

# ENERGY AT HOME: CURRENT ISSUES FOR CONSUMERS



Parliament House, Canberra  
Tuesday 13 September

**Energy at home: Current issues for consumers  
Prices, products, pressures, protections. And politics.**

A briefing and discussion

For legislators, policy makers, industry, consumer advocates

**Australian energy prices are rising fast - faster than inflation, faster than incomes, and faster than in other advanced economies. The energy market and its products are becoming more complex. Energy is an increasingly important issue for Australians. ACOSS and CHOICE present a one day conference about current and looming issues for the residential energy consumer. The program features an overview of forces affecting retail energy bills and other developments in the market, and then turns to the future; can anything be done about trends towards increasing consumption and increasing bills?**

**To facilitate discussion on the day, CHOICE and ACOSS have prepared this background paper that highlights recent trends, current issues and the opportunities for the future.**

*'...the costs of life's essentials are rising fast... This often means the choice between putting food on the table or paying essential bills'*

Karyn Walsh, President, Queensland Council of Social Service

*'...we cannot ignore the reality of rising energy costs, here, around the country, or indeed around the world.... People know this is one of the great challenges of our time'*

Kristina Keneally, former Premier of New South Wales

*'...this is a crucial cost of living issue for Australians and the ACCC and the AER have a large role to play in relation to many aspects of this industry. Like telecommunications, there is significant potential for 'bill shock' and consumer distress in this rapidly changing, often confusing and critical market.'*

Rod Sims, Chairman, Australian Competition and Consumer Commission

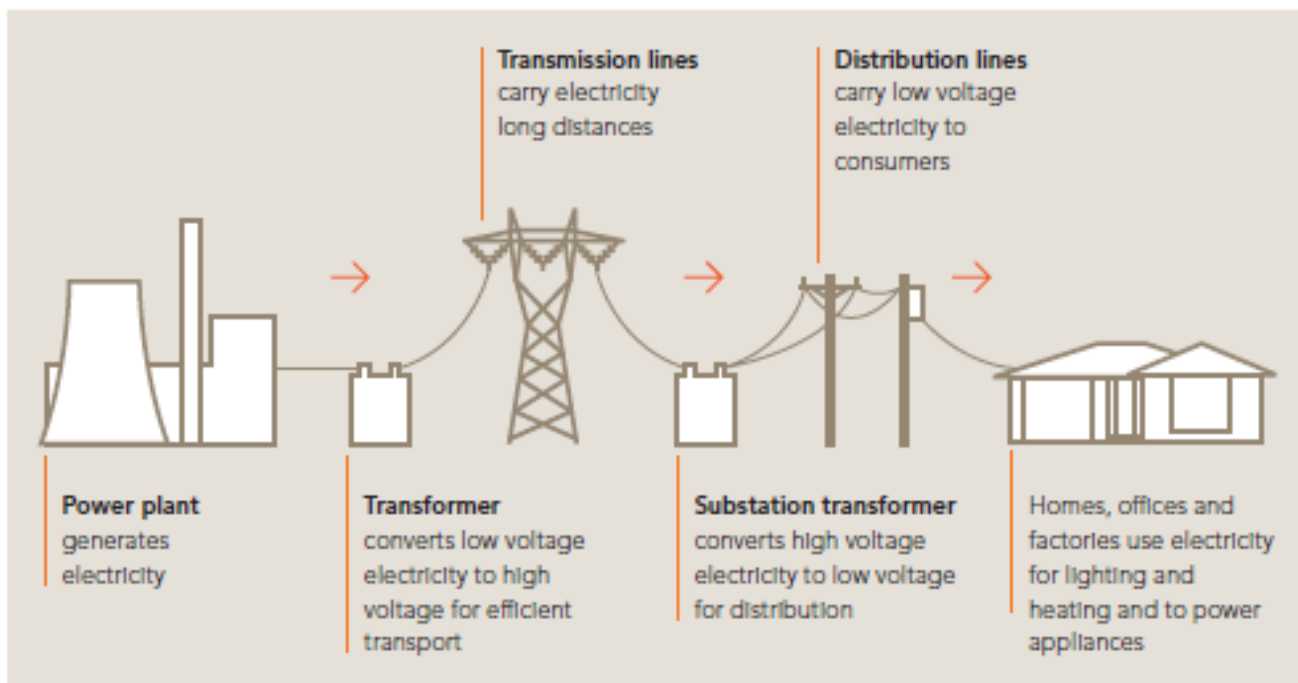
*'...the objective set out in the law is to promote efficient investment in and efficient operation and use of energy services for the long term interests of the consumers of energy ...we have concerns about whether the current framework strikes an appropriate balance between the interests of network businesses and those of consumers...'*

Andrew Reeves, Chairman, Australian Energy Regulation,

*'... rising network costs and government policies—unless changed—will continue to contribute to large electricity price rises... Is the current regulatory framework generating excessive investment in distribution and intra-state transmission? Is there excessive investment in infrastructure ("gold plating") under the guise of reliability? Is investment being rewarded for relatively low risk investment at rates appropriate for more common riskiness of business investment, thus contributing to increases in prices? Is there an asymmetry in incentives for different kinds of investment, discouraging investment in economically managing demand growth, and encouraging expansion in energy use?'*

Ross Garnaut, The Garnaut Review 2011

How does the electricity market work?

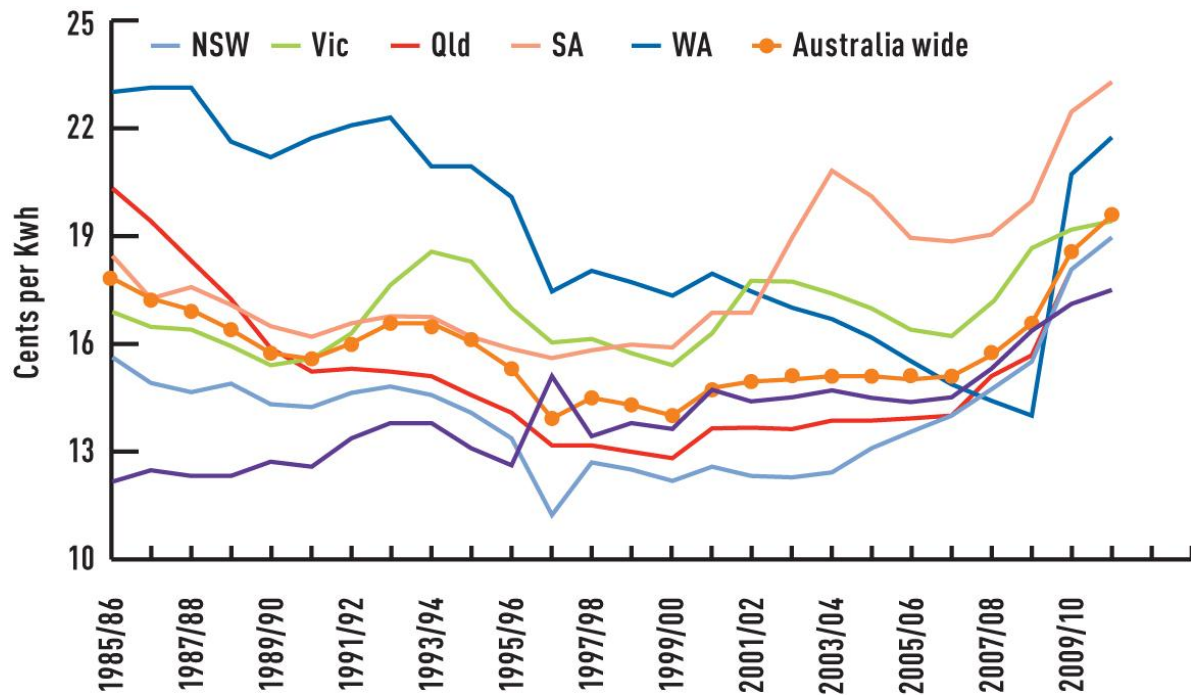


Source AEMO, An Introduction to Australia’s National Electricity Market, July 2010

Current issues affecting different sectors?

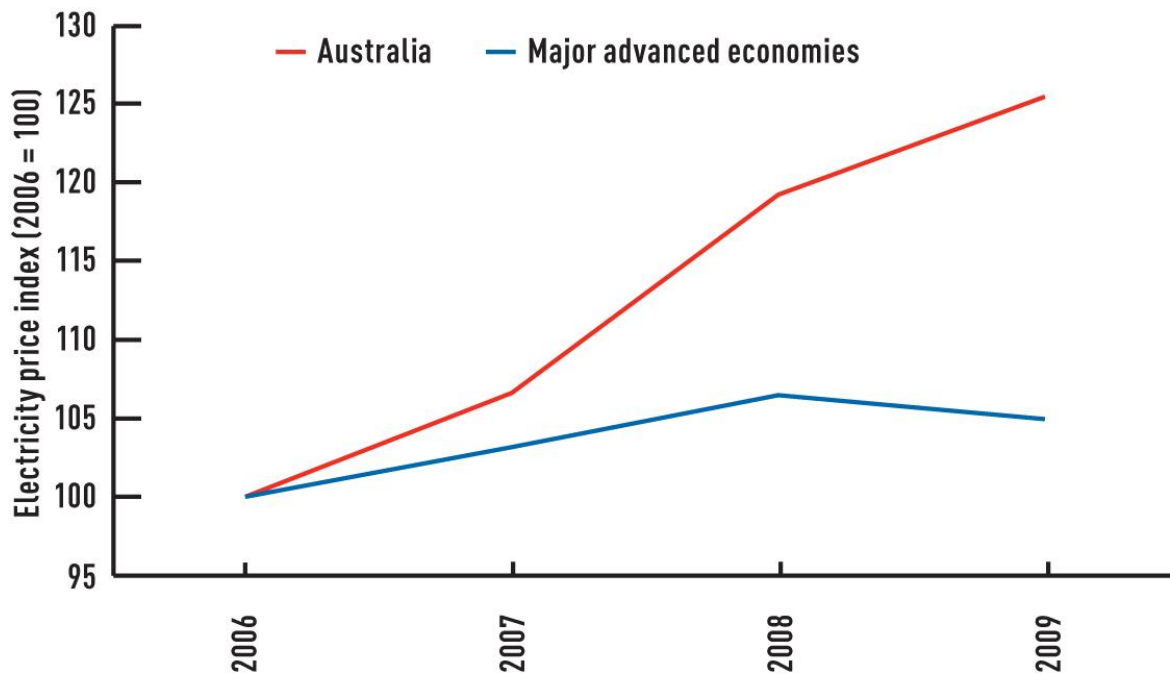
generation	transmission	distribution	retail
<ul style="list-style-type: none"> <li>• carbon price</li> <li>• cost of capital</li> <li>• uncertainty and risk</li> <li>• increasing costs of input fuels including coal and gas</li> <li>• increasing costs of plant including concrete and steel</li> </ul>	<ul style="list-style-type: none"> <li>• changes upstream in generation sector</li> <li>• review of customer value of reliability</li> </ul>	<ul style="list-style-type: none"> <li>• changing expectations: governments, regulators, customers</li> <li>• managing peak demand</li> <li>• smart networks: costs and benefits</li> <li>• how to explain complicated technology to consumers</li> <li>• uncertain regulatory environment</li> <li>• implementation of National Energy Customer Framework</li> <li>• management of government policy and programs</li> </ul>	<ul style="list-style-type: none"> <li>• managing risk</li> <li>• management of government policy and programs</li> <li>• implementation of National Energy Customer Framework</li> <li>• managing peak demand</li> <li>• how to engage customers in new and more complex products</li> <li>• time of use arrangements</li> <li>• selling techniques</li> <li>• how to explain complicated technology to consumers</li> </ul>

Are electricity prices increasing?



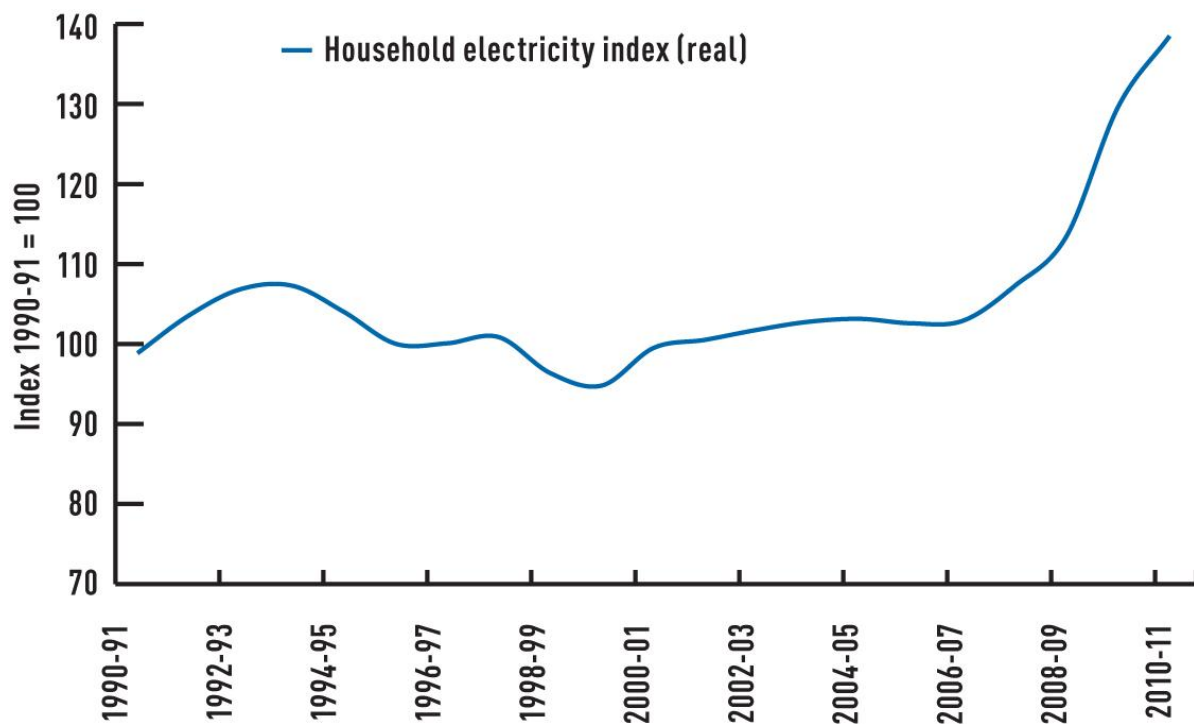
Source: Australian Industry Group, Energy shock: confronting higher prices,

Over recent years, Australian electricity price increases have risen faster than that of the seven major advanced economies. The major seven countries comprise: Canada, France, Germany, Italy, Japan, the United Kingdom, United States. (Source: <http://stats.oecd.org>)



Source: IEA 2009, OECD 2010 (as obtained from The Garnaut Review, 2011)

Since approximately 2006, household electricity prices have also risen faster than inflation.



Source: Australian Bureau of Statistics, Consumer price index for electricity (Category 6401.0) (as obtained from Garnaut 2011)

**Who uses electricity?**

There are more than ten million electricity customers in Australia. About 87% of customers are residential. But residential customers account for only about 30% of consumption.

Customers by classification at 30 June 2009



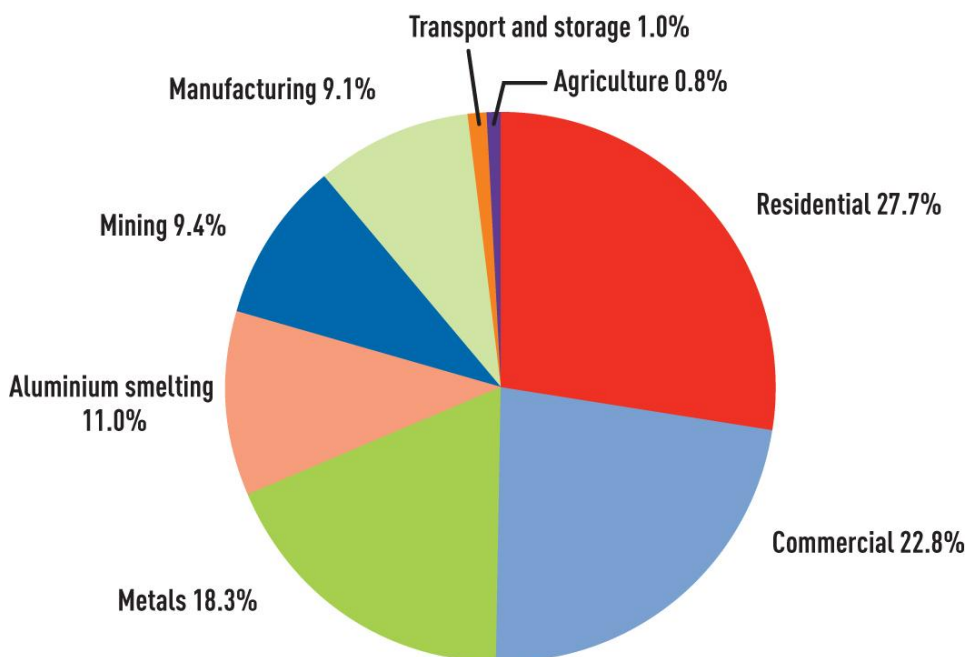
Source Energy Supply Association of Australia (esaa), Electricity Gas Australia 2010, based on annual reports, Tasmanian Energy Supply Industry Performance Report (no detail on numbers of customers by classification available for Tasmania)

Consumption by classification of customers (GWh) 2008-09



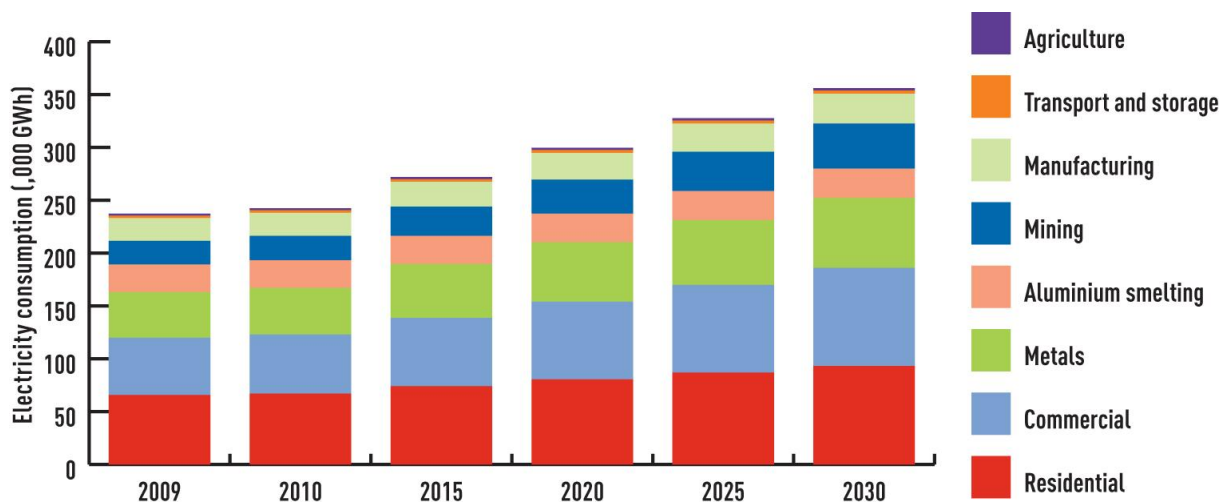
Source Energy Supply Association of Australia (esaa), Electricity Gas Australia 2010

Final electricity consumption by sector 2008-09



Source Energy Supply Association of Australia (esaa), Electricity Gas Australia 2010, drawn from ABARE, *Australian energy national and state projections to 2029-30* (07.24) released December 2007

Electricity consumption projection by sector 2009 to 2030



Source Energy Supply Association of Australia (esaa), Electricity Gas Australia 2010, drawn from ABARE, *Australian energy national and state projections to 2029-30* (07.24) released December 2007

**Energy, fuel and water service costs for Australian households: ABS Household Expenditure Survey**

Energy and water comprise a relatively small component of living costs for most Australian households. The Australian Bureau of Statistics (ABS) survey of 2009-2010 household spending shows that for an average household, water and sewage services account for less than 1 per cent of spending, energy supply 2.6 per cent, transport fuel 3.8 per cent and, for all these services combined, around 7 per cent.

For all these services combined, the amount spent as a proportion of total expenditure on goods and services has increased for the average household since the ABS survey of 1988-1989 household spending.

However, lower income households are disadvantaged because they pay a higher proportion of their income on energy and water than wealthier households. The table above shows ABS data across five income groups. In 2009-10 the poorest households (i.e. the lowest quintile) spent a slightly higher percentage of their weekly budget on these services (8.6 per cent) than the average household (7.4 per cent). Recent increases in energy prices may have increased this proportion even further.

While low income households generally consume less energy and water than wealthier households, these services account for a greater percentage of their total weekly spending. In real dollar terms, low income households spend half as much on electricity and gas as the wealthiest households, but as a share of total household spending, they spend almost twice as much. When compared to the average household, their total weekly spend on energy is more than a third higher as a proportion of total household spending. For tenants, additional energy and water costs may be hidden in rents.

The cost of water and sewage as a percentage of total weekly spending is approximately a third higher for low income households than it is for houses on an average income. Again, in real dollar terms, transport and fuel costs for a low income household are about half that of an average household. However, as a percentage of total weekly spending, the share spent on fuel is about the same in both.

Given that energy and water are essential services with low elasticity of demand, if prices go up low income households will either under consume (ie tolerate a loss of quality of life by cutting back below a reasonable standard) or lose access to supply. For these households, “utility stress”, i.e. the inability to pay a utility bill on time because of shortage of money, is also a considerable issue. Disadvantaged households are most likely to report being unable to pay utility bills for this reason, resulting in utility disconnection.

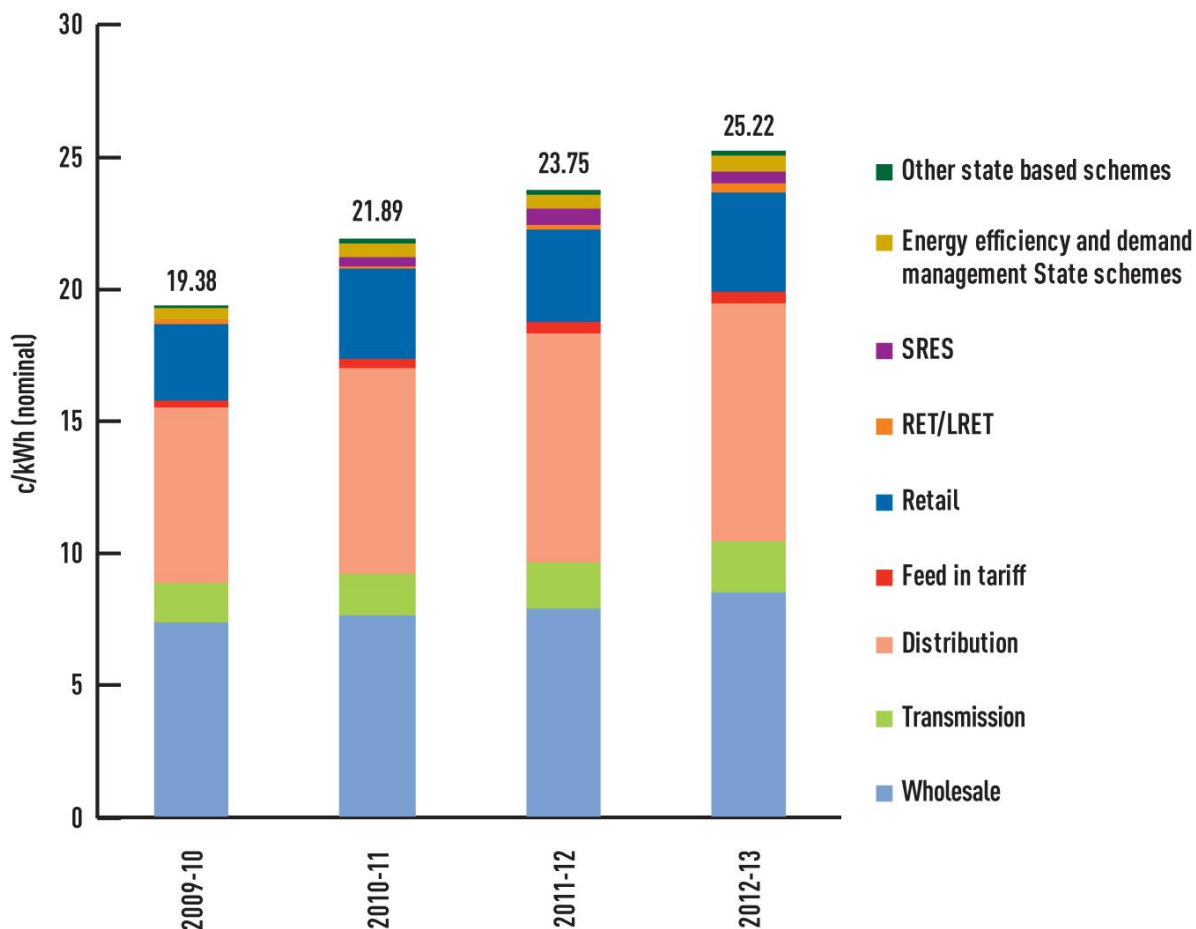
## Energy, fuel and water service costs for Australian households: ABS Household Expenditure Survey

		Lowest 20 per cent	Second 20 per cent	Third 20 per cent	Fourth 20 per cent	Highest 20 per cent	Average
Mean gross household income per week 2009-10		367	785	1,327	2,024	3,937	1,688
Total expenditure on goods, services \$/wk							
2009-10	\$/week	559.04	814.94	1,169.47	1,479.45	2,159.74	1,236.28
2003-04	\$/week	413.32	603.64	859.38	1090.32	1499.18	892.83
1988-89	\$/week	342.85	482.58	648.04	851.03	1,171.40	698.97
<b>Energy supply – electricity and gas*</b>							
2009-10	\$/week	22.34	28.11	31.44	36.55	44.21	32.52
	% expenditure	4.00	3.45	2.69	2.47	2.05	2.63
2003-04	\$/week	16.4	20	23.27	25.46	31.68	23.59
	% expenditure	3.97	3.31	2.71	2.34	2.11	2.64
1988-89	\$/week	12.85	15.87	17.72	19.85	23.08	17.87
	% expenditure	3.75	3.29	2.73	2.33	1.97	2.56
<b>Water, sewage</b>							
2009-10	\$/week	4.89	6.32	7.97	9.53	12.26	8.19
	% expenditure	0.87	0.78	0.68	0.64	0.57	0.66
2003-04	\$/week	3.71	4.48	5.77	6.84	9.12	5.98
	% expenditure	0.90	0.74	0.67	0.63	0.61	0.67
1988-89	\$/week	3.89	4.55	5.71	6.92	8.50	5.91
	% expenditure	1.13	0.94	0.88	0.81	0.73	0.85
<b>Transport fuel</b>							
2009-10	\$/week	20.69	34.71	51.28	63.21	85.30	51.02
	% expenditure	3.70	4.26	4.38	4.27	3.95	4.13
2003-04	\$/week	14.76	24.05	34.89	41.59	48.94	32.83
	% expenditure	3.57	3.98	4.06	3.81	3.26	3.68
1988-89	\$/week	11.92	19.38	26.91	33.75	40.27	26.43
	% expenditure	3.48	4.02	4.15	3.97	3.44	3.78
<b>Total energy, water and transport fuel</b>							
2009-10	\$/week	47.92	69.14	90.69	109.29	141.77	91.73
	% expenditure	8.57	8.48	7.75	7.39	6.56	7.42
2003-04	\$/week	34.87	48.53	63.93	73.89	89.74	62.4
	% expenditure	8.44	8.04	7.44	6.78	5.99	6.99
1988-89	\$/week	28.66	39.80	50.34	60.52	71.85	50.21
	% expenditure	8.36	8.25	7.77	7.11	6.13	7.18

\*Note ABS describes it as fuel and power, and it also includes purchase of wood, heating oil etc

ABS (2011) *ABS Household Expenditure Survey*; ABS (2006) *ABS Household Expenditure Survey*; ABS (2000) *ABS Household Expenditure Survey*.

Why are electricity prices increasing?



Source: AEMC 2010 , Future Possible Retail Electricity Price Movements: 1 July 2010 to 30 June 2013, Final Report, 30 November 2010 , Sydney

The main cost components of the residential electricity price in Australia and their contribution to the total residential electricity price include:

- Wholesale electricity costs, which comprises around 35% to 40% of the total residential electricity price level (and contributes 19% of the total increase in prices over the reporting period at a national level);
- Transmission network costs, which comprises around 8% of the total residential electricity price level (and contributes 8% of the total increase in prices over the reporting period at a national level);
- Distribution network costs, which comprise around 36% to 45% of the total residential electricity price level (and contributes 41% of the total increase in prices over the reporting period at a national level);
- Retail costs (including margins), which comprise around 8% to 16% of the total residential electricity price level (and contributes 14% of the total increase in prices over the reporting period at a national level);
- Renewable Energy Target (RET) costs, which comprise around 2% to 4% of the total residential electricity price level (and contributes 11% of the total increase in prices over the reporting period at a national level);

- Feed in tariff scheme costs, which comprise around 0.12% to 2.4% of the total residential electricity price level (and contributes 3% of the total increase in prices over the reporting period at a national level); and
- Other costs associated with State and Territory Government programs and policies, which comprise around 1% to 7% of the total residential electricity price level (and contributes 3% of the total increase in prices over the reporting period at a national level).

Source: AEMC 2010, Future Possible Retail Electricity Price Movements: 1 July 2010 to 30 June 2013, Final Report, 30 November 2010 , Sydney

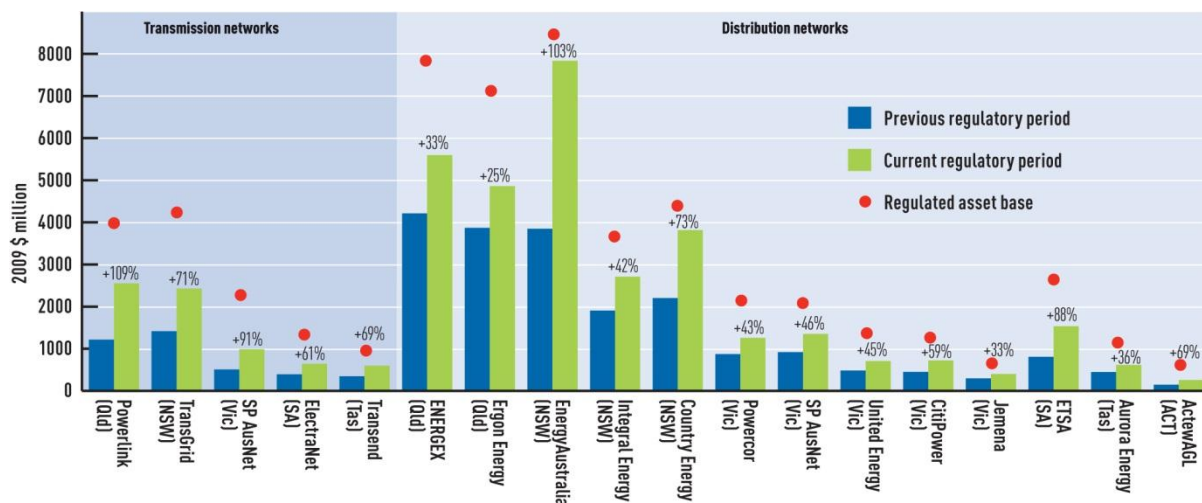
The Renewable Energy Target (RET) was implemented in 2009 and is designed to deliver on the Government’s commitment to ensure that 20 per cent of Australia’s electricity supply will come from renewable sources by 2020.

Under the RET legislation wholesale purchasers of electricity have a legal liability to surrender Renewable Energy Certificates (RECs) or pay the penalties for non-compliance. The cost of these RECs serve to increase wholesale energy purchase costs for retailers, which are passed on to end use customers.

From 1 January 2011, the RET scheme has operated as the Large-scale Renewable Energy Target (LRET) and Small-scale Renewable Energy Scheme (SRES). The LRET will cover large scale renewable energy projects and has a target of 41,000 GWh by 2020. The SRES will provide a financial benefit for small scale renewable energy technologies, such as the purchase of eligible solar water heaters, small-scale solar photovoltaic panels and small wind and micro-hydro systems. The SRES has an uncapped target.

**Rising network costs**

As the below diagram indicates, network costs have been increasing significantly in recent years and that trend is set to continue. The AER has publicly stated that it is developing a Rule change proposal that will focus public attention on the rules which govern how the TNSPs and DNSPs have their revenue determined. As it currently stands, the AER has stated that it is too much in favour of these regulated businesses, a position that has led to higher revenues than should be necessary and subsequently, electricity costs that are higher than what they should be.



Source: AER, State of the energy market 2010

The AER must forecast the revenue requirement of a business to cover its efficient costs and provide a commercial return. It uses a building block model that accounts for a network’s efficient operating

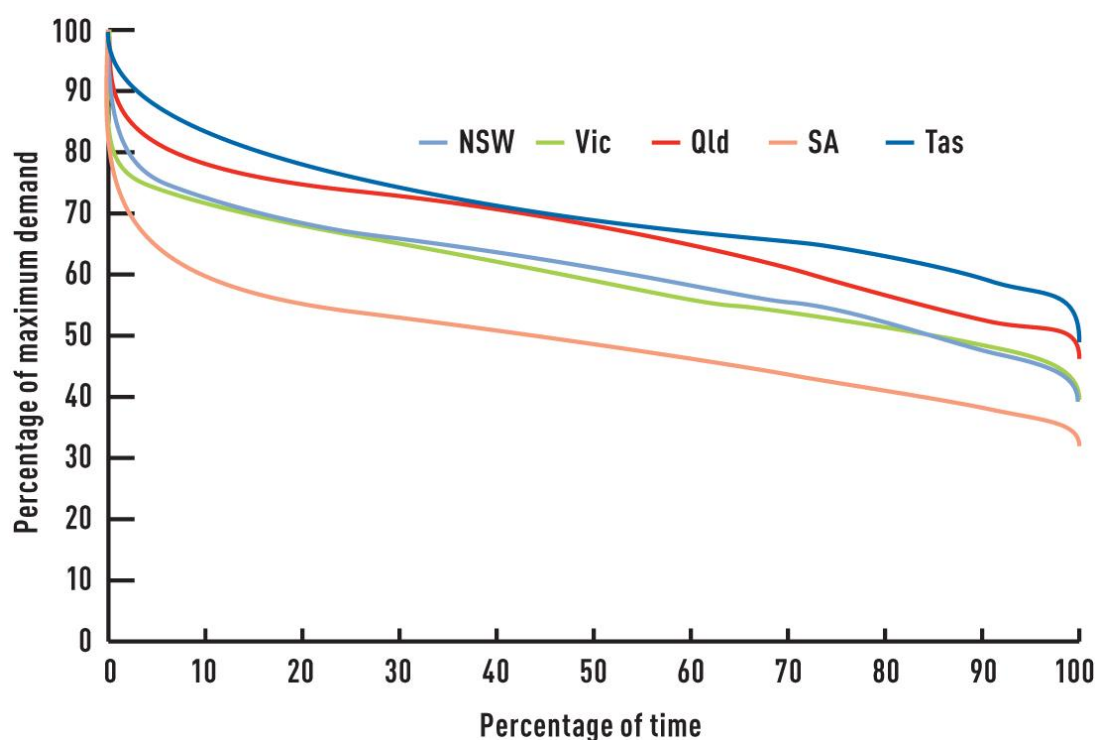
and maintenance expenditure, capital expenditure, asset depreciation costs and taxation liabilities, and a commercial return on capital. The Australian Energy Market Commission (AEMC) is reviewing a total factor productivity approach as an alternative to the building block model. (Source: AER State of the energy market 2010)

The largest component of network revenue is the return on capital, which accounts for up to two thirds of network revenues. The return on capital is influenced by the size of a network’s regulated asset base (and projected investment) and its weighted average cost of capital (the rate of return necessary to cover efficient equity raising and debt costs). An allowance for operating expenditure typically accounts for a further 30 per cent of revenue requirements. (Source: AER State of the energy market 2010)

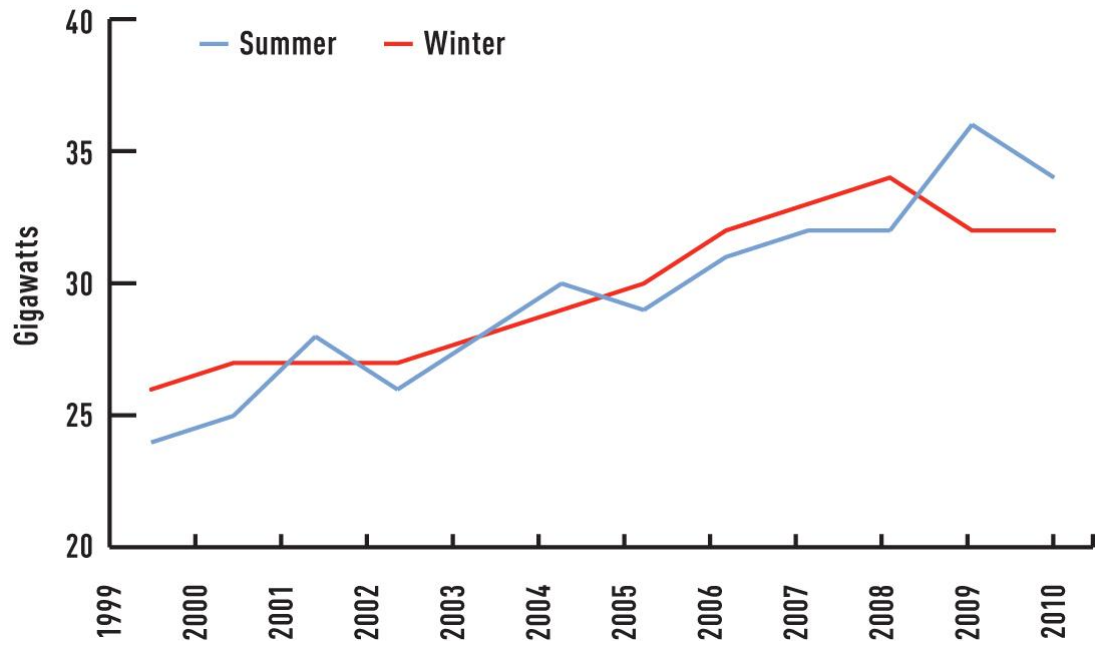
**Peak demand**

A long history of very low power prices combined with 18 successive years of economic growth, rapidly rising household incomes, substantial expansions in household floor-space and plunging electric appliance costs (especially air conditioners) has led to extraordinary growth in energy demand and in particular, peak demand. (Source: The Boomerang Paradox: how a nation’s wealth creates fuel poverty - and how to defuse the cycle, Paul Simshauser, Tim Nelson and Thao Doan\$ Level 22, 101 Miller Street North Sydney, NSW, 2060. April 2010)

With increasing levels of peak demand, networks are being developed to ensure that for only a very small proportion of the year, demand can be met. However, with bigger networks follows higher costs of supplying electricity at all times of the year even where its full capacity is not being utilised.



Source: Australian Energy Market Operator, 2011 Electricity Statement of Opportunities for the National Electricity Market



Source: Australian Energy Regulator, State of the Energy Market 2010

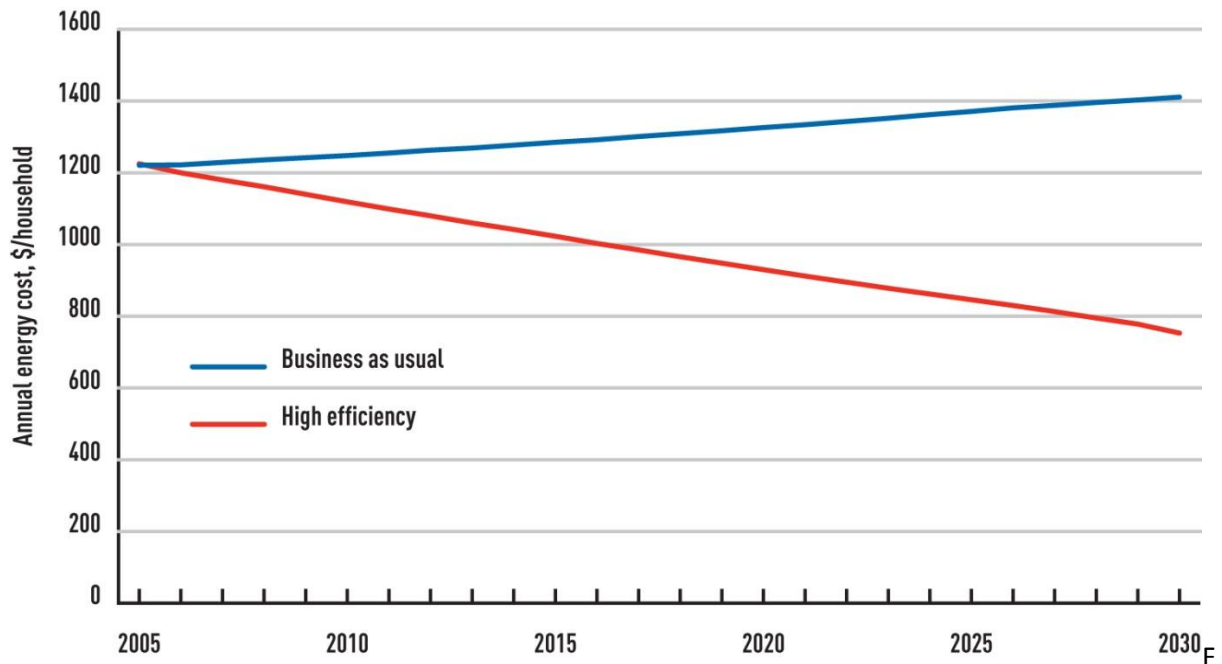
As the below diagram illustrates, peak demand is rising higher than average levels of demand which highlights the need for demand management schemes which target the peaks as well as overall energy usage levels.



Source: Ergon Energy submission to the Prime Minister’s Task Group on energy efficiency, 2010

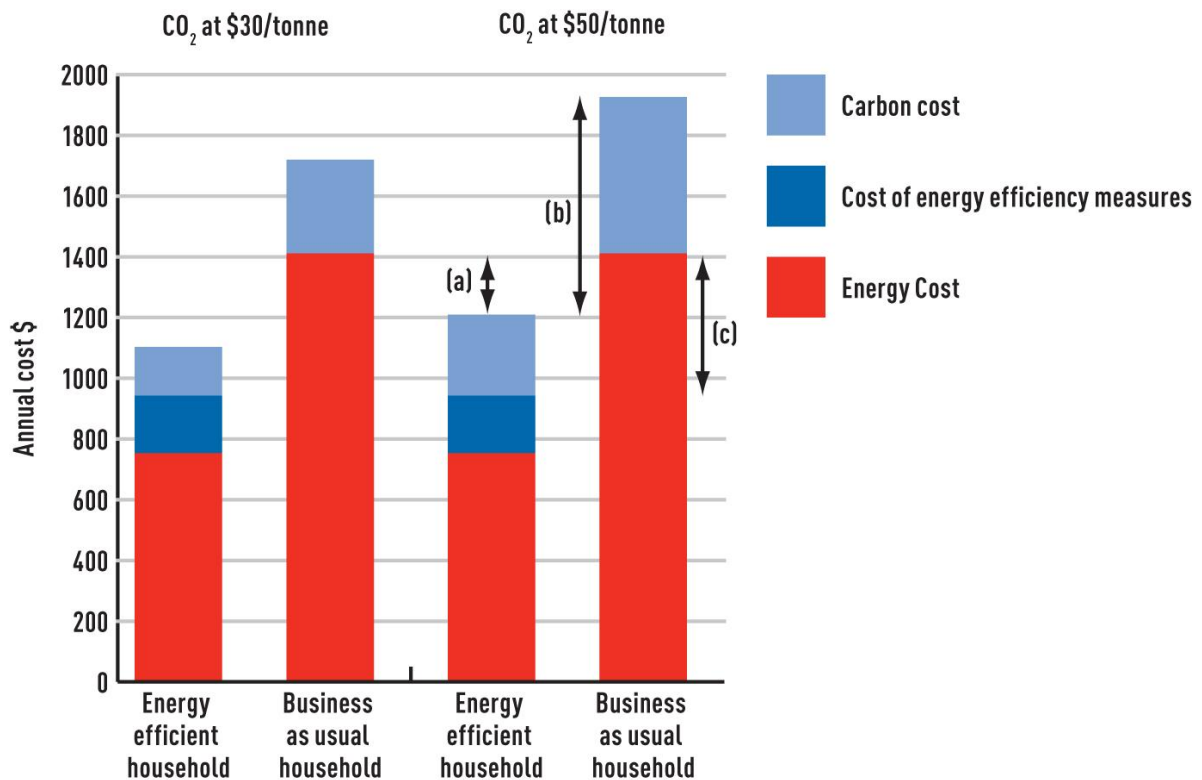
Energy efficiency: Prospects and options

Household energy bills – business as usual and high energy efficiency scenarios



Constant prices were assumed for energy for both scenarios and over time. It was assumed electricity would cost 12 cents/kilowatt-hour and average annual fixed supply charge was \$90, while gas price was \$11/Gigajoule with \$85 annual fixed supply charge. Wood was priced at a low price of \$40/tonne to reflect the fact that a large proportion of wood is collected free.

Savings for an efficient 'average' household, per annum, in 2030



The figure above shows that, even at a carbon price of \$50 per tonne and after paying for the energy efficiency measures, the energy efficient household is paying:

- almost \$200 less each year than the 'business as usual' household would pay without a carbon price (see arrow (a) in Figure 10.1); and
- around \$700 less than the business as usual household would pay with a carbon price (see arrow (b) in Figure 10.1).

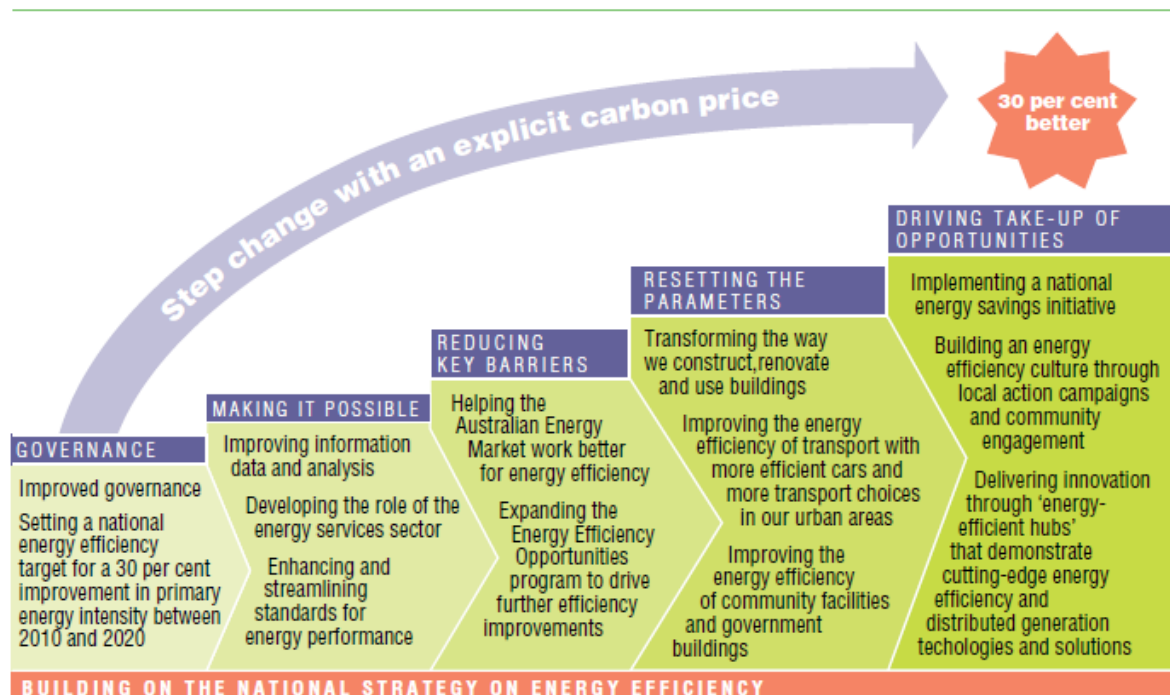
Another way of looking at this is that, if the 2030 energy efficient household paid \$88/tonne of CO<sub>2</sub>, it would still not pay more for its energy and the cost of energy efficiency measures combined than the 'business as usual' household would pay for energy *without any carbon price*. This calculation is based on the energy efficient household generating only 5.3 tonnes of CO<sub>2</sub> p. a and paying \$943 for energy and energy efficiency, in comparison with the 'business as usual' household paying \$1411 p.a for its energy costs without a carbon price. So, the energy efficient house is saving \$468 p.a (see arrow (c) in Figure 10.1). If the energy efficient household had to use this annual \$468 saving to pay for emission of 5.3 tonnes of CO<sub>2</sub>, the effective price of CO<sub>2</sub> would be  $468/5.3 = \$88$  per tonne. So the energy efficient household is in a strong position to save money on total energy costs relative to present day energy costs, even if a very high CO<sub>2</sub> price eventuates.

**Prime Minister’s Task Group on Energy Efficiency**

**High level recommendations from the Task Group**

- 1 Setting an aspirational national energy efficiency target of improving our primary energy intensity by 30 per cent between now and 2020.
- 2 Establishing a transitional national energy savings initiative that would replace existing and planned state energy efficiency schemes and be phased down as a carbon price matures.
- 3 Resetting the governance framework of energy efficiency so that responsibility for its delivery, coordination and implementation is clear.
- 4 Providing a stronger enabling environment for energy efficiency innovation by improving information, data and analysis—noting that for something to be managed, it must be measured.
- 5 Building an energy efficiency culture in Australia through a long-term, nationally integrated strategy.

Illustrated as below:



### Electricity regulation in Australia

The National Electricity Market (NEM) is a wholesale exchange for electricity for the Commonwealth adjacent areas and those States and Territories that are electrically connected - Queensland, New South Wales, Australian Capital Territory, Victoria, South Australia and Tasmania. Western Australia and the Northern Territory are not a part of the NEM but however are also facing increasing electricity costs as highlighted above.

In relation to the NEM, relevant parties include:

*The AEMC (Australian Energy Market Commission) whose functions include:*

- Making the National Electricity Rules which govern the operation of the NEM (as well as the National Gas Rules).
- Considering proposals initiated by others to change the Rules (for e.g. the AER's one expected in late 2011).
- Conducting its own market studies (policy work) and from these making recommendations to the Ministerial Council on Energy (the States) on rules that it thinks should be proposed.

*The AER (Australian Energy Regulator, whose functions include*

- Enforcing the National Electricity Laws (under which the National Electricity Rules operate) and the National Gas Laws (under which the National Gas Rules operate).
- Making revenue determinations for transmission network service providers (TNSPs) and distribution network service providers (DNSPs) – i.e. the maximum revenue that they may earn in a regulatory period.
- Enforcing the National Energy Retail Laws, covering customer relationships for distribution businesses and retailers and both electricity and gas (Note retail powers do not include price regulation which is left to states and territories where relevant).

*The AEMO (Australian Energy Market Operator) whose functions include:*

- Regulating the wholesale market (the spot market) including prudential arrangements and technical standards. In effect, tells generators when to turn on and off. A dispatch price is determined every five minutes, and six dispatch prices are averaged every half-hour to determine the spot price for each trading interval for each of the regions of the NEM. AEMO uses the spot price as the basis for the settlement of financial transactions for all energy traded in the NEM.