments

- Reliability standards determined by States
- Planning obligations
 - AEMO Annual national transmission network development plan
 - Annual Planning Reports (Transmission and Distribution)
- Regulatory investment tests of cost / benefit
- Revenue determination by Regulator
 - Ex ante Capital and Operating expenditure allowances
 - No ex post review (currently)
 - Service standard incentive schemes

Network Investment and Long Term Reliability

- Recent reforms and reviews to assess efficiency of network investment:
 - Demand-side initiatives –
 - AEMC Power of Choice review,
 - Australian Government energy savings initiative
 - Australian Government's \$100m smart grid trial
 - Transmission Framework Review
 - Distribution reliability standards – national and New South Wales work streams

Power of Choice Review

- Giving consumers options in the way they use electricity
- Focus on market conditions to facilitate demand/supply response to rising energy demand
- AEMC will consider interactions with existing work programs

Transmission Framework Review

- Review seeks to ensure that transmission arrangements promote the minimisation of expected total system costs
- 3 aspects:
 - Generator access and charging
 - Planning
 - Connections

Grid Reliability

Unsupplied system minutes in the NEM 2010-2011

	Region	System minutes unsupplied	
		Standard	Actual
Generation	QLD	10.51	0.00
	NSW	10.51	0.00
	VIC	10.51	0.00
	SA	10.51	0.00
	TAS	10.51	0.00
Transmission	QLD	n/a	1.06
	NSW	n/a	1.28
	VIC	n/a	1.20
	SA	n/a	9.37
	TAS	n/a	10.95
Distribution	QLD	312.7	281.6
	NSW	292.2	198.5
	ACT	91.0	102.0
	VIC	124.8	188.8
	SA	268.57	217.9
	TAS	258.0	215.2

Source: AEMC Reliability Panel 2011 Annual Market Performance Review Final Report

Distribution Network Reliability

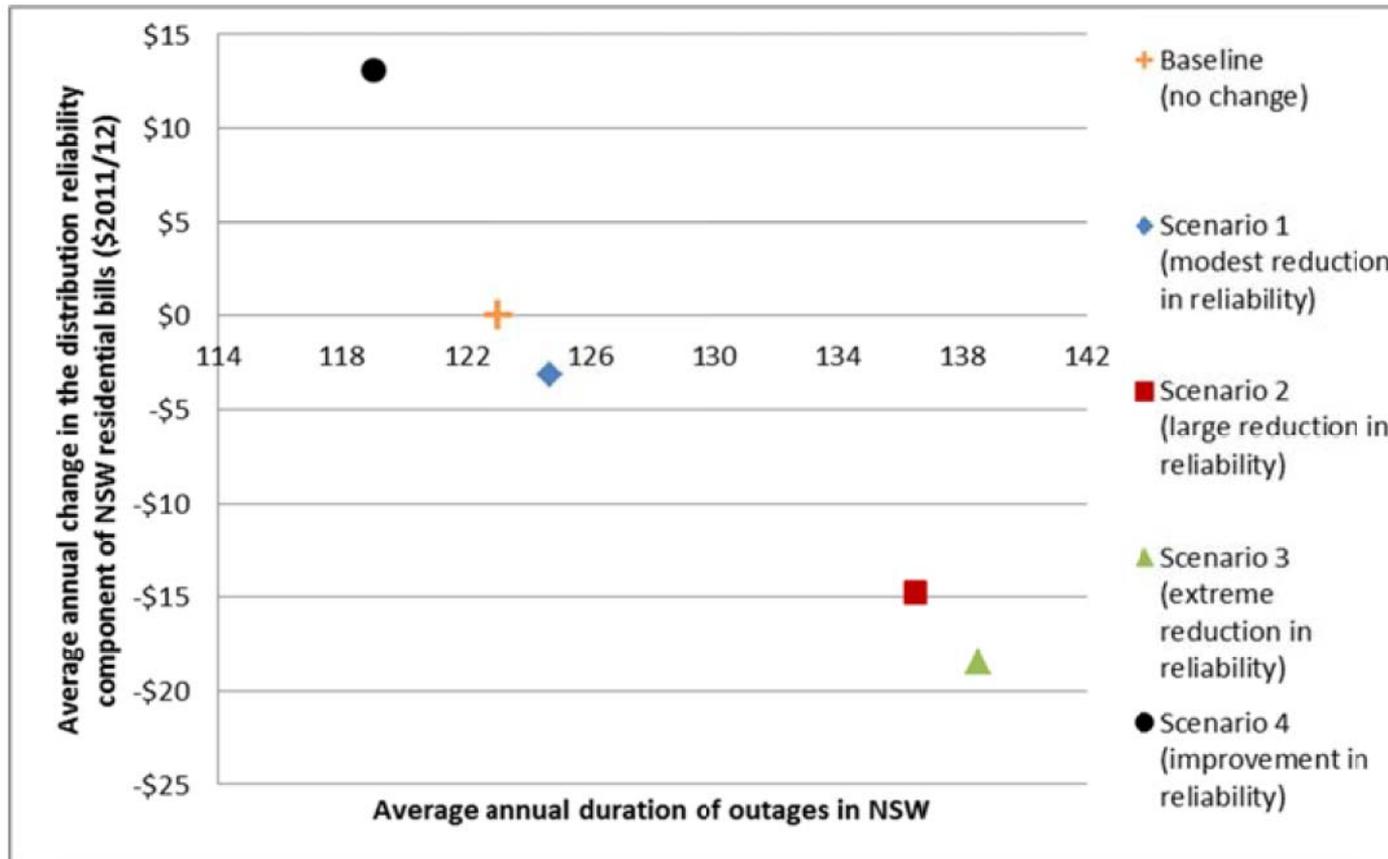
System average interruption duration index (SAIDI) and frequency index (SAIFI)

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
SAIDI (MINUTES)										
Queensland	314	275	265	434	283	351	233	264	365	366
New South Wales	175	324	193	279	218	191	211	180	211	137
Victoria	152	151	161	132	165	165	197	228	255	170
South Australia	164	147	184	164	169	199	184	150	161	153
Tasmania	265	198	214	324	314	292	256	304	252	211
NEM weighted average	198	245	199	258	211	221	211	213	254	200
SAIFI (NUMBER OF INTERRUPTIONS)										
Queensland	3.0	2.8	2.7	3.4	2.7	3.1	2.1	2.4	2.9	2.7
New South Wales	2.5	2.6	1.4	1.6	1.6	1.8	1.9	1.7	1.8	1.5
Victoria	2.0	2.0	2.2	1.9	1.8	1.9	2.1	1.7	2.5	1.7
South Australia	1.7	1.6	1.8	1.7	1.7	1.9	1.8	1.5	1.5	1.9
Tasmania	2.8	2.3	2.4	3.1	3.1	2.9	2.6	2.6	1.9	1.8
NEM weighted average	2.4	2.4	2.0	2.2	1.9	2.1	2.0	1.9	2.2	1.8

Source: AER State of the Energy Market 2011

Distribution Reliability Standards Review

- Review explores the merits of moving to a nationally consistent framework for achieving reliability outcomes in distribution networks
- Initial focus on NSW – estimated benefits range from \$3 to \$18 a year in today's dollars



Conclusion

- Australia well aware of significance of network investment in rising costs
- Addressing the drivers of costs through
 - Demand management initiatives
 - Review of reliability standards
 - Greater use of benchmarking for assessment of efficient costs

Conclusion

- Challenges
 - Additional loads – Electric Vehicles, appliances
 - Ageing assets
 - Shifts in locus of generation
 - Grid solar photovoltaic
 - Remote renewables
 - Next wave of market reform at customer interface with grid
 - Advanced metering technology
 - New institutions to co-ordinate customer response