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3 February 2023

AGL Response to the National Energy Performance Strategy consultation paper

AGL Energy (**AGL**) welcomes the opportunity to contribute to the National Energy Performance Strategy (**NEPS**) consultation.

AGL is a leading integrated essential service provider, with a proud 185-year history of innovation and a passionate belief in progress – human and technological. We deliver 4.3 million gas, electricity, and telecommunications services to our residential, small, and large business, and wholesale customers across Australia. We operate Australia’s largest electricity generation portfolio, with an operated generation capacity of 11,208 MW, which accounts for approximately 20% of the total generation capacity within Australia’s National Electricity Market (**NEM**). We have the largest renewables and storage portfolio of any ASX-listed company, having invested \$4.8 billion over two decades in renewable and firming generation.

Energy performance as a driver for decarbonisation

Emissions from the electricity sector have reduced significantly over the past decade, as aging emissions-intensive generation has exited the market, replaced by new large- and small-scale renewable generation that has been supported by subsidies from government policies and programs. At the same time, several energy efficiency policies and programs have resulted in reduced electricity use through replacement of appliances and equipment.

However, as more renewable generation enters the market, and as opportunities for appliance and equipment improvements become scarcer and more capital-intensive, it is important to consider how decarbonisation and energy efficiency objectives can be complemented by improvements in energy productivity, to work towards a broader goal of improved overall energy performance.

By 2050, AGL considers that Australia has the opportunity to be carbon neutral and an energy superpower. This will be realised by Australia generating power using zero emissions wind and solar resources, backed up by technologies like batteries, hydro power, gas and green hydrogen. We believe this will underpin the competitiveness of the Australian economy just as widespread fossil fuels did in the twentieth century.

Over the next three decades, substantial amounts of new large-scale renewable generation and distributed solar generation are forecast to be connected to the NEM. Ageing thermal generation will be replaced by a range of variable and flexible generation technologies with lower emissions intensity to decarbonise Australia’s energy sector. Although the transition to a low-emissions economy brings significant challenges, with well-designed policies there is potential to promote a more productive, inclusive economy with healthy, connected communities, underpinned by affordable energy.



As the Australian economy continues to work towards a long-term net zero target, it will be important to ensure that economic productivity is not impacted by reductions in energy use. Energy performance will therefore have a critical role in the decarbonisation of Australia's energy system to support meeting our national emissions reductions targets – by reducing, shaping and shifting energy demand to maximise the utilisation of renewable energy resources, and minimise energy costs for industrial, commercial, and residential customers.

AGL's expertise and innovation

AGL is well placed to provide advice on the present consultation. As a large integrated energy provider active across Australia, AGL has broad experience in energy efficiency programs across several states, the delivery of renewable generation and storage projects at both a residential and commercial scale, and management of programs to support vulnerable customers and customers experiencing financial hardship.

Additionally, AGL has embarked on several innovative projects that have sought to improve energy performance.

For example, from 2017-2021, AGL's Virtual Power Plant project in South Australia, undertaken with funding support from the Australian Renewable Energy Agency (ARENA) was the first of its scale to be announced internationally and successfully demonstrated that a network of connected energy storage systems could be coordinated to create value across a range of markets.

From 2019-2021, AGL conducted a three-year Demand Response (DR) project trial in New South Wales, also with funding support from ARENA. The demand response trial successfully demonstrated the use of demand response (controlling air conditioners, electric vehicle charging and including up to 20MW of both commercial and industrial demand response) as an effective source of reserve capacity in the National Electricity Market. More than 8,000 customers participated in the residential behavioural demand response program. In the commercial and industrial demand response program, 20 MW of demand response was successfully dispatched into the Australian Energy Market Operator's (AEMO) Reliability and Emergency Reserve Trader (RERT) program.

In 2021, AGL concluded its \$6 million Energy Literacy Fund which saw us deliver initiatives to support customers under three key pillars: energy education, energy efficiency management, and access to solar and renewables. Over the three-year program, 63,000 participants were engaged through 32 targeted initiatives including: energy efficiency upgrades and home energy audits for customers on low incomes; installing solar on community housing; helping concession card-holders complete paperwork to access grants and rebates; and continuing a program of work to provide more accessible communications for customers.

We draw on lessons from these, and other trials and programs in drafting this submission as well as our experience servicing a broad range of customers across Australia, from residential (including renters and homeowners, customers with consumer energy resources (CER) and vulnerable customers) to large C&I customers with specific energy supply requirements.

Key areas of energy performance advocacy



Defining “energy performance”

Achieving the optimised, highest performing, lowest-cost form of our future decarbonised energy grid is going to require fine-tuning of a range of solutions, some in opposition to others. Government programs should therefore be designed with clear goals in mind to incentivise the individual solutions available.

Both supply-side and demand-side solutions will be required. On the supply side, generation assets (either individually or in aggregate) will require the ability to ramp up or down on required time scales at lowest cost. On the demand side – demand will need to be flexible, both turning up when supply is in excess, preventing minimum demand issues, and turning down as required, through load shedding, shaping, shifting at times where supply is insufficient. Energy efficiency and energy productivity should both feature, to ensure that reductions in energy use do not come at the expense of reduced economic productivity or household comfort. Finally, in managing peak demand, capacity overbuild should be balanced by more cost-effective demand reduction where appropriate.

Ensuring all consumers benefit

With the advent of CER, customers should receive a commensurate benefit where they cede control of their assets to provide services to the grid such as demand response. However, benefits should not be restricted to those who can afford to buy CER assets. An energy performance strategy needs to consider how all consumers can benefit from the energy transition. In 2022, the AGL Customer Council wrote an [open letter](#) urging governments, energy ministers, regulators, department heads, policymakers and market bodies to work together to ensure all Australians have an opportunity to participate in, and reap the benefits of, the energy transition.

Affordability and equity

Many households benefitted from grants and generous feed-in-tariffs when the rooftop solar industry was at an early stage of development and rooftop solar required additional subsidy to make it cost-competitive. Now that it is at an advanced stage, we should be thinking about how other consumers can access similar benefits and the optimal forms of financial support that will ensure all consumers can participate and benefit from new technologies.

Tariffs need to be designed simply so that customers can feel empowered to make sound decisions about how they live. Retailers are well-placed to design retail tariffs that best benefit their different customer segments and to communicate the benefits, ensuring the most efficient outcomes for their customers. At the same time, consumers need adequate protections so they can confidently engage with and adopt new energy products and services.

Choice and agency

New technologies should strengthen consumer agency, allowing them control of their own energy use, costs and energy transition journey. The introduction of consumer data rights (CDR) in the energy sector can strengthen this agency, providing consumers with easier and standardised access to data



from smart meters, allowing consumers to understand how they use energy so they can make informed decisions.

Link between Safeguard Mechanism and NEPS

The NEPS presents an opportunity for government to promote energy performance improvements over offsetting of emissions to encourage emissions reductions at lowest cost. This is particularly relevant with the recent reform of the safeguard mechanism where energy performance improvements will play a key role for liable facilities in meeting their emissions reductions obligations.

The effect of electrification increasing overall system load could be balanced by energy performance improvements. This could involve providing analysis of the cost benefit of energy performance upgrades to make sure businesses are aware of the solutions open to them.

Evidence-based programs

The government can continue to drive innovation in the energy performance area by supporting pilots, trials and demonstrations and ensuring data insights are captured and shared with residential and C&I consumers and used to inform program design (e.g., continued funding for further ARENA trials).

Cooperation and the role of government

Governments, policymakers, regulators, industry, consumer advocates and peak bodies must work together to ensure that the energy transition provides just outcomes for all consumers. We also have a role in ensuring we bring consumers along on the journey providing guiding materials so consumers can make the best choices for their individual circumstances.

The government can play a key role coordinating and amalgamating where necessary the state and national energy performance-related programs to drive the most efficient outcomes for consumers. The government also has a role in setting the bar for ambition, measuring progress, educating, training and supporting the development of the underlying evidence base.

Our position on these issues is further elaborated in our responses to the consultation questions included at Appendix A to this submission.

We look forward to further opportunities to engage on the strategy and any resulting support programs stemming from the strategy. If you would like to discuss this submission further, please contact Siobhan Bradley (Policy Manager) at sbradley4@agl.com.au.

Yours sincerely,

Chris Streets

General Manager (a/g), Policy, Market Regulation and Sustainability

AGL Energy



Appendix A – Response to Questions Raised in the Consultation Paper

Question	Response
1. How can demand considerations be better integrated into Australian energy governance and what are the priorities for change?	<p>With the rising cost of living pressures across the economy, there is an opportunity to prioritise better demand management and energy productivity to reduce peak loads, enable efficient system build and minimise energy costs for consumers. Better demand management can be achieved by two levers: retail tariffs and incentive/penalty load management programs. The commentary for the remainder of this question is on the role of pricing and tariff design to drive better demand management.</p> <p><i>Barriers to better demand management</i></p> <p>Current retails tariffs do not reflect the cost of meeting peak demand. Our energy system needs to be built at a particular scale for times of high peak demand, however, system infrastructure costs are significant and energy costs are currently recovered on the basis of volume consumed (MWh) which is fairly low on average compared to peak demand. This arrangement causes difficulties in recovering costs of energy infrastructure projects. To ensure the viability of these infrastructure projects and encourage investment, there needs to be a focus on wholesale market and retail tariff reform to better reflect the cost of meeting peak demand.</p> <p>Much of the focus of wholesale market reform has been on incentivising new capacity (for example, through the proposed federal Capacity Investment Scheme). It is important, however that price signals are preserved to stimulate the broadest range of both demand- and supply-side options to drive efficient investment in energy resources and produce the lowest costs for customers.</p> <p>Another fundamental aspect of this issue is the lower smart meter penetration outside Victoria (~30%) which limits consumers ability to take control in managing their energy demand. The Australian Energy Market Commission (AEMC) is currently reviewing the roll out of smart meters across the NEM, excluding Victoria, and is considering reform options to improve the efficacy and therefore speed of the roll out.</p> <p><i>Meaningful tariff reforms</i></p> <p>There is a wealth of research into the benefits of cost-reflective network pricing in ensuring that all customers contribute equally to the provision of shared energy services. For example, analysis from the AER suggests that a majority of vulnerable consumers would financially benefit from demand charges, if they are incentivised to shift their demand to peak solar periods or periods of lower demand.</p> <p>These findings rely on two key assumptions:</p> <ol style="list-style-type: none">1. That consumers are equipped to view their energy use and respond to pricing signals in time.2. That consumers have an understanding of their consumption patterns and how to take advantage of demand pricing. <p>Our experience as a retailer is that these charges are difficult to explain to residential customers who cannot easily monitor their demand to respond. Part of the complexity is in the different ways that retailers can pass on or package the network usage and demand charges to best benefit the customer.</p>



Retailers can play an important role here using their understanding of different consumer segments and their unique preferences to offer appropriate tariffs that meet their needs as well as the supporting information to explain how to get the best out of a given tariff. For example, in our experience, time-of-use tariff structures can be more readily understood (peak and off-peak charges), allowing customers adequate time to respond to and manage bill impacts by shifting consumption from peak times.

2. **What new or modified coordination mechanisms or institutional responsibilities would be appropriate to better drive energy performance action in the future?**

We are supportive of the role the National Energy Transformation Partnership in providing a framework for national alignment and fostering cooperation between states and territories to support Australia's energy transition.

We support the federal government playing a coordination role, identifying policy gaps and where possible bringing state and territory energy efficiency enabling policy into alignment, avoiding duplication and complexity.

The gaps/opportunities we see for federal government currently include:

Setting the ambition

Setting both interim and long-term national energy efficiency or energy performance targets would signal that the government is serious about improving energy performance. This should be coupled with a framework clearly detailing how progress will be measured, the metrics for success and a commitment to annual reporting on progress.

For example, the state of California produced the California Energy Efficiency Action Plan in 2016 which includes a requirement that the California Energy Commission (CEC) set annual targets to achieve a state-wide cumulative doubling of energy efficiency savings in electricity and gas end uses by 2030. It must also report biennially on progress towards these targets and effects on low income and disadvantaged communities. To support monitoring, the CEC also produces a document detailing the methodology for measuring progress as well as analysis workbooks to facilitate measurement.

Data collection

A key barrier to improving energy performance is understanding a starting point or baseline for improvements. We need to be able to measure energy performance so that energy efficiency (as one example) can become an investable resource.

While Victoria has a dense penetration of smart meters, other states in the National Energy Customer Framework are still progressing with the deployment of smart meters post the 2017 Power of Choice reforms. The AER's 2022 State of the Energy Market report states that, as at 30 June 2021, around 53% of residential customers in the NEM had metering capable of supporting cost-reflective tariffs (including smart meters and manually readable interval meters). Federal government should continue to work with the AEMC and jurisdictional governments to develop solutions that will further reduce barriers in the smart meter roll out and create incentive and subsidy schemes to promote fast uptake and enable data collection and monitoring for energy management. Particularly for customers in vulnerable circumstances facing financial hardship who would be unable to foot the cost of defect rectification at their premises to facilitate a meter upgrade, but who would most benefit from having a smart meter installed.

As an example of the barrier a lack of smart metering can present, in our demand response program Victoria was the only state where a large-scale rollout of



residential demand response could occur without in-field meter replacements being necessary.

We strongly encourage continued funding for research and pilot projects that aim to better understand the opportunities for new technologies that aid energy performance and help to understand consumer behaviour and preferences and can be used to test scalable deployment models. For example, through ARENA.

Building knowledge and trust

Another key barrier to improving energy performance is energy literacy. One of the cheapest ways to improve energy performance is through educating consumers on better ways to use energy in their homes. There is an opportunity within the energy performance strategy for government and industry to work together to build an energy literacy campaign. We believe that a trusted entity like government would be the best source for this information.

Regulation

The government can also play a role through regulation to ensure that systems are designed to benefit the consumer and that the consumer can trust programs focussed on consumer energy resources, demand response and energy efficiency. As an example, in programs that allow a third party to control consumer assets, there need to be very clear conditions for when control is seized, how customers are rewarded for giving up that control and how they can opt in and opt out.

There is also an opportunity for federal government to facilitate alignment of regulation across states. For example, how export limits are regulated is different state by state as well as managed differently between network providers making expanding promising energy-performance-related trials difficult. Where trials are successful in one jurisdiction, regulations need to be streamlined to facilitate roll out in other states to ensure program success.

Targets

3. Would an energy efficiency target or targets be suitable for Australia?

In principle, we would be supportive targets as this sets the level of ambition and the systems for monitoring energy performance and achieving better energy performance. This could have wider impacts aiding system planning and design – for example, a legislated target could feed into the AEMO's integrated system plan (ISP) scenarios, on which many public and private reports and analyses are based.

It may be necessary to introduce multiple targets to ensure that the right goal posts are set for the type of performance improvement sought. This in turn could give a clear focus to any obligation scheme that might simplify the rules of compliance and drive liable entities to find innovative solutions. For example, a target might focus on demand reduction or efficiency or productivity and target different consumer segments such as residential or C&I customers.

If the government plans to also design a mechanism for increasing demand for energy efficiency measures, for example an energy efficiency obligation scheme to meet the target, it could draw on the multitude of learnings from existing Australian and international schemes. For example, the NSW government's Energy Savings Scheme (ESS) could inform how best to set targets, assess progress towards said targets and the market mechanism to support it.

Given that many forms of certificate-based energy efficiency obligation schemes are already in operation, the government would need to work out how current



certificates would fit into a new scheme. There are some broad principles that could apply here.

- A national scheme should leverage the achievements of the state energy efficiency schemes. A national working group could be established to align and standardise state schemes such as the ESS and VEU so that state-based certificates may contribute towards a national target.
- Administrative efficiencies could be built in so that state-based energy efficiency certificates are equivalent, liable businesses only deal with one regulator, undergo one compliance audit and have a single surrender date.
- Opening up state-based schemes so that all state certificates are equivalent (in terms of contribution to a national target) could increase certificate liquidity driving lowest cost abatement.
- To achieve the best emissions reductions outcomes, federal government should encourage all states to participate and could negotiate with each state to assign proportional state certificate targets.

We would suggest a separate consultation on any new proposed scheme to ensure that state and territory governments, industry and consumers can contribute their views and experience to the design.

We welcome further detailed consultation on the exact form the government proposes the target to take.

4. What is the most appropriate methodology for designing and implementing a target that effectively drives demand side action towards Australia's overall net zero target?

It would be logical to first consider where the biggest performance gains can be made and balance against the cost to implement and cost of liability. For example, this might be a target focussed on incentivising wholesale demand response where there would be fewer but larger scale participants than for example a target focused on residential consumers. With fewer participants, this might be simpler to implement.

Whatever methodology is chosen, the target/s would need to be designed such that they clearly articulate what the target seeks to achieve and who is liable under any obligation scheme.

Broadly speaking, we would support methods that incentivise demand-side action rather than penalising inaction so that businesses are driven to find innovative solutions to improve energy performance. For example, government could design a demand reduction scheme where liable entities would be eligible for an exemption from the scheme for installing an energy management system (given that understanding the inefficiencies in a business' energy use is the first step towards better energy performance). Alternatively, the government could consider supporting the costs of installing an energy management system and entities would then be prepared to participate in the next iteration of the scheme.

Accompanying any program, The government should also support consumers through education campaigns. Helping businesses and residential customers understand the suite of energy efficiency options open to them and their relative costs/benefits will be an important part of any scheme's success.

5. How should progress towards an energy efficiency target be measured?

This would strongly depend on the target type. Generally, we would support a target that improved unit efficiencies so that businesses are not penalised for increasing energy productivity if they expand. Progress towards targets should also be linked to national emissions reduction targets. Efficiency gains and related



emissions reductions could also be reported against other relevant national programs such as the Safeguard Mechanism.

Residential buildings

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| 6. What are the key opportunities to improve the energy performance of new and existing residential buildings? | There are a range of improvements, covered in more detail in other responses. Immediate opportunities include retrofitting buildings with better insulation medium-term improvements include regular updates to building codes and standards, appliance standards with the long-term view to inform asset replacement, subsidies for large capital expenses and improving public housing stock. |
| 7. What opportunities are there to improve or streamline existing policies aimed at empowering consumers to undertake energy performance improvements in their homes? | The energy efficiency policy landscape is a complicated space with a multitude of smaller support programs and differences state by state. Households could benefit from educational materials to improve energy literacy and simple explanatory guides to the options available to households to upgrade their home energy performance. |

Residential – financial barriers/vulnerable consumers

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| 8. What are key financial and non-financial barriers to the uptake of energy performance improvement opportunities? How can these barriers be overcome? | <p><i>Financial barriers</i></p> <p>As a general principle, all consumers should have the opportunity to share in the benefits of the energy transition. At this early design stage, it is important to consider how the costs of energy performance improvements should be shared, to benefit all consumers including those on low incomes, both now and in the future.</p> <p>These costs include the up-front capital cost of new appliances for all the different consumer segments. For example, the government could consider energy performance programs that don't require expensive equipment upgrades as one solution that is open to all consumer segments. AGL's NSW demand response program allowed customers to opt-in without needing to upgrade equipment, avoiding this key barrier to participation.</p> <p>Alternatively the government could view the cost barrier to energy performance improvements as a social issue and look to innovative programs being rolled out by State governments such as the Solar for Low Income Households program run as part of the NSW Climate and Energy Action.</p> <p><i>Non-financial barriers</i></p> <p>Energy literacy – we reiterate here that educational materials should be developed by a trusted, centralised source to improve energy literacy and enable quick, low-cost energy performance wins.</p> <p>Complexity – consumers would benefit from guidance on products to improve their home or business energy performance and this guidance needs to take into account the different customer segments. Because there is no one-size-fits-all solution for improving consumer energy performance, retailers are well positioned to develop solutions that can benefit a range of consumer segments. For example, from our customer insights stemming from the AEMO VPP trial we participated in, we found that consumers needed guidance in acquiring the correct assets for their needs. This meant matching the battery and solar panels</p> |
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to their own consumption patterns. We also found that there were different customer preferences, for example some were worried about over-capitalising and being worse off in the short-term so were taking a stepped approach, starting off with solar panels and planning for future investment in extra panels or batteries as the need arose. Our engagement with consumers via this trial gave us insights we could use to develop innovative, tailored solutions to meet the consumer demands identified.

9. How can demand management and electrification support lowering energy bills and emissions?

Demand management programs are a democratic form of energy performance improvement with a low barrier to entry as equipment upgrade is not strictly required allowing anyone to participate regardless of their socioeconomic circumstance.

Electrification on the other hand is more complex. The payoff is very dependent on individual household circumstances including the current energy consumption profile, cost of equipment upgrade and subsidies available.

Retailers are uniquely positioned to help consumers to find the solutions that work best for their needs. We have the survey data, the customer relationship and in some instances, behavioural insights from trial projects to match solutions with individual consumer needs. For example, surveying our Staying Connected hardship program customers has helped us to build up customer profiles to provide better, more tailored assistance to the different customer segments experiencing financial hardship.

When considering consumer energy resources as part of electrification of household appliances, household bills can be lowered if value is attached to *all* of the services CER can provide i.e., where network, wholesale market and essential system services can be provided more cost effectively than centralised alternatives, improving returns for CER owners and putting downward pressure on prices for all consumers. The government has a role to play, for example through the Energy Security Board (ESB) DER integration work program developing the regulatory environment that will ensure that consumers benefit from the energy resources they invest in.

10. How does poor energy performance impact on disadvantaged communities?

Our analysis of the drivers of energy hardship tells us that customers in hardship have significantly higher than average energy bills due to family formation demographics; low-income (often reliant upon government income support); higher household size; and higher than average consumption. These households face a number of barriers in reducing their energy consumption: high upfront capital costs of energy efficient appliances; the split-incentive issue; and comparatively shorter housing tenures.

Solutions to this issue could include improving building standards to optimise thermal efficiency design, amendments to tenancy laws so that tenants have greater control over their household energy costs and improved accessibility to energy efficiency improvements or other reforms to allow greater security and length of tenure.

11. What are the opportunities to improve the energy performance of residential buildings for low income households?

There are a number of options for improving energy performance of residential buildings – ranging from quick, low-cost measures to measures that take a longer-term, life-cycle approach.

For new builds, there is a need for better build quality and buildings designed for the conditions. This could be coupled with a building energy performance rating



system so that buildings with higher energy performance could be adequately valued.

For retrofitting of buildings, there are lower cost opportunities like curtains, insulation, window trims, draft proofing before advancing to more expensive equipment upgrades.

We should be taking a life-cycle view of buildings – conducting a cost benefit analysis of build cost considering a building's entire lifetime. A slightly higher upfront build cost could lead to much lower lifetime energy costs for occupants.

General opportunities – helping consumers to consume less by improving consumer literacy could be one low-cost avenue to improving energy performance for low-income households.

12. What are the financial and non-financial barriers to uptake of energy efficiency upgrades for low-income households, and what can be done to overcome them?

Financial barriers

Upfront capital costs – the government could consider low-cost energy efficiency upgrades and programs aimed at shifting demand that don't require an upfront investment.

Split incentives – incentives must be put in place for landlords in order for the renter to reap the benefits. We discuss this in more detail in the rentals section below.

Non-financial barriers

Short-term nature of leases – amendments to tenancy laws so that tenants have greater control over their household energy costs and improved accessibility to energy efficiency improvements or other reforms to allow greater security and length of tenure. We discuss this in more detail in the rentals section below.

Energy literacy – educational materials could be co-developed by government, local government and industry explaining how households can use energy more efficiently, what programs are available, how they work and with benefits explained in relatable terms.

13. What actions should be prioritised to assist low-income households to improve energy efficiency in their homes?

A shared responsibility approach to vulnerable customers is required, whereby governments, industry and the community sector work together to target the root causes and address the consequences of financial hardship. The solutions available could be staged based on cost and technology availability.

Shorter time scale, lower cost – education campaign, retrofit of properties to improve insulation, fixtures etc, demand response programs.

Medium-term, higher cost – funding lower cost equipment upgrades (combined with home energy assessment). This could also be means tested.

Overarching – continuous assessment of suitability and success of efficiency ratings and standards for houses.

14. What delivery mechanisms would be most effective to provide targeted support?

Any targeted support through grant programs should consider how the benefits can be spread across all consumers segments. For example, some households have benefitted from installation of subsidised rooftop solar, how might future funding be allocated to support those houses that couldn't afford solar when these programs were launched?

An energy efficiency education campaign could also be codeveloped and delivered through the retailer with consumer energy bills.

Residential - rentals

15. What are the key opportunities to improve energy performance of residential buildings for renters?
- The main barriers for renters are the lack of agency to decide on improvements to their residences and the short nature of tenancy periods which disincentivise large investments.
- There are a number of solutions to make this equitable.
- The government could look to its own housing stock - targeting public and community housing as a good starting point for long-term investment certainty.
 - For new housing stock, energy performance should count towards increased property value through a rating system as buyers or renters could be willing to pay a higher rent or sales premium for a property with high energy performance. Further, this rating could then enable or attract low-cost sustainable financing leading to further benefits for landlords.
 - Extending this idea further, a rating system could then lead to better accountability and reporting for financial institutions where the rating information is used to report on the energy performance of their lending portfolio as part of their public financial disclosures.
 - Installation costs of new equipment has traditionally been a significant barrier to improving home energy performance. Where possible, the government could encourage exploration of opportunities for remote installation for example using Internet of Things (IoT) gateways.
 - Availability of skilled workforce is also important as highly trained technicians can be more efficient, reducing warranty calls and potentially overall costs of installation.
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16. What options are available to overcome the split incentive for renters and landlords?
- Renters have limited agency to make decisions about energy-related upgrades to their residences. On top of this, tenancy periods are typically short in relation to the lifetime of a CER or new, more energy efficient appliance. Instead, consideration could be given to how to create an attractive taxation environment that encourages installation of energy technologies on rental properties, for example, by offering innovative financing mechanisms and/or tax deductions or accelerated depreciation of retrofits.
- One example of innovative financing mechanisms is the Property Assessed Clean Energy (PACE) program in the state of California which is open to residential, commercial and Industrial property owners. This is a financing mechanism that enables low-cost, long-term funding for energy retrofits. The costs are repaid over a specific term (5-25 years) via an annual assessment on the property's tax bill. We note that in Australia, Environmental Upgrade Agreements (EUA)'s are a similar concept open to businesses only. EUAs have been modelled in Victoria and a current ARENA trial is looking to scale up and introduce this concept in NSW and SA.
- Another way to incentivise landlords is to make energy efficient assets a part of the housing stock asset class so that the value of energy performance can count towards the overall property valuation. This could then contribute to an energy performance rating, becoming a selling point of a home or rental so the benefit of upgrading a property's energy performance continues after the tenant.
- Renters may also be unaware of the energy performance options available to them. Education to get around perceived barriers could help here, by clearly



explaining tenancy laws and renter's rights when it comes to energy efficiency upgrades.

17. What options are available to support public and community housing tenants?

The government could take advantage of the scale of public housing stock to implement trial programs looking to retrofit for improved energy performance in bulk. This could provide an evidence base to determine the best value of the variety of energy performance improvement options that could be deployed at scale for best value.

18. How can the energy performance of rental homes be made more transparent to prospective tenants?

There has long been a drive to disclose energy performance of houses to renters but this has been hotly contested – it remains something that could be improved, at the very least disclosure of adequacy of heating and cooling systems, insulation, and other relevant features. I'm not sure of current obligations but I'm sure they could be improved and made nationally consistent.

19. How can governments and private sector support renters to improve energy performance?

Governments could give renters more agency for example through regular changes to rental minimum standards.

20. How can governments support better energy performance in apartments and similar dwellings?

Apartment owners are in a more unique situation than house or building owners where they may be limited in the improvements they can make by their body corporate, particularly if those improvements are to common property like rooftops and balconies (in some cases). The body corporate in turn has the ability to make changes that can improve the energy performance of these common areas, affecting the entire building's energy performance for example, installing efficient lighting in common areas, high quality insulation for central hot water systems, upgrading of pool pumps.

The body corporate powers could be modified so that a modification to improve energy performance cannot be rejected. For example the installation of shading on a balcony or rooftop solar if the roof is common property. The government could also consider setting sustainability standards or requirements at the body corporate level.

Although there have been some steps taken to improve contestability of services for embedded network customers, it is highly likely that energy performance improvements would be much more efficient if they supported all properties within a complex. Reform should therefore be targeted at improving overall building productivity as well as the provision of services for individual units.

Regional/remote/first nations

21. How are communities in different geographic locations impacted by poor energy performance and what needs to be done to ensure access to improvements?

Remote communities pay some of the highest cost for energy – predominantly in the form of shipped diesel used in diesel generators.

Research by Infrastructure Partnerships Australia and Energy Consumers Australia suggest these communities are typically made up of larger households on lower incomes and with greater health problems – highlighting the importance of energy supply and the improvements it enables in quality of life.



Programs to support energy performance for these communities should be co-developed to ensure they meet the community's needs. Ongoing engagement should be seen as an opportunity to understand the issues and optimise solutions that might be rolled out on a larger scale and applied in other communities.

Microgrids and community batteries could offer a greener alternative to shipped diesel and generators, improving both health and environmental benefits. Ultimately this should be determined in consultation following meaningful engagement with the community itself to ensure the solutions are fit for community needs.

22. What are the key opportunities to ensure the benefits of improved energy performance are available to First Nations Australians, and Australians located in remote communities?

Similar to our previous response, energy performance improvements for First Nations Australians and remote communities would ideally be codeveloped with these communities to ensure they are based on the specific needs of the community. Microgrids and community batteries funded by government programs – where these communities are not connected to the main NEM – could offer a renewable-based solution and could aid energy security.

We note that there are organisations such as the Indigenous Consumer Assistance Network, the Centre for Appropriate Technology and Energy Consumers Australia who are best suited to provide input on this particular issue and previous government programs which could provide important learnings to inform policy design.

Commercial

23. What are the key opportunities to improve the energy performance of new and existing commercial buildings and operations?

Case studies and guides could provide useful supporting information to aid businesses in best practise for energy performance improvements through shared learnings. This could present an opportunity for businesses to demonstrate a leading edge in energy performance encouraging competition across a sector.

24. What are the most cost-effective private interventions businesses, including small businesses, can make to improve the energy performance of their buildings and operations?

A building energy performance assessment could be an important first step to work out whether a relatively expensive efficiency upgrade is worthwhile and what the most cost-effective performance upgrade options are.

25. What are the barriers to investment in better energy efficiency for commercial businesses?

Just as in the residential space, split incentives between commercial renters and landlords can present a barrier to energy performance improvements in commercial leases. Solutions are required to incentivise commercial landlords to improve the energy performance of their properties.

26. How can government further empower and assist businesses to realise savings through energy performance measures?

Commercial leases

Commercial landlords could be incentivised by encouraging the demand for green lease clauses in lease agreements where the performance standards are stated upfront. The renter could in turn be incentivised by requiring commercial businesses to produce an energy management plan which might include a green lease clause within their lease.

As mentioned earlier, environmental upgrade agreements (EUA) are another solution to incentivise energy performance upgrades. Usually, commercial



tenants have little agency when it comes to making improvements to a building they lease. With an EUA a building owner is able to access cheap finance from a provider for an environmental upgrade with the cost recovered through council rates. The tenant can consent to using a portion of the energy savings to contribute to repayments and no upfront capital is required. So ultimately, owners improve the value of the asset and tenants receive the energy cost savings. This agreement has the benefit of coupling the project benefits to the asset rather than the renter so the agreement can be transferred to a new tenant upon lease expiry.

Behind the meter assets

For businesses looking to develop their own behind the meter solutions to meet their energy needs, the government can instruct distribution network service providers (DNSPs) to standardise and facilitate the process of approving exports from behind the meter dispatchable generation. This will unlock the significant potential of existing generation capacity and allow a greater provision of Grid Services.

The government can provide dedicated financing mechanisms to private and public organisations to upgrade their behind the meter generation assets with the aim of taking part in demand response programs.

Governments could also provide tax benefits to businesses which provide Grid Services with their onsite assets.

Flexible demand

While much has been said of demand reduction, flexible demand is a versatile solution to issues surrounding both peak demand and minimum demand period. Commercial heating, ventilation and air conditioning (HVAC) systems could be offered as flexible loads (through precooling or preheating for example) if there were sufficient incentive to do so. Incentives might include contributing to upgrading of a building's green rating or if the business could modify load in response to external pricing signals.

27. How can government support businesses to better utilise digitalisation to improve energy performance?

The government could support businesses looking to innovate in the digital energy space by making sure the regulatory environment encourages a level playing field for all market participants for example, by ensuring interoperability of consumer assets, supporting systems and digital interfaces. It also has a role protecting consumers and their data, promoting trust and confidence in digital energy services and could draw on findings from the Australian Competition and Consumer Commission (ACCC) Digital Platform Services Inquiry to inform best practise in ensuring consumer protections.

Industry

28. What are the most cost-effective interventions industry can make to improve the energy efficiency of their new and existing operations?

The answer to this question is likely to be business or process dependent. Many businesses don't understand their emissions, energy use, or the energy performance upgrades best suited to their needs. Submetering of electricity is limited and is almost non-existent for gas, making it hard to isolate individual components within a system to identify the inefficiencies. There are various consultants that are able to provide net zero plans identifying the most cost-effective energy management and decarbonisation solutions for industry, however the uptake of these services is typically seen as discretionary. Incentivising these studies would assist in answering these questions.



Where applicable, high efficiency heat pumps are extremely efficient and provide an opportunity to electrify low grade heat on their sites.

The recent reform of the Safeguard Mechanism, although it doesn't directly target scope 2 emissions from electricity use, could lead to more businesses switching their fossil-fuel based processes to efficient electrification processes. It could be logical at the time of upgrade to consider an energy management system with any system/process upgrade. The government could provide targeted support for this initiative. Businesses might also look for new behind the meter solutions.

Over the years, we have worked to develop innovative energy efficient solutions for our industrial customers. The solutions available are dependent on the nature of the industrial business. For example, in 2011 we constructed a cogeneration plant for Qenos' Altona plant which reduced plant emissions by 100kT CO₂-e. In 2019 we built a 2.12 MW solar system at Santos' Bonython hydrocarbon processing plant which provided 6% of Santos' energy consumption. Commercial businesses are looking for efficient solutions and the more that government can guide them – by providing case studies and targeted support, the more uptake and impact they can have.

There is also an opportunity to approach large industrial consumers who might not have considered demand response or grid-support services as part of their value proposition and work with them on pilot studies to provide learnings across the sector and encourage participation. For example - data centres are fairly uniform in terms of their energy consuming processes from centre to centre and this is also a growing consumer segment. There are already hyperscale (e.g., 130 MW) examples of data centres in Australia representing a significant load. The government could run test programs with companies that represent significant loads like data centres to participate in demand response or flexible demand programs like the RERT or Frequency Control Ancillary Services (FCAS) markets and share learnings to encourage uptake across the sector. This could help achieve better grid balance, reducing the need for capacity overbuild.

29. What are the potential financial and non-financial barriers to investment in better energy efficiency for industry?

Carrot versus stick incentives

The Safeguard has provided some incentive to improve energy efficiency in industry. The problem remaining is that upfront capital costs may not provide sufficient incentive to improve productivity.

Wholesale market reform (particularly the Retailer Reliability Obligation (RRO)) has sought to put more incentive on large customers to reduce peak demand but with limited impact.

There are steps that businesses will take to reduce overall energy demand (to reduce prices), but more broadly industrial customers need to be supported in reducing peak demand, which will likely only occur with the support of contracts and energy management solutions provided with the assistance of retailers.

Grid constraints

Where electrification of a process is an option, in many locations grid capacity is a constraint (both on site, and at bottlenecks in the distribution network). This can be prohibitively expensive to remedy particularly in the context of a single site attempting to electrify where the distribution network is constrained.



30. What can be done in addition to existing measures to reduce these barriers to investment?

Unlocking scale

Scale could be unlocked with support from governments and funding programs. Currently most programs are bespoke and competitors cannot pool together resources due to competition restrictions. There is a role for government to understand options that could assist multiple businesses across a sectors and support programs to access investment at scale.

Network coordination

Coordination of distribution network development to enable electrification of industry will be critical to the ability to improve the efficiency of processes through electrification with high efficiency heat-pumps.

Access to low-cost capital

Availability of low-cost capital is challenging. Many larger energy efficiency and electrification solutions have extended payback periods, this can mean the return on investment is too low to take priority in CAPEX budgets. Unlocking low-cost capital to enable further investment is critical to the success of electrifying with high efficiency heat pump solutions.

31. How can electrification and demand management support Australian businesses to be competitive and reduce emissions?

Finding appropriate decarbonisation pathways

Electrification will be a useful pathway for some businesses but it must be recognised that not all industries will have a clear electrification pathway. Transition is also likely to include capital costs that may take some time to recover. Consideration must be given to meeting ongoing energy needs for business that may not be able to easily electrify. This may be through the development of zero-emissions fuels or the utilisation of high-quality offsets. Utilising policies and targets to target productivity without reducing production therefore remain important to avoid deindustrialisation of the Australian economy.

High efficiency heat pumps

High efficiency heat pumps are the most cost-effective way of producing low grade heat. They can achieve coefficients of performance (useful energy out/electrical energy in) of up to 600%. These can significantly reduce emissions and energy use for many low temperature industrial applications. Further, if designed with sufficient thermal storage they enable demand management that will reduce electrical demand in higher price intervals when there is less renewable energy available, helping reduce emissions and energy prices.

More needs to be done to incentivise delivery of heat pumps to industry as this technology develops.

Supply chains and workforce

32. What support is needed for Australian manufacturing or other supply focused businesses to improve energy performance?

No response.



33. What are the most critical supply issues hindering energy efficiency action? No response.

34. What is needed in the finance sector to help accelerate the uptake of energy performance investments? No response.