



## Climate Council of Australia

Submission to: National Energy Performance Strategy  
Consultation

Addressed to: Department of Climate Change, Energy, the  
Environment and Water, Australian Government

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## About the Climate Council

Climate Council is Australia's own independent, evidence-based organisation on climate science, impacts and solutions.

We connect decision-makers, the public and the media to catalyse action at scale, elevate climate stories in the news and shape the conversation on climate consequences and action, at home and abroad.

We advocate for climate policies and solutions that can rapidly drive down emissions, based on the most up-to-date climate science and information.

We do this in partnership with our incredible community: thousands of generous, passionate supporters and donors, who have backed us every step of the way since they crowd-funded our beginning as a non-profit organisation in 2013.

## Introduction

Thank you for the opportunity to input to the development of the Australian Government's National Energy Performance Strategy.

Achieving steep cuts to emissions *this decade* will be fundamental to the future security, livelihoods and wellbeing of Australians and communities everywhere. Climate Council recognises that improving energy performance will be an important part of achieving the necessary emissions reductions and supports the development of a National Energy Performance Strategy.

The world has already warmed by around 1.2°C and Australia is suffering significant losses from climate change, with worse on the way. Extreme weather events – such as bushfires, floods, heatwaves and droughts – are happening more often, and are more severe. To avoid truly catastrophic impacts, global emissions must halve this decade with net zero reached in the early 2040s. To play our part - given Australia's high level of emissions and our enormous potential for renewable energy and other climate solutions - Australia should be aiming to reduce our emissions by 75 per cent (below 2005 levels) by 2030, and reach net zero emissions by 2035.<sup>1</sup>

To achieve these required emissions reductions, we need to reach a grid that is powered by 100% renewable electricity as soon as possible. At the same time, we need to end the use of gas and other fossil fuels for heating, cooking and other applications, through shifting to electricity.

Energy performance is essential both to achieving our emissions reduction targets and to meeting our future energy needs. It is also fundamental to lowering energy costs for Australians. In essence, **good energy performance amounts to using the cleanest energy sources in the most efficient ways and at the best time.**

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<sup>1</sup> Climate Council (2021) Aim High, Go Fast: Why emissions need to plummet this decade. <https://www.climatecouncil.org.au/wp-content/uploads/2021/04/aim-high-go-fast-why-emissions-must-plummet-climate-council-report.pdf>

Energy efficiency is so important, the International Energy Agency describes it as the world's 'first fuel'. However, Australia currently compares very poorly against other large energy users in energy performance.<sup>2</sup>

This submission highlights the benefits that come from various aspects of energy performance. We stress the importance of a holistic approach, given the interconnected aspects of energy performance. For example, fuel switching from fossil fuels to electrification must go hand in hand with efficiency measures.

In this submission we have focused on the priority issues and challenges from the Climate Council's perspective, while acknowledging that industry advocates and other stakeholders may have a range of broader ideas.

## Summary of recommendations

**Recommendation 1: Support households to upgrade to energy efficient electric appliances with zero interest loans.**

**Recommendation 2: Update the National Construction Code to require new residential properties to be all-electric from 2025.**

**Recommendation 3: Require existing domestic gas appliances to be replaced with efficient electric alternatives from 2025.**

**Recommendation 4: Coordinate through the Energy National Cabinet Reform Committee to implement and harmonise minimum energy efficiency standards in rental properties.**

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<sup>2</sup> The American Council for an Energy-Efficient Economy ranked Australia 18 out of 25 of the world's largest energy using countries on 36 efficiency metrics, although there are sectoral differences:

- Australia is ranked 13th for combined efforts across state and territory and federal efforts.
- Australia tied for 12th place in building energy efficiency—its highest placement in any individual category.
- Australia ranked toward the bottom of the industry category, placing 22nd among countries assessed in this year's Scorecard.
- Australia ranked third to last in the transportation category, scoring less than a quarter of the 25 available points.

American Council for an Energy Efficient Economy (2022) International Energy Efficiency Scorecard. <https://www.aceee.org/international-scorecard>

**Recommendation 5: Implement mandatory energy efficiency disclosure as part of property sales.**

**Recommendation 6: Undertake strong reform of the Safeguard Mechanism to give businesses the right incentives and a level playing field for pursuing energy efficiency and electrification.**

**Recommendation 7: Deliver a fit-for-purpose initiative such as the [Energy Efficiency Opportunities program](#) to require and incentivise large industrial energy users to pursue improved energy performance.**

**Recommendation 8: Explore options through the Energy National Cabinet Reform Committee to implement an overarching energy performance target with sectoral mechanisms to achieve the stated goals.**

## Why tackling energy performance matters

Energy performance is a high priority for the affordability of energy in Australia, and making deep cuts to emissions this decade.

Energy performance, by reducing peak energy demand,<sup>3</sup> also reduces the scale of the new builds and investment required to ensure a network that is stable, reliable, and has sufficient capacity as we electrify everything and shift to 100% renewables. Peak demand is responsible for large increases to distribution network upgrades, which ultimately impact on prices paid. This was illustrated in the past by the investments in distribution required to accommodate large increases in residential air conditioning.

In addition, generation gaps at peak times are often filled by gas peaking plants, which are the most expensive form of generation currently in the Australian

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<sup>3</sup> There are three main aspects to peak demand reduction: load shifting; peak demand savings - that is permanently reducing peak demand, mainly through appliance efficiencies or behaviour change, and peak demand response - often, larger industrial users responding to potential peak demand events.

system. Reducing peak demand through energy efficiency therefore reduces both network costs and generation costs, helping reduce energy prices for the end consumer.

The Climate Council therefore strongly supports the proposed goals and objectives outlined for the National Energy Productivity Strategy in the Consultation Paper (p. 3).

## Improving the energy performance of homes

This section addresses the various questions relating to energy performance in homes.

### Background

Electrification and energy efficiency together can make it more affordable for Australians to heat, cool and use other appliances in their homes. The benefits of this will be experienced most by the most vulnerable Australians. It will also support our rapid transition to a net zero economy by driving down the emissions footprint of homes and businesses.

Fuel switching in homes is a particularly effective way of improving outcomes for Australians. In addition to its high cost, recent studies have revealed the alarming health implications of burning toxic gas in the home for cooking, heating and hot water. Cooking with gas is estimated to be responsible for up to 12 per cent of the burden of childhood asthma in Australia. A child who lives in a home with gas cooking faces a comparable risk of asthma to a child living with household cigarette smoke.<sup>4</sup>

For historical reasons, most Australian households meet their energy needs through a combination of different fuel sources - shared across electricity, piped or bottled gas, and wood burning. Across the country a little over half of all residential energy is met by electricity, and a little less than 40% comes from

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<sup>4</sup> Climate Council 2020. Kicking the gas habit: How gas is harming our health, Victoria, Australia: Climate Council of Australia Limited.

piped gas, with the remainder from bottled gas and wood.<sup>5</sup> However, as shown in the table below, there are big differences between different states and territories in the combination of fuel sources. In Tasmania and Queensland overall residential gas use is very low. By comparison, in Victoria and the ACT more than half of all energy used in homes comes from piped gas.

How homes are powered in different states or territories (Data source: EnergyConsult 2020).

	Electricity	Piped Gas	Bottled gas	Wood
National	53%	38%	3%	6%
NSW	69%	23%	3%	5%
VIC	29%	65%	1%	5%
QLD	84%	8%	6%	2%
WA	58%	31%	4%	8%
SA	60%	28%	3%	8%
TAS	63%	5%	2%	30%
ACT	41%	56%	1%	2%

Note: totals may not add to 100 percent due to rounding.

Our low energy efficiency standards and a lack of comprehensive investment in upgrading older homes has saddled Australians with homes that are draughty, too hot in summer and too cold in winter, as well as having outdated, energy hungry appliances. One analysis of 60 homes built pre-2005 found they were, on average, constructed to a measly 1.8 NatHERS Stars,<sup>6</sup> with the possibility that this average is even lower in other areas.<sup>7</sup> Often these homes even lack basic energy

<sup>5</sup> EnergyConsult 2020. RBS2.0 Methodology Report V1.3. Prepared for the Department of Industry, Science, Energy and Resources. Online at:

[https://www.energyrating.gov.au/sites/default/files/2022-05/2021\\_rbs\\_methodology\\_report.v1.3.pdf](https://www.energyrating.gov.au/sites/default/files/2022-05/2021_rbs_methodology_report.v1.3.pdf).

<sup>6</sup> Sustainability Victoria, 2015. Energy Efficiency Upgrade Potential of Existing Victorian Houses. Online at:

<https://assets.sustainability.vic.gov.au/susvic/ReportEnergy-Comprehensive-Energy-Efficiency-Retrofits-to-Existing-Victorian-Houses-PDF.pdf>.

<sup>7</sup> CSIRO 2020. Australia's still building 4 in every 5 new houses to no more than the minimum energy standard. Online at:

<https://ahd.csiro.au/australias-stillbuilding-4-in-every-5-new-houses-to-no-more-than-the-minimum-energy-standard/>.

efficiency measures such as insulation in wall and roof cavities and draught sealing, which have been shown to be two of the most cost effective energy efficiency measures.<sup>8</sup> Renters, who make up 1 in 3 homes, are at a particular disadvantage as they are unable to make changes to homes, and are more likely to be on low incomes and therefore spending more of their income on energy bills than owner-occupiers.<sup>9</sup>

Poor energy efficiency in homes also imposes significant health risks, particularly during cold or hot extremes. Heatwaves or cold snaps can cause an increase in respiratory and cardio-vascular diseases, such as pneumonia and high blood pressure, leaving the elderly, infants and people with pre-existing conditions particularly vulnerable.<sup>10</sup> Heatwaves kill more Australians than bushfires, floods, storms and cyclones combined.<sup>11</sup> Homes that do not maintain warmth properly are a contributing factor in at least 6 per cent of deaths in Australia each year.<sup>12</sup> That is double the death-rate of much-colder Sweden, in large part attributable to our poor housing stock.<sup>13</sup>

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<sup>8</sup> Sustainability Victoria, 2015. Energy Efficiency Upgrade Potential of Existing Victorian Houses. Online at: <https://assets.sustainability.vic.gov.au/susvic/ReportEnergy-Comprehensive-Energy-Efficiency-Retrofits-to-Existing-Victorian-Houses-PDF.pdf>.

<sup>9</sup> Healthy Homes for Renters 2022. Community Sector Blueprint: a National Framework for Minimum Energy Efficiency Rental Requirements. Online at: <https://www.healthyhomes.org.au/news/community-sector-blueprint>.

<sup>10</sup> Gasparrini, A., Guo, Y., Hashizume, M., Lavigne, E., Zanobetti, A., Schwartz, J., Tobias, A., Tong, S., Rocklöv, J., Forsberg, B., Leone, M., De Sario, M., Bell, ML., Leon Guo, Y., Wu, C., Kan, H., Yi, S., de Sousa Zanotti, M., Coelho, S., Armstrong, B., 2015. Mortality risk attributable to high and low ambient temperature: a multi-country observational study. *The Lancet*, 20 05, 386(9991), pp. 369-375. DOI: [https://doi.org/10.1016/S0140-6736\(14\)62114-0](https://doi.org/10.1016/S0140-6736(14)62114-0).

<sup>11</sup> Coates, L., 2014. Exploring 167 years of vulnerability: An examination of extreme heat events in Australia 1844–2010. *Environmental Science and Policy*, Volume 42, pp. 33-44. DOI: <https://doi.org/10.1016/j.envsci.2014.05.003>.

<sup>12</sup> Gasparrini et al. 2015.

<sup>13</sup> Barnett, A., 2015. Cold weather is a bigger killer than extreme heat – here's why. Online at: <https://theconversation.com/cold-weather-is-a-bigger-killer-than-extreme-heat-heres-why-42252>.



## Benefits of better energy performance

Upgrading homes to improve energy efficiency and switching appliances from gas to efficient electric alternatives can have major benefits in terms of cost, health, and emissions. There is also a large body of evidence to suggest that efficiency measures and electrification coupled with behaviour change such as load shifting can reduce both aggregate electricity demand and peak demand. This can reduce the scale of build out needed for renewable generation, along with delaying the need for distribution upgrades - all of which reduce overall system costs.<sup>14</sup>

The Climate Council's recent report, *Switch and Save: how gas is costing households*, explored cost and emissions savings when switching from gas heating, cooking and hot water to efficient electric alternatives. Our analysis found major bill savings in all capital cities as well as significant emissions reductions over a ten-year period. These bill and emission reductions are summarised below.

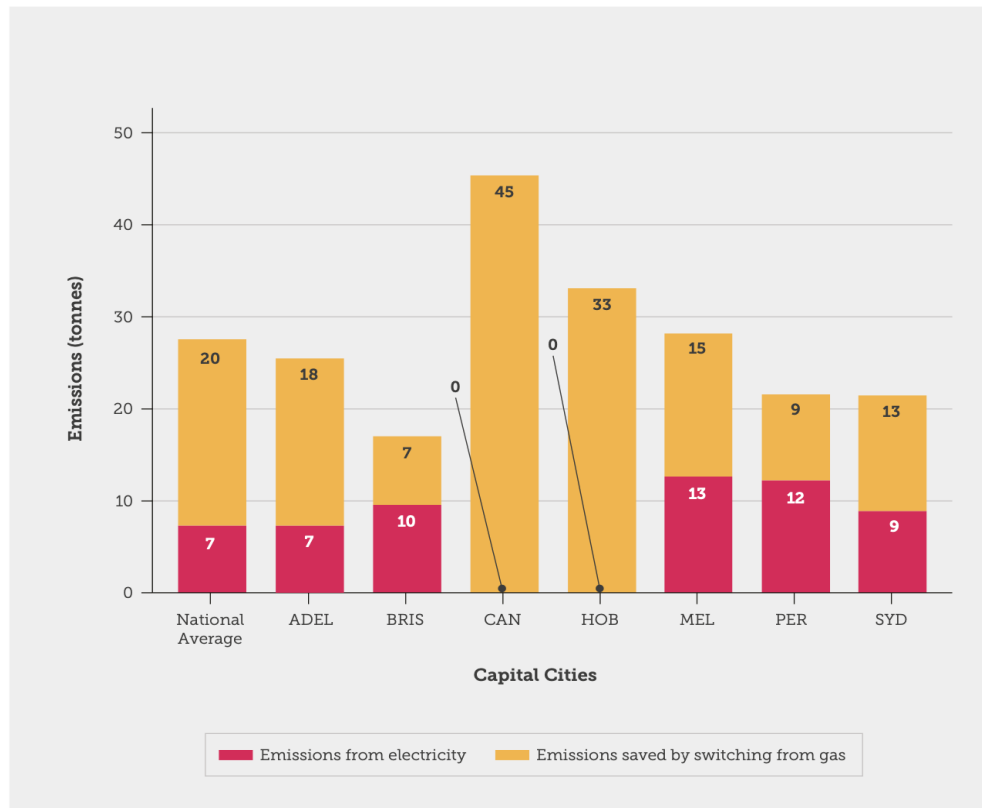
Yearly bill savings based on total gas bill vs electricity bills with lower and higher priced appliances (Source: Climate Council 2022, *Switch and Save*).

	Yearly bill savings low priced appliances	Yearly bill savings higher priced appliances + solar hot water
Adelaide	\$1,051	\$1,457
Brisbane	\$1,135	\$1,424
Canberra	\$1,561	\$1,876
Hobart	\$1,594	\$1,899
Melbourne	\$943	\$1,207
Perth	\$514	\$803
Sydney	\$608	\$924

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<sup>14</sup> See for example Relf, G, York, D and Kushle, M 2018. *Keeping the Lights On: Energy Efficiency and Electric System Reliability*. American Council for an Energy-Efficient Economy. Online at: <https://www.aceee.org/sites/default/files/publications/researchreports/u1809.pdf>.

Total emissions savings between gas and grid-connected electric cooking, heating and hot water per house over 10 years (Source: Climate Council 2022, Switch and Save).



Recent modelling by RACE for 2030<sup>15</sup> suggests that maximising thermal and energy efficiency in homes, moving energy demand into periods of maximum renewable generation, and enabling electrification can also support the transition toward net zero.

Based on their modelling, retrofitting one million existing Australian homes to maximise thermal and energy efficiency, move energy demand into periods of maximum renewable generation and electrifying gas appliances across five years could:

- Reduce average home energy use by up to 64 per cent per year (from 9,827 to 3,577 kWh)
- Reduce average home emissions by up to 5.2 tonnes CO<sub>2</sub>e per year (from 7.9 to 2.6 tonnes)

<sup>15</sup> RACE for 2030 2021. *Pathways to scale: Retrofitting One Million+ homes*. Online at: [https://www.racefor2030.com.au/wp-content/uploads/2021/12/One-Million-Homes\\_Final-Report-9.12.21.pdf](https://www.racefor2030.com.au/wp-content/uploads/2021/12/One-Million-Homes_Final-Report-9.12.21.pdf).

- Create an up to \$55 billion private finance investment opportunity

A bespoke home retrofit, addressing needs identified through a whole-of-home assessment, could reduce an average home energy bill by up to \$1,600 per year.

## Barriers to implementation

Improving energy performance clearly represents an important opportunity to reduce emissions and energy costs while delivering many other benefits to households, such as improved comfort and liveability, and reduced health risks. However, there are a range of barriers which can prevent households making the investments needed to seize this opportunity. Climate Council's research has identified key barriers to be:

- *lack of access to upfront capital* - the cost of a comprehensive home retrofit to improve energy performance can run into the 10s of thousands of dollars. This is a significant cost for many Australians, particularly those on low or unpredictable incomes.
- *long payback periods* - it is possible for households to recoup the capital cost of fuel switching and appliance upgrades through savings in their energy bills. However, with these savings being in the vicinity of \$600 to \$1,800 a year (as noted above), it can take households several years to fully recoup those costs. This barrier is greatest for those on low incomes who would otherwise benefit the most from lower bills.
- *lack of control over energy sources and appliances* - roughly 30 per cent of Australian households rent, which means their ability to switch to cheaper and cleaner fuel sources and appliances is limited by the willingness of property owners to make these investments on their behalf.

## Recommendations

To overcome these barriers Climate Council recommends the Australian Government take several steps as outlined below.

**Recommendation 1: Support households to upgrade to energy efficient electric appliances with zero interest loans.** Low- and zero-interest loan schemes are beneficial because they address the upfront purchase and installation costs for households. Importantly, they are also more affordable for governments and can therefore be provided at significantly greater scale than direct grants or incentive payments. The Climate Council (2022) has prepared a dedicated guide for governments on the design of such schemes - [How concessional financing can help reduce emissions](#). The ACT Government's Sustainable Household Scheme is also a useful case study of this approach in practice.

**Recommendation 2: Update the National Construction Code to require new residential properties to be all-electric from 2025.** The NCC will next be updated for 2025 and now is the time to start working towards a significant update at that time to mandate all electric homes.

**Recommendation 3: Require existing domestic gas appliances to be replaced with efficient electric alternatives from 2025.** A coordinated national approach is needed to mandate the replacement of gas appliances with efficient electric ones. Getting this mandate in place as soon as possible is important because household appliances can have a lifespan of more than a decade, so every gas heater or hot water service sold today will likely stay in service well into the 2030s.

**Recommendation 4: Coordinate through the Energy National Cabinet Reform Committee to implement and harmonise minimum energy efficiency standards in rental properties.** Rental homes often have outdated appliances and low energy efficiency - in fact, less than half of rental properties are even insulated.<sup>16</sup> There is a fundamental challenge in relying on voluntary improvements to rental stock because landlords are less inclined to pay for upgrades that reduce energy costs

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<sup>16</sup> Choice 2021. *Renters left to freeze in poorly insulated homes*. Online at: <https://www.choice.com.au/money/property/renting/articles/renters-left-to-freeze-in-poorly-insulated-homes>.

when they do not personally benefit. This situation also exacerbates inequality whereby those who cannot afford to pay higher rents for upgraded properties, are often saddled with homes that are expensive to heat and cool. Minimum energy efficiency standards for rentals are needed for all states and territories so that everyone has a home, which is liveable, safe and more affordable to run.

**Recommendation 5: Implement mandatory energy efficiency disclosure as part of property sales** . Mandatory energy efficiency disclosure makes it clear to people buying properties what they are purchasing. Making that information more visible empowers customers to make better decisions, and avoids saddling people with higher running costs. In turn, this incentivises investing in upgrades for both the buyer and seller - the seller to increase the house's value and the buyer because they are aware of any defects and have the chance to act when renovating. Such disclosure is already in effect in the ACT; it is the only jurisdiction where the average Star performance of homes rose between 2016 and 2018, from 6.5 to 6.9-Stars.<sup>17</sup>

## Improving industrial energy performance

This section addresses questions relating to industrial energy performance in the government's consultation paper.

When including electricity use, industry is responsible for almost half of Australia's emissions.<sup>18</sup> Sub-sectors responsible for the most industry related emissions include metals manufacturing, gas extraction and Liquefied Natural Gas

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<sup>17</sup> CSIRO, 2020. Australia's still building 4 in every 5 new houses to no more than the minimum energy standard. Online at: <https://ahd.csiro.au/australias-stillbuilding-4-in-every-5-new-houses-to-no-more-than-the-minimum-energy-standard/>.

<sup>18</sup> When electricity use is excluded, this number drops to around 34 per cent (DCCEEW 2020). The industrial sector includes mining, manufacturing and construction, which account for around 60, 30 and 10 per cent of industry related emissions respectively. Around half of industry-related emissions come from electricity use or direct fuel combustion (for example to power process heating), whilst just under half come from the conversion of raw materials into industrial products such as cement, iron and steel (called industrial process emissions) and emissions from losses, leaks, venting and flaring during the process of coal and gas extraction and processing (called fugitive emissions) ClimateWorks 2020. Deep Decarbonisation Pathways: Solutions, Actions and Benchmarks for a Net Zero Emissions Australia. Online at: <https://www.climateworkscentre.org/wp-content/uploads/2020/04/Decarbonisation-Futures-March-2020-ful-report-.pdf>.

(LNG) production, coal mining and chemicals manufacturing.<sup>19 20</sup> Reducing industrial emissions will be key to Australia meeting its legislated emissions reduction target of 43% below 2005 levels by 2030. For many industries, such as steel and cement, opportunities to reduce emissions are somewhat less mature than in other sectors such as energy and transport, making industry one of the more challenging sectors to fully decarbonise at present. Production processes are highly diverse, and solutions differ between sub-sectors. However, even as the necessary 'green' technologies are being developed and scaled, there are steps that facilities and companies can take to shift to renewable energy and improve the energy efficiency of their operations. As the American Council for an Energy-Efficient Economy identifies, industrial energy performance is a long way behind other sectors in Australia.

### Examples: Alumina refining and cement

Approximately 50 per cent of total emissions from the primary aluminium value chain - alumina refining and aluminium smelting, come from electricity production for smelting. This represents the greatest opportunity in the manufacturing of aluminium to decarbonise, as renewables are the cheapest form of new electricity and the transition to a grid powered by renewables is already underway. Considering smelting is already an electrified process, renewables provide a straight-forward solution to reducing emissions intensity in this process.<sup>21</sup> Many aluminium producers in Australia, including Tomago - Australia's largest aluminium smelter and single biggest electricity consumer - have plans to move to renewable electricity.<sup>22</sup> As smelters renew their contracts, they have the

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<sup>19</sup>In mining, most emissions (77 per cent) come from coal, oil and gas extraction. In manufacturing, 43 per cent of emissions come from metals manufacturing, with chemicals manufacturing (e.g. production of ammonia and plastics) accounting for 21 per cent, and non-metallic mineral product manufacturing accounting for 17 per cent (this includes cement, ceramics, glass and lime products).

DCCEEW (Department of Climate Change, Energy, Environment and Water) 2023. Australia's National Greenhouse Accounts. Online at: <https://ageis.climatechange.gov.au>.

<sup>20</sup> DCCEEW (Department of Climate Change, Energy, Environment and Water) 2023. *Australia's National Greenhouse Accounts*. Online at: <https://ageis.climatechange.gov.au>.

<sup>21</sup> Climateworks Centre and Climate-KIC (2022) Setting up Industrial Regions for Net Zero: Phase 1 Report. Australian Industry Energy Transition Initiative. Online at: <https://www.climateworkscentre.org/resource/australian-industry-energy-transitions-initiative-phase-1-report/>, p. 19

<sup>22</sup> Tomago Aluminium 2022. *Tomago Aluminium are looking to secure its future renewable energy needs* Online at: <https://www.tomago.com.au/tomago-aluminium-future-renewable-energy-needs/>.

opportunity to source renewable energy from the grid or through direct supply contracts.

Cement production is another major source of industrial emissions. However, it is a strong example of how the emissions profiles of the major industries in Australia differ. Roughly 60 per cent of cement emissions are process emissions, turning lime into 'clinker' (also known as calcination). Only 28 per cent are related to fuel use to create heat, and just 12 per cent come from electricity use.<sup>23</sup> Better energy performance - through fuel switching to electrification and energy efficiency - can therefore help reduce emissions from cement production as a first step, while solutions related to the calcination process are under ongoing development.

Other industries and production processes in Australia also exhibit similar differences between one another when it comes to process, heat, and indirect (electricity) emissions. These differences in the source of emissions in industries and processes must be a consideration in the sorts of mechanisms that are used to improve energy performance.

## Promoting outcomes through a reformed Safeguard Mechanism

The Safeguard Mechanism, in its current form, is not set up to deliver emissions reduction. While the scheme may have been enacted to avoid emissions increases from Australia's largest emitters, the reality is that over the first five years of its operation emissions from covered facilities - our largest industrial emitters across all sectors, including coal and gas producers, manufacturing, mining and transport - have trended upward. The recommendations provided in this Climate Council submission, combined with a strong Safeguard Mechanism would ensure genuine emissions reduction and greater energy performance.

A strengthened Safeguard Mechanism will be critical to rapid industrial decarbonisation, through incentivising moves to lower emissions production processes while penalising those who don't. Lowering emissions in the activities covered by the mechanism will rely heavily on improving energy efficiency and fuel switching. Redesign of the Safeguard Mechanism provides an opportunity for

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<sup>23</sup> Cement Industry Federation 2022. *Cement Industry and Emissions*. Online at: <https://cement.org.au/sustainability/climate-change/>.

lower carbon manufacturers and processes to capitalise as ‘first movers’ and should give certainty on the trajectory of baseline reductions, while simultaneously providing opportunities for Australia to cement its role as a renewable energy superpower.

A reformed Safeguard Mechanism is critical to ensuring Australia meets its legislated emissions reduction target of 43% reduction on 2005 levels by 2030 and net-zero by 2050 and energy performance is a key factor in that success. Getting the new Safeguard Mechanism right and fixing the broken scheme will help future-proof industries and ensure Australia’s mining and manufacturing industries survive and thrive in a low-carbon world, ensuring the economic and employment benefits for Australians for generations to come. In order to do this, the reformed Safeguard Mechanism must incentivise those companies and their corresponding facilities to pull their weight and decarbonise in line with, and exceeding, the legislated targets.

Given the scale of the emissions reduction task facing Australia, we urge the Federal Government to take further steps to encourage and incentivise genuine investment in clean technologies by Australia’s major industrial emitters, covered by the Safeguard Mechanism. In particular, we encourage the Government to consider implementing a mechanism similar to the Energy Efficiency Opportunities Act 2006, which required major energy users to identify and evaluate practical opportunities to achieve energy efficiency. Running a scheme such as this alongside reform of the Safeguard Mechanism and funding available through the *National Reconstruction Fund*, the *Powering the Regions Fund* and other state and territory funding sources would provide practical support and incentives for major industrial emitters to invest in the energy performance and other technology improvements, which can drive down their emissions.



## Recommendations

To address the above issues with industrial decarbonisation, Climate Council recommends the Australian Government pursue the following priority actions.

**Recommendation 6: Undertake strong reform of the Safeguard Mechanism to give businesses the right incentives and a level playing field for pursuing energy efficiency and electrification.** Mechanisms within the SGM, such as the *Powering the Regions* program, should focus first and foremost on incentivising and helping industry to make energy performance improvements. Assistance should prioritise measures to help achieve compliance such as funding for technology innovations that reduce emissions or access to expertise related to energy efficiency or the use of renewable energy.

**Recommendation 7: Deliver a fit-for-purpose initiative such as the [Energy Efficiency Opportunities program](#) to require and incentivise large industrial energy users to pursue improved energy performance.** This should be based, among other things, on a long term strategy for industrial decarbonisation and a thorough analysis of where energy sources like gas which need to be replaced are being used, by whom and in what quantities. It could also be paired with a demonstration fund for technologies that already exist but are pre commercial, as part of Australian Renewable Energy Agency (ARENA) or Clean Energy Finance Corporation (CEFC) projects.

## Setting energy performance targets

This final section addresses questions related to energy performance targets in the government's consultation paper.

As established, improvements to energy performance offer many benefits for energy affordability, emissions reduction, and helping meet our future energy needs. Climate Council recommends a well-designed and coordinated system of targets for energy efficiency and demand reduction. This will provide a clear signal to energy providers, industry and households about the importance of improving the efficiency with which we use electricity as part of the move to

'electrify everything'. Energy efficiency and/or demand reduction targets can also play an important role in helping maintain grid stability and reliability of supply in the context of increasing penetration of renewables - as one lever alongside others such as the rapid expansion of renewable energy storage like grid scale batteries and pumped hydro.

The IEA<sup>24</sup> suggest energy performance targets can provide:

*the basis and impetus for a government to establish policies, programmes or mechanisms that are intended to drive action towards improved energy efficiency. Credible energy efficiency targets serve several functions:*

- *Compel action – encourage governments and economic sectors to achieve certain outcomes.*
- *Track progress – policies and measures can be monitored and evaluated with the target insight.*
- *Increase financing – a clear message is provided to investors that energy efficiency is a priority.*

The IEA distinguishes between a number of categories of energy efficiency targets, which are outlined below.

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<sup>24</sup> International Energy Agency (IEA) 2017. *Setting energy efficiency targets*. Online: <https://iea.blob.core.windows.net/assets/8c0b7b02-3f86-4662-815f-13d260dd6f99/EnergyEfficiencyTargetsEnergyEfficiencyInsightsBrief.pdf>.

Categories of energy efficiency targets (Source: IEA 2017).

<p><b>ENERGY INTENSITY</b> A reduction in energy consumption per unit of activity, such as GDP</p>	<p><b>+</b> A commonly used metric because data are usually available. Easy to understand</p> <p><b>○</b> Achievement influenced by economic activity and structural change. Not always linked to energy use reduction</p>	<p><b>ENERGY PRODUCTIVITY</b> An increase in activity per unit of energy consumed</p>	<p><b>+</b> Resonates well with some stakeholders</p> <p><b>○</b> Achievement influenced by economic activity and structural change. Not always linked to energy use reduction</p>
<p><b>ENERGY CONSUMPTION</b> A reduction in energy consumption relative to a base year, projection or benchmark</p>	<p><b>+</b> Aligned with environmental benefits of energy efficiency such as emissions reduction</p> <p><b>○</b> Achievement influenced by economic growth and structural change</p>	<p><b>ENERGY ELASTICITY</b> A reduction in the ratio of energy consumption growth to activity growth</p>	<p><b>+</b> Allows for target development in the absence of reliable, detailed data or forecasts</p> <p><b>○</b> Not a commonly used metric and can be difficult to understand</p>
<p><b>POLICY PROGRESS</b> An increase in the impact of energy efficiency policies</p>	<p><b>+</b> Encourages strong policy leadership</p> <p><b>○</b> Difficult to measure</p>	<p><b>TRANSACTIONAL</b> An increase in the uptake of energy efficient goods or services</p>	<p><b>+</b> Encourages an increase in sales of energy efficiency products and services</p> <p><b>○</b> Achievement not always linked to energy use reduction</p>

Energy efficiency targets have been implemented successfully in a number of jurisdictions around the world. The European Union's energy efficiency target is more than twenty years old and offers excellent opportunities for policy lessons. Research on the interactions of different policy instruments to promote energy efficiency in the EU<sup>25</sup> suggests multiple, different policy instruments are necessary to have positive outcomes - a combination of a certificate scheme and information campaign for example. The European experience further highlights that combinations of policy instruments that enforce outcomes rather than being flexible in how target groups respond can lead to poorer outcomes.

<sup>25</sup> Wiese, C, Larsen, A and Pade, LT 2018. Interaction effects of energy efficiency policies: a review, *Energy Efficiency*, vol. 11, pp. 2137–2156.

Johansson et al<sup>26</sup> suggest a stepped approach to developing appropriate targets and associated policy options to deliver these:

- benchmarking energy use;
- identifying the barriers and drivers;
- implementing the appropriate policy instrument; and
- evaluating the outcomes.

Benchmarking is particularly important given that in the Australian residential and industrial sectors, the current level of energy efficiency and fuel use is poorly understood and there are few reliable existing data sets.

Differences in approach are evident in the Australian context by comparing schemes in Victoria and New South Wales. The Victorian Energy Upgrades (VEU) program incentivises homes and businesses to replace appliances with more efficient ones by offering rebates and financial incentives.<sup>27</sup> The program creates certificates, which represent 1 tonne of abated greenhouse gases, with electricity retailers then required to purchase these certificates. In NSW, there is both an Energy Savings Scheme, which operates similarly to the VEU, as well as the Peak Demand Reduction Scheme.<sup>28</sup> The two schemes incorporate similar incentives to install efficient appliances, which work in tandem to reduce both aggregate and peak demand. Importantly, the NSW scheme also includes large industrial users and peak demand response - which involves the switching off of very large industrial energy users in times of high demand to ensure grid stability. Since 2009, 79 million VEU certificates have been registered, which represents a reduction of 79 million tonnes of greenhouse gas emissions. The NSW peak demand reduction scheme expects to result in \$1.2 billion in bill savings for homes and businesses between 2022 and 2040.

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<sup>26</sup> Johansson et al 2019, Designing Policies and Programmes for Improved Energy Efficiency in Industrial SMEs

<sup>27</sup> Department of Energy, Environment and Climate Action 2022. *About the VEU*. Online at: <https://www.energy.vic.gov.au/for-households/victorian-energy-upgrades-for-households/about-the-veu-program>.

<sup>28</sup> NSW Climate and Energy Action 2023. *Energy Security Safeguard*. Online at: <https://www.energy.nsw.gov.au/nsw-plans-and-progress/regulation-and-policy/energy-security-safeguard>.

The Climate Council believes that cost reductions and grid stability need to go hand in hand with emissions reduction. Therefore, aspects of both the Victorian scheme, which measures outcomes in emissions, and the NSW schemes, which measure outcomes in saved aggregate and peak electricity demand, serve as useful examples for design. Examples from the EU also suggest that a mix of different policy instruments will be necessary to deliver the multiple outcomes that are required to meet energy performance targets if they are set - setting targets and implementing a complimentary but specific set of instruments, which individually reduce emissions, improve efficiency and decrease aggregate and peak demand such as certificate schemes, incentives, and information campaigns, for example.

**Recommendation 8: Explore options through the Energy National Cabinet Reform Committee to implement an overarching energy performance target with sectoral mechanisms to achieve the stated goals.** Goals should include both emissions mitigation and demand reduction, particularly peak demand. Such a target could include:

- harmonising current state based mechanisms, and
- encouraging the implementation of mechanisms in other jurisdictions, and/or
- A Federal level target, which would include sub sectoral mechanisms that build on international and domestic experience.

Thought needs to be given to starting from adequate baselines to ensure that outcomes are measurable, reportable, and verifiable and are leading to electrification and actual reductions in emissions and energy demand.

## Conclusion

The Climate Council looks forward to the many benefits that a National Energy Performance Strategy can bring.

A national strategy must take a holistic approach to energy performance and ensure that fuel switching, in particular electrification, goes hand in hand with efficiency gains to reduce the need for new generation, which will bring prices down for all Australians.

The strategy must recognise the major differences between the nation's sectors and implement policies that reflect these differences. If targets are implemented, the policy instruments used to meet them must be of an appropriate mix to encourage compliance and effectiveness and limit negative interactions.

Getting these settings right are vital to ensure sufficient emissions reductions occur in the coming years and that benefits can be enjoyed across the economy and by those most in need of support.