Investing in cheaper, cleaner energy and the net zero transformation inquiry

Questionnaire response 24

Name: Energy Efficiency Council

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1. Reduce the cost of meeting carbon targets

1. What could be done to improve the cost-effectiveness and alignment of policies to reduce emissions across the industrial, electricity and transport sectors?

Given the energy bill savings that improvements to energy efficiency deliver, policies to improve energy efficiency tend to deliver emissions reductions at very low, of negative costs. This is why energy efficiency is prioritised in other jurisdictions such as Europe, where the European Commission applies a principle of 'Energy Efficiency First' to energy and climate policy design.

Australia's historical access to cheap energy means we have been slow to prioritise action on energy efficiency, and other energy management actions collectively referred to as actions to improve Australia's "energy performance" by the Australian Government.

Therefore, improving the cost-effectiveness of Australia's emissions reduction policies should involve implementing policies that drive an improvement in energy performance. This would have the following impacts:

- In industry, improved energy performance would reduce waste and improve productivity, freeing up capital currently being wasted on energy for more productive uses - for example, new equipment. Upgrading industrial production processes to use modern, efficient electric equipment also delivers other benefits for economic productivity. For example, in Australia, many processes use outdated compressed air systems that are both energy inefficient and digitally 'dumb'. Replacing these systems with modern, electronic actuators would allow for reductions in energy use and better automation through Industry 4.0 controls, leading to greater productivity.

- In the electricity sector, investing in demand side energy performance would reduce wasted expenditure on costly generation, storage, and network infrastructure, and support reaching the Government's renewable energy and emissions reduction targets faster. A recent ARENA study suggested that increasing flexible demand capacity in the NEM - from both large industrial users and small aggregated loads - would deliver $18 billion in cost savings for consumers by 2040,

2. Are there gaps in the emissions-reduction policies in the industrial, electricity and transport sectors which should be addressed?

Industry: large gaps in policy targeting energy performance in sub-Safeguard businesses

Australian industry has not traditionally had a strong culture of energy management. In fact, Australia’s performance in industrial energy efficiency was ranked last of all developed countries surveyed in the American Council for an Energy Efficient Economy’s most recent scorecard, with Asia-Pacific competitors India, Thailand and

Indonesia eclipsing Australia’s performance by a significant margin. Although some statistics suggest Australia's industrial energy intensity improvement rate appears to be on par with other countries, in fact, this tends to be more reflective of structural shifts in the economy: away from energy-intensive manufacturing

While the largest industrial energy users and emitters are covered by the Safeguard Mechanism and National Greenhouse and Energy Reporting Scheme, for businesses that fall below the thresholds for inclusion in these schemes, outside of some small, time-limited incentive programs, there is virtually no policy driver for improving their energy performance.

The EEC recommends expanding support for energy performance upgrades in industries that fall below the Safeguard Mechanism threshold, ensuring that small and medium energy intensive businesses have a clear pathway to thriving in a net zero economy.

Energy management can significantly reduce operating costs for industry, but many businesses – particularly smaller businesses, without a dedicated energy and carbon manager – lack the data and expertise to manage their energy usage. The EEC recommends deployment of a comprehensive package of financial incentives to improve business energy productivity. The package should consist of assistance for businesses to:

• Install energy metering, sub-metering and monitoring infrastructure;
• Access energy coaching and advisory services;
• Implement an Energy Management System (EnMS); and
• Upgrade and optimise equipment and processes where the EnMS identifies cost-effective upgrades.

Funding for these incentives could comprise a small part of the Powering the Regions Fund, the National Reconstruction Fund, and the Re-Wiring the National Fund. Funding could also come from Future Made in Australia to support the productivity and resilience of domestic facilities that align with the strategic aims of the plan.

Alongside financial incentives, the EEC also encourages the Government to consider regulatory changes, including lowering the threshold for inclusion in NGERS to scope 1 emissions of 10,000 t CO2-e per annum at both corporate and facility level. This could result in a graduated scheme that imposed greater requirements with increasing energy and emissions (such as implementing an EnMS over 25,000 t CO2-e per annum).

In addition to helping drive down costs and emissions in these businesses, expansion of reporting requirements would provide valuable data on real world energy use in Australian industrial settings, sourced from a larger and more diverse cohort of businesses than is currently available. This in turn would allow governments to better target policies that help industry reduce emissions.

Electricity sector: Unequal energy performance policy across jurisdictions, out-of-date standards and changes needed to flexible demand policies

For energy performance policies targeting reductions in electricity use and changes to the time that electricity a

3. Are there any duplicative emissions-reduction policies in the industrial, electricity and transport sectors which could be streamlined?

   Align and modernise retailer energy efficiency schemes with energy market goals

   Retailer energy efficiency schemes have existed in several states and territories for well over a decade. These have tended to focus on achieving reductions in gas and electricity use, with a key objective being to reduce greenhouse gas (GHG) emissions. However, with the transition to high levels of renewable generation, electricity savings are less valuable from a GHG emissions standpoint. Simultaneously, new problems have emerged for the market operator, such as ensuring minimum operational demand during periods of high distributed solar penetration.

   Re-aligning these schemes to have the objective of energy system optimisation could help to solve various electricity system challenges: from reducing demand at peak periods, to shifting demand to periods where solar penetration (and curtailment) is high. However, this will require state and territory governments to undertake significant reform, ideally coordinated at the federal level to remove frictions across state and territory borders.

2. Speed up approvals for new energy infrastructure

1. Are planning and approvals processes for large energy infrastructure taking too long? If so, what causes the most delay?

   The participant did not respond to this question.

2. How can planning and approvals processes be sped up without unduly compromising regulatory standards?

   The participant did not respond to this question.

3. Should clean energy projects be treated differently to other projects for the purpose of environmental and other approvals? If so, how?

   The participant did not respond to this question.

4. What can be done to build local community support for new energy infrastructure projects?

   The participant did not respond to this question.

5. Please outline any evidence showing the productivity benefits of faster approvals for energy projects.

   The participant did not respond to this question.

3. Encourage adaptation by addressing barriers to private investment

1. What are the barriers and enablers impacting decisions by owner-occupiers, landlords and developers about how housing is built and updated over time so that it is resilient to the effects of climate change?

The barriers to improving the thermal performance and resilience of buildings are the same as the barriers to households undertaking energy performance improvements and include:
- Upfront costs: Many households, particularly those on low incomes, cannot afford the upfront costs associated with making their home more climate resilient;
- Split incentives: For example, landlords have little incentive to make their rental properties more resilient to climate change through energy performance upgrades when they will not benefit directly from the upgrades to building; and
- Information asymmetries: Where developers, builders and/or landlords have information about the energy performance (and climate resilience) of a home but have no obligation (or incentive) to share that information with the building's occupants.

Overcoming these barriers (or 'market failures') is often best achieved through government interventions to ensure households have more equal access to capital and information. Actions that should be prioritised include:

• Updating the National Construction Code (NCC) with minimal delays in adoption of new standards. Given recent research has found that today's minimum energy efficiency standards (7 stars) will be insufficient for delivering comfort to building occupants as the climate warms, delaying updates to the NCC – as has been the case in some states and territories – should be strongly avoided.
• Expanding the National Energy Performance Strategy to ensure it gives businesses and markets clear policy signals and the confidence to invest in energy efficiency and thermal performance by introducing programs that will deliver the benefits of efficiency flexible demand, and electrification across the built environment.
• Supporting the implementation of a nationally consistent energy performance rating tool and mandatory disclosure of energy performance at point of sale.

• Finalising the update to the Trajectory for Low Energy Buildings, ensuring it includes clear targets and a plan to improve thermal performance of buildings.

2. What information do people need to make decisions about where to live, how to build and how to upgrade their homes to appropriately factor in climate change?

There are several information failures inhibiting the upgrading of homes to appropriately factor in climate change.

For owners and renters, it is imperative that mandatory disclosure of residential buildings' energy performance at the point of lease or sale is introduced as soon as possible. This has been a long-standing commitment by state and federal governments and yet implementation has been slow, leaving Australian households in the dark to the energy performance of their homes (leaving a huge gap in understanding its climate resilience).

There are also gaps in information within the workforce responsible for building, upgrading and selling homes. Existing knowledge and skills in energy performance and

climate resilience in the current workforce are poor, so crosscutting training is needed for new workers and to upskill existing workers. A coordinated approach is needed to encourage widespread improvements in energy efficiency knowledge because those who do not undertake the work directly can often influence change. In addition to builders, electricians, plumbers and other trades involved in construction, allied roles such as real estate agents, property managers, financiers and appliance retailers need basic training around electrification, energy efficiency, and climate resilience to understand the implications for consumers and homeowners of various decisions made when building, purchasing or renovating a home.

3. What are the most cost-effective retrofitting options for improving the resilience of Australia's existing housing stock? What are their costs and benefits?

Energy efficiency, particularly improving the thermal performance of buildings, is cost-effective and essential to strengthening the adaptive capacity of the existing housing stock. Energy efficient technologies like insulation and double-glazed windows boost the thermal performance of homes, keeping them warmer in winter and cooler in summer, which contributes to improved comfort and health outcomes for occupants, as well as emissions reductions and cost savings.

There are significant adverse health effects of homes with very poor thermal performance. Therefore, as the climate warms, and heatwaves become more frequent, the thermal performance of homes will become increasingly important.

Victoria's Healthy Homes Program demonstrated this effectively in vulnerable households. Each household subject to the program received a pre- and post-upgrade assessment of their home, and the upgrades administered prioritised energy efficiency and warmth.

The range of upgrades included insulation (ceiling, underfloor), draught sealing, space heating (reverse-cycle air conditioning or gas heater replacement), and internal window coverings. The average cost per upgrade was relatively minor, at $3500. Analysis indicated that these relatively minor upgrades had wide-ranging benefits, including healthcare savings of almost $900 per person over the winter period. In fact, for every $1 saved in energy, more than $10 was saved in healthcare.

In New Zealand, a similar program delivered an estimated $7 in benefits for each dollar spent, largely due to improved health outcomes. These included benefits in many areas of health, including reduced hospitalisation, medical visits, days off school or work and pharmaceutical cost savings.

Poor thermal performance means more energy is required to get homes and buildings to a safe and comfortable indoor temperature, and higher energy costs. Rising energy bills are a significant source of stress for many householders, with energy poverty contributing to negative social and health outcomes for Australians. Vulnerable people, including the elderly and those with chronic illness or disability, are at higher risk of sub optimal health and financial impacts associated with poor thermal performing homes.

Buildings with high thermal performance also bring co-benefits for the grid. Well

insulated buildings with high thermal performance minimise heating and cooling loads, promoting grid stability. Adding energy-efficient digitally connected appliances and equipment to buildings allows for shifting electricity use away from peak periods in the mornings and evenings, helping to boost electricity grid resilience.

4. What role might minimum standards play in ensuring the resilience of Australia's housing stock?

   Minimum standards are critical to ensuring a 'floor' in the resilience of Australia's housing stock. It is therefore important that ministers in all jurisdictions follow through on their 2024 commitment to incorporate climate resilience as an objective of the Australian Building Codes Board and commit to supporting future updates to the NCC that include stronger energy efficiency and climate resilience minimum standards over time, in line with the latest climate science.

5. The impacts of climate change are being factored into the regulation of where and how houses are built in different ways around Australia. What does leading practice look like? Where is there room for improvement? Are there lessons we can learn from other countries?

   Incorporating climate resilience into building regulations is relatively new, but some countries that have faced challenging climates for decades are more experienced in designing regulation to take into account climate extremes. The Netherlands, where flood risks have always been prevalent, is an example of a leading jurisdiction, where the government is incorporating future climate risks into its building regulations. While some of the climate risks may be different, there are likely to be lessons to be learned from the Dutch approach to buildings regulation in Australia.