

3.2 Energy efficiency and renewable energy

Background

Ongoing electricity price rises coupled with Australian consumers' desire to decrease their carbon footprints has created a new interest and landscape for energy efficiency and sustainability.

Increasingly, consumers are experiencing the trade-off between the purchase and use of energy efficient products and a reduction in the cost of energy bills. They are actively seeking new information and opportunities to make their homes and lifestyles more efficient and sustainable while looking to be good environmental citizens.

Although Australia has historically had stable electricity prices, over the past five years, average prices have risen by up to 70 per cent. These price rises are fuelled by two factors – the cost of upgrading the poles and wires of the energy networks and a spike in demand on electricity systems from household appliances, with energy demand greatest at the hottest time of the year – summer afternoons.

A recent Grattan Institute study⁵ illustrated the benefits to consumers of being fully aware of the costs of inefficient energy consumption finding the adoption of the National Energy Efficiency Action Plan 2008-2016 in France over the past 20 years led to a 10 per cent reduction in electricity bills and a 45 per cent drop in usage during times of peak demand.

Key issues and recommendations

Energy efficiency and lower electricity bills trade-off

The growth in Australian Electricity prices has mainly been fuelled by a record \$8 billion worth of expenditure in upgrades to the ageing electricity network (poles and wires) and demand from new homes and businesses all with energy demanding appliances such as air conditioning, flat screen televisions, laptops and smart phones.

Other factors underpinning the increase include the carbon price, retail and energy schemes such as the *Renewable Energy Target* (RET), and the costs of wholesale electricity generation.

Some state governments have implemented energy efficiency schemes, such as the Energy Savings Scheme (ESS) in New South Wales, to help households and business reduce electricity consumption and costs.

Consumers are keen to explore more efficient and effective ways to reduce their power bills and be part of a more sustainable future.

NECA believes that consumers and industry are genuinely interested in a more sustainable environmental future, are keen to be seen as good environmental citizens and are prepared to participate in pilot schemes and programs that seek to make greater use of renewable energy products.

R3: NECA believes further opportunities exist to educate consumers about the importance of clean energy and how they can participate in renewable energy trial programs.

R4: NECA calls upon federal, state and territory governments to maintain funding and support for the development and awareness of energy efficiency programs and clean energy initiatives.

This funding and support should be prioritised towards relevant peak industry bodies in order to promote industry stability and new employment opportunities.

Renewable energy

Renewable energy is generally defined as energy that comes from resources which are naturally replenished on a human timescale such as sunlight, wind, water (hydro, tidal, waves), and geothermal energy. In contrast to other energy sources, renewable energy resources provide significant opportunities for energy efficiency across wide geographical areas.

In 2014, more than 20,000 Australians were employed in the renewable energy sector (see table below). Within the electrical contracting sector, further employment opportunities exist within the renewable energy space given the employment scale and diversity of technology within the sector.

Sector Type	Employee Numbers
Hydro	1,373
Wind	2,153
Bio Energy	2,532
Rooftop Solar PV	12,351
LS - Solar	534
Geothermal	85
Marine	54
Solar Water Heating	995
Total	20,086

⁶ Source: Clean Energy Australia Report 2014

The key factors driving opportunities within the renewable sector are:

- » Lower installation costs
- » Reduced costs for materials and products due to an increase in demand
- » Vast improvements in storage capability
- » Economic activity created by wind and solar projects under the RET.

R5: Given the substantial lead time and significant capital investment required to develop clean energy generation projects, NECA asks governments to provide greater certainty to encourage long-term investment in the sector and to deliver benefits to consumers through more stable energy pricing.

Consumer interest in renewable energy remains high, and although funding for assistance programs across all levels of government exists, there is a lack of awareness about how to access these programs given the multiple layers of government and departments across the nation.

R6: NECA calls upon the Federal Government to conduct an audit of all available grant programs across the three levels of government and to provide a list of all opportunities in a single location to make it simpler to access funding opportunities.

Solar photovoltaic panels

As Australia is one of the world’s sunniest continents, rooftop solar photovoltaic (PV) panels installed by homes and businesses use the plentiful energy from the sun to generate electricity cleanly and quietly.

Solar PV panels convert sunlight into electricity, in cells of specially fabricated semiconductor crystals, during times when sunlight is available. This timing matches the demand for power for items such as air-conditioners and pre-timed pool pumps and is generally the time when electricity prices tend to peak. By generating electricity at the point of demand (where people live and work) these small-scale panels reduce the demand on large-scale generators.

The Clean Energy Council⁷ states that in 2016, small-scale solar was responsible for 16 per cent of

Australia's clean energy generation producing 2.8 per cent of the country's total electricity.

More than 1.64 million Australian properties maintain solar power systems and there are 4,305 accredited solar installers.

Across many states and territories, subsidies have been paid to consumers to encourage take up of solar PV or to feed solar power into the grid. However, a number of these programs no longer exist such as the *New South Wales Solar Bonus Scheme* which ended on December 31 2016.

NECA believes ongoing government support to encourage greater solar PV use is critical to the development of Australia's renewable energy capacity and to keep electricity price rises for consumers to a minimum.

Battery storage

R7: NECA calls upon federal, state and territory governments to look for new opportunities to encourage the take-up of small-scale solar PV Panels by consumers and businesses through subsidies, grants or other mechanisms.

Battery storage, in addition to being a reliable and efficient energy source for consumers, can help smooth out the peaks in energy use by providing control of the solar energy generated and helping reduce the energy load drawn from the network.

Energy storage is a rapidly developing sector and is now at a similar stage and strength to rooftop power a decade ago. As the transformation of the energy sector accelerates, the potential and role for various forms of energy storage is growing rapidly. Approximately 6,750 batteries with a capacity of 52 MWh were installed in 2016 – more than 13 times the 5,000 installations in 2015.

With the growth of the sector, NECA acknowledges that consumer safety and awareness are essential, particularly in relation to the installation and storage of batteries. Regardless of type, battery storage is safe provided installation is undertaken by an appropriately qualified electrician and properly maintained. Lithium-ion batteries can pose a fire hazard if they are not installed correctly. Improvements in new battery quality has enhanced safety with designs that include an automatic seal-off in the event of fire.

Government projects such as the Snowy Hydro 2.0, the South Australian Government's funding of a 100MW battery and the Australian Capital Territory Government's battery storage auction demonstrate government's level of interest and awareness of the value of battery storage in supporting stable, renewable energy outcomes.

R8: NECA calls upon federal, state and territory governments to look for new opportunities to encourage the take-up of electrical storage through battery systems – either through grants, subsidies or other measures – providing greater choice for consumers and businesses and to put downward pressure on electricity prices.

Smart meters

Energy smart meters allow consumers to monitor their energy use and track energy consumption in real time, helping reduce energy bills and making it easier to switch between providers.

Smart meters were first made available to electricity customers in New South Wales in 2014 through a voluntary rollout designed to ensure competition in metering services and consumer choice. In March 2016, changes were made to the rollout scheme to allow a broader range of appropriately qualified electricians to install smart meters. Smart meters also encourage the use of solar PV panels and battery storage options by allowing consumers to store electricity at off-peak prices and draw on the stored electricity at peak times.

In Victoria, smart meters have been standard since 2011 for every household and small business and are being installed by a small number of electricity distributors separate to household electricity suppliers.

National Energy Rules (NER), due to come into effect at the end of 2017 intended to reduce peak energy consumption, have now been delayed following Victoria's decision to opt out of the National Rules until 2021. The Grattan Institute has estimated that, should the NER be adopted, shifting demand away from peak times in this way could save about \$8 billion over the next five years.

A challenge with the rollout of smart meter technology is that some properties will require extensive re-wiring prior to installation. Rebates could be provided by governments to offset the costs of re-wiring a property.

R9: NECA supports the introduction and rollout of smart meters across all Australian households and small businesses. We argue that appropriately qualified electricians and contractors should have the ability to offer installation of smart meters in a competitive market environment, rather than just a small number of monopoly providers.

R10: NECA believes that governments should provide rebates, in order to offset the costs of re-wiring a property.

National Energy Customer Framework

NECA's membership has expressed concern around the implementation of the National Energy Customer Framework (NECF) – in particular the requirement to submit a Permission To Connect (PTC) form before starting a job.

A number of unintended consequences have arisen with the introduction of this framework such as an increase in red tape, the loss of business opportunities and the lack of enforcement of the regulatory measure that underpins the quality of the contractors' work.

Industry feedback indicates that some contractors are bypassing the requirement to submit a PTC, which takes between 10 and 45 days to be approved, prior to an increase in load being drawn from the electricity network.

Although a penalty notice is issued to an electrical contractor when a Certificate of Compliance for Electrical Work (CCEW) is submitted and a corresponding PTC is unable to be matched, evidence suggests that, as a result of the introduction of the NECF, contractors are failing to submit the CCEW form and therefore are unlikely to be caught for not submitting a PTC.

If contractors do not provide a PTC or CCEW, networks do not receive accurate information on how much load is being drawn from the network. This information is important as it assists in the mitigation of blackouts.

Given that the CCEW form is the only regulatory measure to ensure the quality of the installation work, NECA remains concerned with the potential ramifications and

unintended consequences of the present NECF that effectively creates an incentive for work to be carried out by non-compliant contractors

R11: NECA urges the Federal Government to review the NECF legislation and to have the matter discussed at a future meeting of the Council for the Australian Federation.

Contestable works and Accredited Service Provider scheme

New South Wales is unique among the states and territories in having contestable works, thus providing customers with choice with respect to connecting to electricity distribution networks and certain other capital works.

The Accredited Service Provider (ASP) scheme, administered by the New South Wales Department of Planning & Environment, provides a pool of appropriately trained electrical contractors for customers to choose from.

NECA supports the viability and integrity of this scheme and believes that fees and charges levied by distributors on ASPs should be reasonable, transparent and predictable and, as far as practicable, procedures and standards should be aligned across all distributors to reduce administrative and compliance burdens on providers.

R12: NECA believes the ASP scheme provides significant benefits for consumers in New South Wales with competition facilitating greater efficiency, reduced costs and enhanced responsiveness to customers' needs. We argue that all states and territories should adopt the ASP model, enabling consumer choice for the provision of connecting to a new distributor.

Industry opportunities

- » NECA to develop links to other industry association energy efficiency programs in order to enhance synergies and funding opportunities for our members.
- » NECA to call on government to support measures that enable consumers to manage their energy consumption more efficiently through the take-up of clean energy initiatives such as solar PV panels and battery storage options.
- » NECA to advocate for qualified electricians and electrical contractors to have the ability across all states and territories to install smart meters for homes and small businesses in a competitive market environment.
- » NECA believes the introduction of Microgrids will help to reduce the cost of maintaining infrastructure in remote areas and reduce the incidence of black-outs in those areas. Microgrids can be built using renewable energy technology.

