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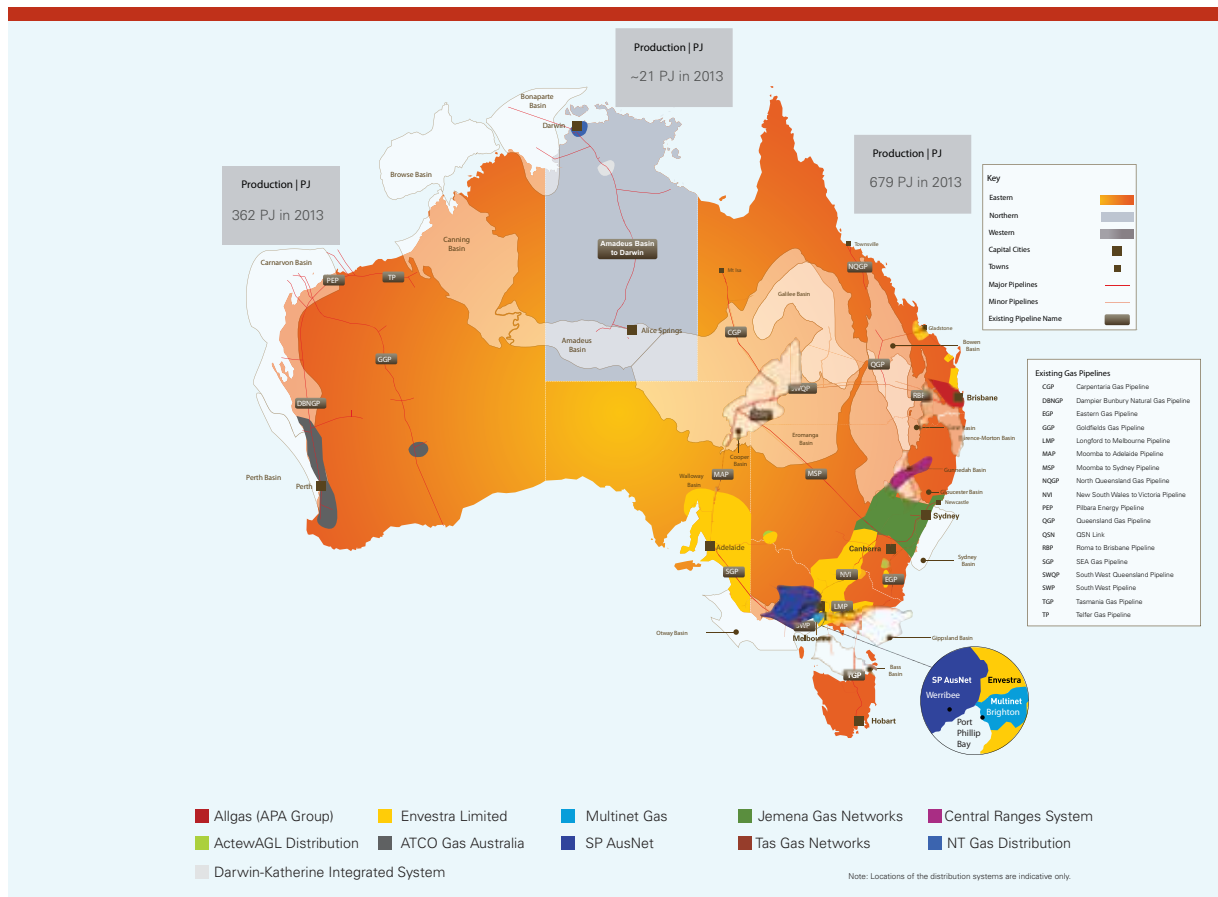
TAKING PRESSURE OFF GAS PRICES

FIXING AUSTRALIA'S ENERGY
POLICY DISTORTION



THE AUSTRALIAN DOMESTIC GAS ENVIRONMENT

FIGURE 1: MAP OF GAS INFRASTRUCTURE, REGIONAL GAS MARKETS AND MAJOR GAS SUPPLY BASINS



Source: Core Energy

Many of Australia's 4.5 million household gas users and 120,000 business gas users may be surprised to learn that one of the key factors determining whether their bills increase or fall in future will be Government policy on solar technology.

HIDDEN SOLAR SUBSIDIES PAID BY GAS CONSUMERS

KEY FACTS AT A GLANCE

Many of Australia's 4.5 million household gas users and 120,000 business gas users may be surprised to learn that one of the key factors determining whether their bills increase or fall in future will be Government policy on solar technology.

The development of eastern Australian liquefied natural gas (LNG) exports is already set to increase wholesale gas prices, which may double in the period to 2018 with a proportionally lower increase on final retail prices. Given this once in a generation challenge to the industry, it is vital government policy settings do not exacerbate any decline in demand for gas or distort the ability of gas to compete on price as a 'fuel of choice' for consumers.

Current solar policies like the Small-Scale Renewable Energy Scheme (SRES) distort demand in gas and other markets because they provide subsidies of up to 30% for solar hot water systems based on their greenhouse gas abatement but don't recognize abatement achieved by gas hot water systems.

Recent analysis by the Core Energy Group for the Energy Networks Association has assessed the outlook for gas demand with increasing wholesale prices and Government policy settings. The key findings include:

- » Despite eastern Australian wholesale prices doubling, residential and commercial gas consumers could pay lower retail gas bills in 2034 if the distorting subsidies to Solar technology were removed. Retail gas bills for residential and commercial customers in 2034 would be about \$50 per year (or 5.4%) lower than current levels, with 7% more gas consumed.
- » The continuation of current solar policy settings like the SRES will mean 170,000 fewer gas consumers in 2034 than will occur if a fuel-neutral policy was adopted.
- » If Governments were to extend solar subsidy programs (such as through the previously proposed Million Solar Roofs program), it could exacerbate wholesale price impacts to result in retail gas bills which are about \$80¹ per year (or 8.24%) higher than current levels in 2034.
- » Expanded solar subsidies would see residential and commercial gas demand which is about 17%² lower over the next 20 years and the connection of 130,000 fewer gas customers.
- » These subsidies have the potential to create a reduction in annual gas network sector revenues of greater than \$1 billion and retail sales revenues of over \$2 billion³.
- » The reduction in demand due to solar subsidies could remove annual direct and indirect capital investment of up to \$200 million and lead to a potential loss of economic value of \$1.5 billion⁴.

TABLE 1: SUMMARY OF POLICY IMPACT ANALYSIS

* Including expected wholesale gas increases

	SCENARIO		
	Business as usual (2034)	Pro solar (2034)	Fuel neutral (2034)
Retail price increase* (% increase above CPI)	1.9%	8.24%	-3.46% ⁵
Impact of policy alone on retail prices (% increase above CPI)	-	4.52%	-3.72% ⁶
Impact of policy changes alone on residential and commercial gas use	-	9% less gas use	7% more gas use ⁷
Number of gas customers (2034)	6.23 Million	6.1 Million	6.41 Million ⁸

1 Based on an average \$1,000 per year gas bill see Table 5.3 on page 130, AER State of the Energy Market 2013. www.aer.gov.au/sites/default/files/Chapter%205%20-%20Energy%20retail%20markets%20A4.pdf.

2 ENA Gas Network Sector Study, Core Energy Group, August 2014, page 6.

3+4 Ibid, page 69.

5 Ibid, table 8.3 page 67.

6 Ibid, table 8.4 page 67.

7 Ibid, these figures are derived by taking the figures for total demand in table 8.2 on page 66 and dividing by the 2013 demand figure in the same table.

8 Ibid, table 8.2 page 66.

DOMESTIC GAS PRICES AND DEMAND

Final gas bills to business and residential customers are made up of four components: wholesale costs, transmission and distribution network costs and retail costs. Network costs are primarily attributable to the costs of supporting the 85,000 km of pipelines across Australia. The large-scale capital investment programs to replace and augment these pipelines, together with operating costs that make up network costs are expected to show little or no growth in the next regulatory period.

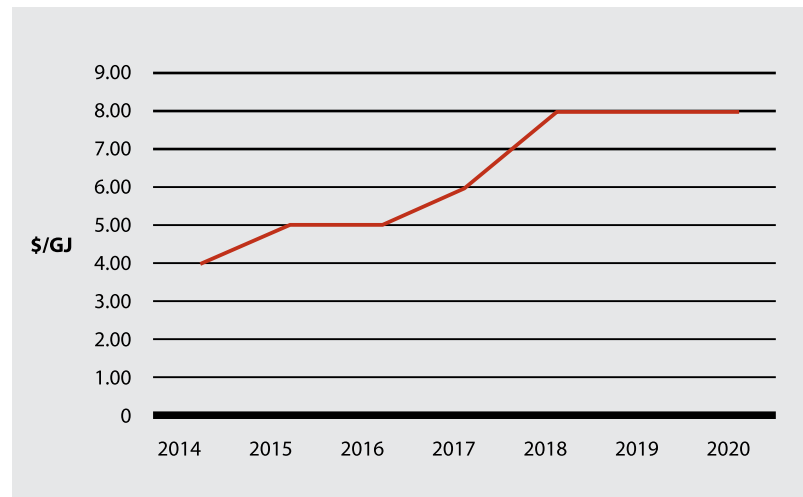
In NSW for example, gas distribution network costs account for around half of the retail price of gas and, as is the case for all states in the NEM, are regulated by the Australian Energy Regulator (AER). The remainder of a gas bill is made up of retail costs and wholesale costs⁹.

Wholesale gas prices (ex-Moomba) are projected to increase from close to \$4 per Giga Joule (GJ) today to \$8 per GJ or more between 2015 and 2018¹⁰ (Figure 2). Core Energy forecasts this will result in an average 7%¹¹ change in retail bills in 2014/15 and a further 4% in 2017/18.

The increases in wholesale, network and retail costs for both residential and commercial customers will be reflected in customer bills and will impact on gas demand.

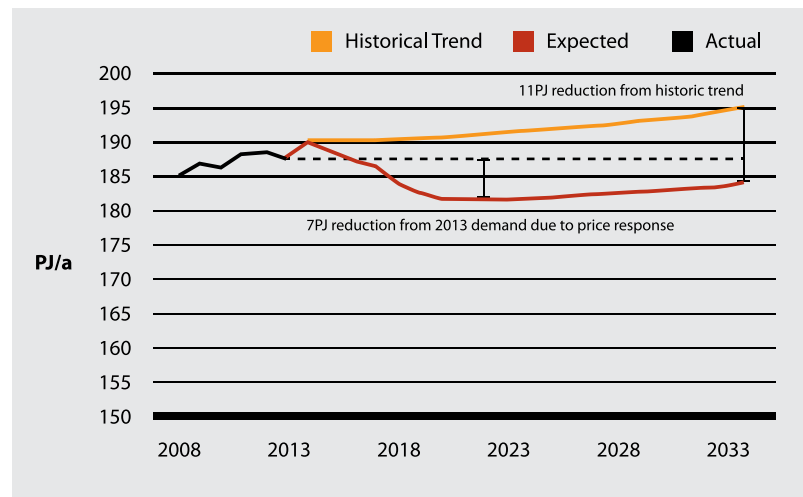
For every percentage increase in retail gas price, Core Energy Group estimates residential gas demand will decrease by 0.3% (0.35% for commercial customers¹²). Figure 3 demonstrates the reductions in gas demand expected as a result of the consumer response to increasing gas prices.

FIGURE 2: THE CORE ENERGY GROUP FORECAST OF WHOLESALE GAS PRICES



Source: ENA Gas Network Sector Study, Core Energy Group, August 2014, page 55.

FIGURE 3: IMPACT OF PRICE ON AUSTRALIAN GAS DEMAND (PJ)



Source: ENA Gas Network Sector Study, Core Energy Group, August 2014, page 4.

9 Ibid, page 47.
 10 Ibid, table 6.1, Page 55
 11 Ibid, table A 2.9, page 92.
 12 Ibid, Page 92.

THE EFFECT OF DISTORTIONARY POLICY

Network gas demand from both the residential and commercial sector is significantly affected by incentives and subsidies directed to specific technologies that are neither fuel or technology neutral.

Existing subsidies to solar technology not only reduce demand on gas networks but increase gas prices as a result, as fixed costs must be recovered over a smaller sales volume.

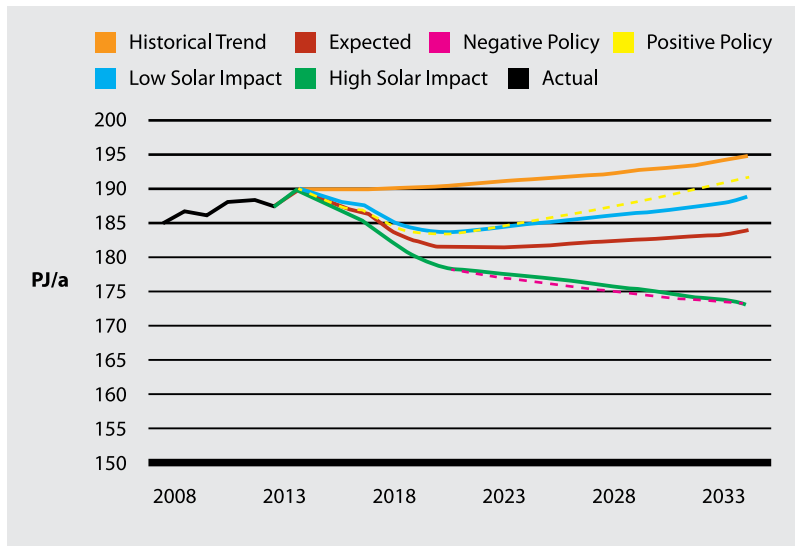
If governments remove distorting solar policy measures like the SRES, there is the potential for an additional 170,000¹³ gas connections over and above the business as usual scenario by 2034. However policies that provide further incentives for solar would see solar promoted at the expense of other equally efficient and effective greenhouse gas abatement technologies, leading to a predicted loss of 130,000 potential gas connections, and subsequent higher retail gas charges for the remaining gas customers.

The analysis indicates that the most significant policy measures impacting on gas demand in the residential and commercial markets are Government solar policies. As **Figure 4** demonstrates, these subsidies result in a significant distortion of the gas market. The high solar impact curve demonstrates the impact of pro solar policies that have a negative effect on gas demand.

SCENARIO ASSUMPTIONS:

- » **Business as usual:** Policy support for solar continues with the Renewable Energy Target continuing to 2020 in its current form. Major connection and demand per connection trends observed in recent years will continue to impact future demand. Wholesale gas price rises occur in eastern Australia from 2015 and reduce demand based on an expected level of price sensitivity.
- » **Fuel neutral:** Policy support for the solar sector lessens, including the removal of SRES by 2015.
- » **Pro Solar:** Government maintains current solar policy support including SRES and extends support through a scheme with similar impact to the proposed Million Solar Roofs program.

FIGURE 4: EFFECT OF SOLAR POLICIES ON RESIDENTIAL AND COMMERCIAL GAS DEMAND



Source: ENA Gas Network Sector Study, Core Energy Group, August 2014, page 9.

13 Ibid, table 8.2, page 66.

RESIDENTIAL SOLAR PV – A MATURE INDUSTRY

THE RENEWABLE ENERGY TARGET (RET)

Starting as the Mandatory Renewable Energy Target in 2001, the Renewable Energy Target was amended in 2010 to separate the expanded RET into two parts, Large Scale Renewable Energy Target (LRET) and the Small Scale Renewable Energy Scheme (SRES).

This separation was, in part, intended to rectify problem of oversupply of renewable energy certificates, as a result of introducing solar rooftop panels into the RET.

The SRES is an 'uncapped scheme' with annual targets based on number of certificates expected to be created. It has an aspirational target of 4000 GWh by 2020.

The SRES covers small scale renewable energy projects such as the purchase of eligible solar water heaters, small-scale solar PV panels and small wind and micro-hydro systems.

The ENA supports greenhouse gas abatement policy and initiatives that provide a least cost, technology neutral approach to emissions reductions, in line with our international obligations.

A range of incentives were created more than a decade ago to support the deployment of residential solar systems, with both an emissions reduction, and industry development objective.

In the intervening years the market for residential solar photovoltaic (PV) panels has gone from strength to strength. Panels cost half what they cost in 2008. Australian distribution networks have worked with nearly 1.3 million customers to connect their household sized solar PV systems. Around 25% of properties in South Australia and 22% in Queensland have solar PV panels.¹⁴ These figures are significantly higher than the penetration rates of small-scale solar PV penetration in the United States to date.

Output from solar PV units already exceed the aspirational SRES target of 4000 Giga Watt hours (GWh) and is set to more than double by 2020¹⁵. Solar PV is a mature technology and is cost effective without any support and its relative cost will continue to decline.

Given the demonstrated success of the sector, there is no economic argument that solar hot water heaters, solar PV systems and heat pump technologies should continue to receive further incentives at the expense of other electricity consumers who subsidise the users of these technologies. The market penetration for these systems is sufficiently mature and these technologies do not require any further subsidy. Consistent with competition policy and regulatory best practice, it is also desirable that government mandated subsidy measures in competitive markets be removed where the scheme has demonstrably achieved its purpose.

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¹⁴ Reneweconomy December 2013 report <http://reneweconomy.com.au/2013/people-power-rooftop-solar-pv-reaches-3gw-in-australia-99543>

¹⁵ Review of the Renewable Energy Target Expert Panel Call for Submissions, Department of Prime Minister and Cabinet, Page 5. http://retreview.dpmc.gov.au/sites/default/files/papers/RET_Review_Call_Submissions.pdf.

LEAST COST ABATEMENT?

Water heating is the largest single source of greenhouse emissions from the average Australian home and accounts for about a quarter of household energy use. About half of all Australian households currently use electric resistance hot water heaters. Use of these water heaters can produce up to six times the amount of greenhouse gas as low emission alternatives. Solar water heaters, electrically boosted heat pump water heaters and gas instantaneous water heaters provide efficient low emission alternatives to electric resistance water heaters.

An instantaneous gas hot water system can achieve an 83%¹⁶ reduction in greenhouse gas emissions when compared against a standard electric resistance water heater. This is approximately the same abatement outcome as a solar water heater (85%) and provides greater abatement than electrically boosted heat pump water heaters (75%). Of the three alternate water heater types however, only solar and heat pump water heaters have access to large incentives under SRES.

In its most recent report on the RET (December 2012) the Climate Change Authority stated that *"In principle, technologies that displace energy, rather than generate it, ... while important, do not belong in the RET."* Further, gas hot water systems can achieve approximately the same abatement outcomes as those technologies favoured in the SRES, at a lower lifetime costs.

Analysis prepared for ENA indicates that over its lifetime, a five star gas instantaneous water heater is less costly to purchase, install and operate than any other domestic water heating alternative. **Figure 5** shows the full life cycle costs of various water heating options.¹⁷

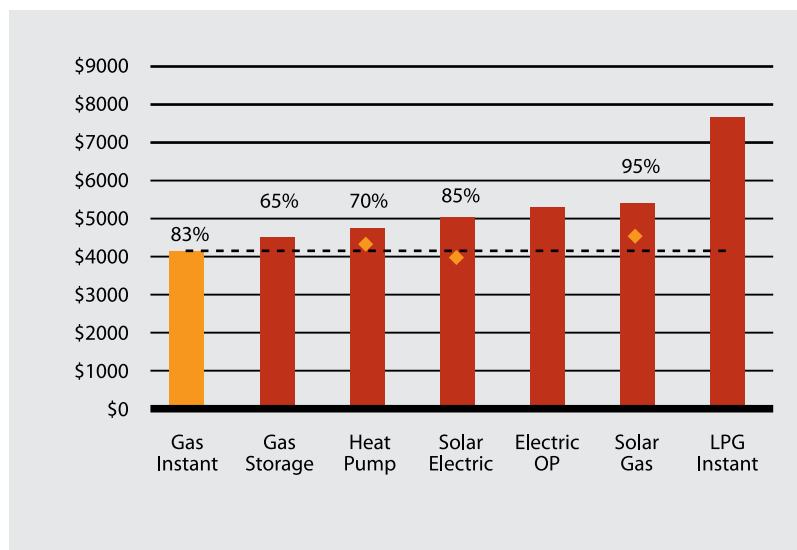
The orange diamonds indicate the effective cost after taking into account incentives such as those offered by SRES. The percentage values over the grey bars demonstrate the potential abatement from each technology. In Figure 5 LPG instantaneous systems would have similar efficiencies to natural gas systems and Electric Off Peak is the base case.

This highlights the distortionary impact of SRES which subsidises solar and heat pump hot water heaters but provides no equivalent subsidy to gas hot water systems, which can deliver comparable greenhouse gas reductions, at lower installation, maintenance and operating cost.

Figure 5 clearly demonstrates that SRES is not fuel neutral and discriminates against gas hot water systems.

If the ambition of SRES is to deliver greenhouse gas abatement at least cost, the program does not meet this goal, with estimates that the cost of the SRES ranges from \$95 to \$175 per tonne of CO₂¹⁸.

FIGURE 5: WATER HEATING COSTS WITH REBATES



Source: ENA Gas Network Sector Study, Core Energy Group, August 2014, page 6.

16 ENA's response to the RET Review, May 2014, Table 1, page 2. <http://www.ena.asn.au/wp-content/uploads/2014/05/ENA-RET-submission-16-May-2014-FINAL.pdf>.
 17 ENA Gas Network Sector Study, Core Energy Group, August 2014, Page 6.
 18 Renewable Energy Target Scheme, Report of the Expert Panel, Department of Prime Minister and Cabinet, August 2014.

THE OPPORTUNITY FOR GOVERNMENT

There are a range of physical and commercial factors which influence the final bills for the more than 4.5 million households and 120,000 businesses gas customers in Australia, including the cost of exploration, production and transportation of the natural gas to the consumer.

With increasing pressure on the fundamental cost inputs to Australian gas markets, it is essential that Governments remove unnecessary distortionary policy settings which threaten to increase prices to Australian gas consumers.

There is an opportunity for the Australian Government to take action that is in the long term interests of consumers, and which has the potential to reduce gas retail prices by 3.5% below CPI by 2034, without compromising Australia's international commitment to reducing greenhouse gas emissions.

The abolition of the Small-scale Renewable Energy Scheme or the removal of displacement technologies from the scheme would return a level playing field to downstream appliance markets for hot water systems.

The ENA supports the inclusion of efficient greenhouse gas abatement technologies in the fuel neutral Emissions Reduction Fund (ERF) and has made a number of submissions to the Government on this issue.

It is clear that the Australian solar industry is no longer at a stage where it requires government mandated subsidies and certainly not in a manner which distorts other competitive markets.

ENA POSITION:

ENA supports the abolition of the Small-scale Renewable Energy Scheme which is no longer required to support market entry of small scale renewable technologies.

If the SRES is not abolished, it should at least be made technologically neutral. This could be achieved through the removal of those displacement technologies from the scheme which have been selectively included (such as solar hot water systems or heat pumps).

If such a change was made to the scheme, this would still permit these displacement technologies to compete for subsidies in the technology neutral Emissions Reduction Fund (ERF).

However if displacement technologies are not excluded from the Scheme, a fuel neutral approach can still be achieved by the inclusion in SRES of those displacement technologies which are currently excluded (for example gas hot water systems).

