Mr Grant King
Chair, Carbon Abatement Expert Panel
carbonexpertpanel@environment.gov.au

Dear Mr King,

Built Environment peak bodies' submission to Carbon Abatement Expert Panel

Our organisations represent the spectrum of Australia's built environment from property owners to builders, designers, product manufacturers, engineers and service providers. We welcome the establishment of this expert panel and thank you for the opportunity to provide input to opportunities for further emissions abatement in response to the panel's discussion paper.

The potential of Australia's built environment to reduce emissions should not be underestimated: the built environment accounts for a quarter of Australia's greenhouse gas emissions and buildings could meet over half the National Energy Productivity Target (NEPP).[1] Implementing a comprehensive suite of policy measures could deliver $20 billion in financial savings by 2030[2] as well as contributing to improved health and productivity for building occupants.

The discussion paper correctly notes that while commercial and residential buildings present low-cost abatement opportunities through energy efficiency measures, several structural barriers preclude participation in the Emissions Reduction Fund (ERF).

In this submission, we briefly restate the design reasons why the ERF cannot and will not drive abatement in buildings; this advice is consistent with guidance we have provided to the Government over a number of years. We also suggest areas of opportunity for the Commonwealth to leverage the Climate Solutions Fund with more targeted programs for the built environment. As an industry, we have compiled a wealth of research on these matters over the past decade and would be very pleased to meet with you and discuss our research and recommendations in more detail.

Please do not hesitate to get in touch with Frankie Muskovic, National Policy Manager – Sustainability and Regulatory Affairs at the Property Council of Australia at fmuskovic@propertycouncil.com.au or 0413 587 898, to arrange a meeting with our organisations.

Regards,

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Chief Executive
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Chief Executive Officer
Green Building Council of Australia

Suzanne Toumbourou
Executive Director
Australian Sustainable Built Environment Council

Luke Menzel
Chief Executive Officer
Energy Efficiency Council

[1] [2] ClimateWorks for the Australian Sustainable Built Environment Council (ASBEC), Low Carbon, High Performance, 2016

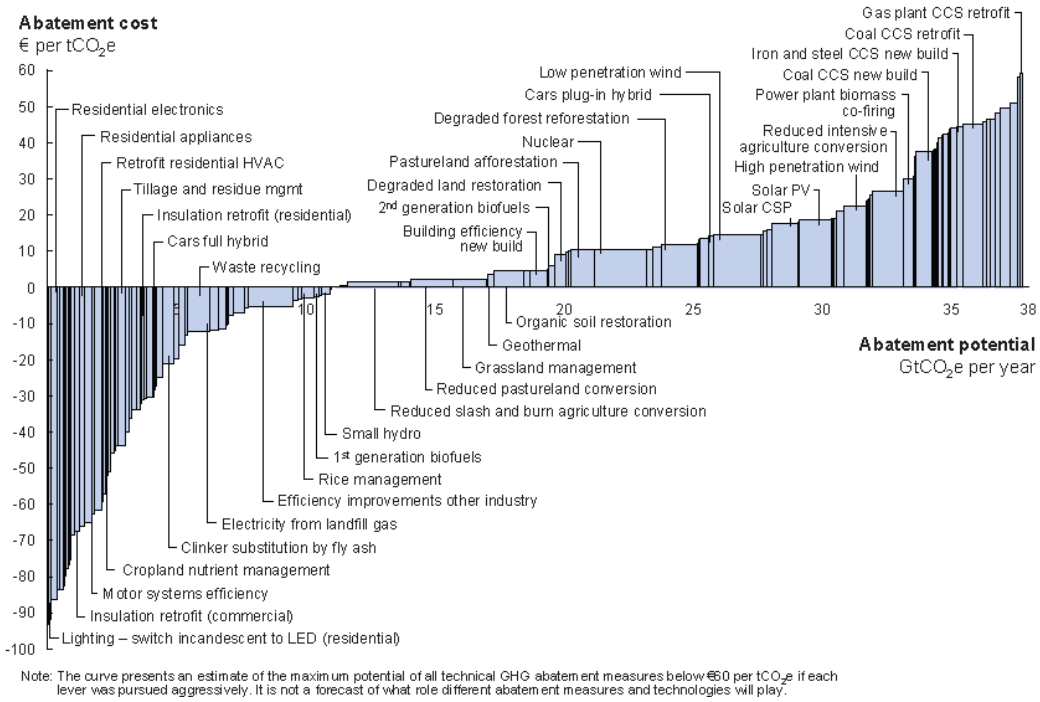
1. Buildings present a large opportunity for abatement using today's technologies

Buildings account for over half Australia's electricity usage and almost a quarter of emissions through their operations, split fairly evenly between residential and commercial buildings.[3]

Over the last decade, market leading property companies have demonstrated the potential for increased energy performance and have reduced their emissions intensity by 52% compared to a 2005 baseline[4]. These companies consistently top international benchmarks like the Global Real Estate Sustainability Benchmark and Dow Jones Sustainability Index and many have committed to achieving net zero emissions by 2030 or sooner[5].

The challenge for policy makers is to extend the substantial progress made by market leaders across the sector as a whole. Over the same period, overall energy intensity improved by only 2 per cent for commercial buildings and by 5 per cent for residential buildings[6].

Modelling undertaken by ClimateWorks shows cost-effective energy efficiency actions across the sector could deliver a 23 per cent reduction in emissions by 2030, and 55 per cent by 2050[7]. This assumes no technological breakthroughs. McKinsey's global abatement cost curve for 2030 (Figure 1) shows areas of enormous abatement potential in buildings using existing technology: non-electric fuels can be nearly eliminated by switching to electric alternatives, which is necessary to pave the way for space heating, water heating and cooking (currently fuelled in large part by gas) to be powered by zero emissions electricity.



Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below €60 per tCO_2e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play.

Figure 1: McKinsey's global abatement cost curve for 2030

[3] Low Carbon Living CRC, Best Practice Policy and Regulation for Low Carbon Outcomes in the Built Environment, 2017
[4] Better Buildings Partnership, Annual Results FY18, 2018
[5] ClimateWorks, Net Zero Momentum Tracker – Property Sector Report, 2019
[6] [7] ClimateWorks for ASBEC, Low Carbon, High Performance, 2016

2. Barriers to action in buildings and current Government initiatives

There are persistent barriers to the uptake of energy efficiency, fuel switching and distributed generation. Experience from Australia and overseas has shown that addressing these barriers requires strong, long term and targeted policy and programs.

Decision makers in the built environment are extremely diverse; building owners and tenants who are fragmented across many different jurisdictions and levels of government. We've completed a comprehensive analysis of the barriers and impediments to action that can be grouped into four interrelated categories shown in Figure 2.

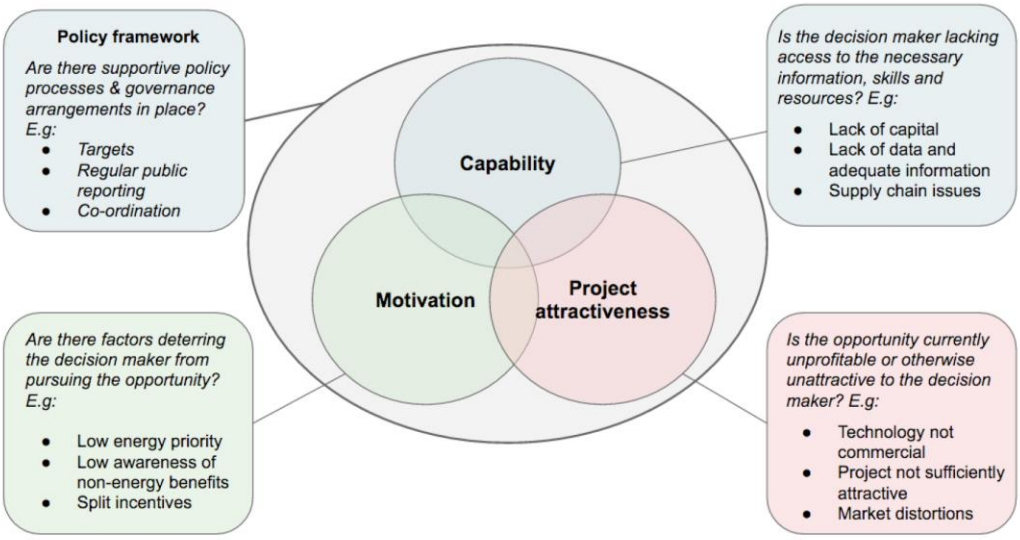


Figure 2: Barrier and impediment framework

BARRIERS	POLICY TYPES				
	National plan	Minimum standards	*Targeted incentives and programs*	*Data, information, research, education*	*Energy market reforms*
Policy frameworks	Provide the goal and the 'glue' to coordinate actions				
Motivation	Send a strong signal and provide a vehicle for public engagement	Ensure minimum level of performance for least motivated	Provide incentives to go beyond minimum standards	Provide better public information on the benefits	
Capability	Provide a vehicle for industry engagement	Build industry capability through accelerated deployment	Build industry capability through improved performance Provide dedicated support for least equipped	Provide the data, information, training and education required to enable informed choice and quality service provision	
Attractiveness	Provide a vehicle for coordination of energy market reforms	Reduce cost of new technologies and approaches through accelerated deployment	Reduce costs of new technologies and approaches through accelerated deployment	Support innovation & commercialisation of new technologies & business models	Address barriers and market distortions affecting energy efficiency and distributed energy

Primary target Secondary target

Figure 3: Barriers and impediments mapped to policies

Barriers to action are by no means isolated to financial considerations. In fact, there is clear evidence that the strongest barriers are behavioural and awareness-related, like bounded rationality. The latest research and analysis in this area proves the adage: what is measured is managed[8].

Government action to address these barriers must include a combination of mandatory measures ('sticks'), incentives and other measures to motivate and support higher performance ('carrots') and enabling measures to provide the right conditions for least-cost, large-scale action ('tambourines').

COAG Energy Council's National Energy Productivity Plan and Trajectory for Low Energy Buildings, and the *Australian Building Code Board's Energy efficiency - NCC 2022 and beyond scoping study* – reflect the longstanding collaboration between industry and government in setting the policy foundations for better performing buildings. We broadly support the recommended policy actions outlined in the draft *Trajectory for Low Energy Commercial Buildings* and *Trajectory for Low Energy Residential Buildings* reports, due to be considered by the COAG Energy Council.

3. Why the ERF doesn't work for buildings

While the ERF has been successful in driving abatement in other sectors, it is completely ill-equipped to incentivise emissions reductions in buildings. Several structural design elements of the scheme effectively preclude participation for buildings:

- **minimum bid sizes of 2,000 tonnes of annual emissions savings** – to achieve the required threshold, projects would need to aggregate activities across many large buildings. The average office building emitted 1,157 tonnes CO_2 in 2018 and as a cohort, have improved their energy use by an average of 3% per year in the past decade[9]. Assuming this rate of improvement, you'd need a portfolio of 58 office buildings to meet the annual threshold for the ERF
- **requirement for multi-year contracts for annual abatement over 7-year period** – it is very difficult for buildings or portfolios to commit to the 7 years of set emissions reduction targets required in the ERF. Energy efficiency projects involve a complex mix of technologies and rely strongly on how well they are executed, making emissions reductions much harder to predict accurately than other projects (e.g. planting trees). Individual buildings are constantly sold and bought, making contractual commitments across a portfolio over 7 years almost impossible due to the associated risk and complexity of managing contracts over the number of assets required
- **major time lags between auctions and transaction costs** – energy efficiency projects require large upfront capital costs and the time lags between auctions and when incentives are paid out act as further barriers discouraging buildings from participating,
- **high transaction costs to prepare and aggregate bids and uncertainty about the price for abatement –** as the current review of ERF methods has shown, the minimum estimated transaction costs for projects reaching the minimum bid size is estimated at $200,000. The cost of aggregating the number of energy efficiency projects needed to meet this threshold would likely be significantly higher. This combined with the expectation that the price of the incentive may be relatively low compared to the other potential benefits of a project, has resulted in very little engagement from the commercial property sector.

Given buildings account for almost a quarter of Australia's emissions, we recommend the expert panel focus consideration on hypothecating funding from the Climate Solutions Fund for targeted programs that drive low cost abatement in commercial and residential buildings.

[8] The CIE, Independent Review of the Commercial Building Disclosure Program draft report, 2019
[9] NABERS, Annual Report 2018/19 Program Statistics, 2019

4. The design and impact of state and territory energy efficiency schemes

Several states and territories have introduced 'energy efficiency schemes', namely the NSW Energy Saving Scheme, Victorian Energy Upgrades Program, the South Australian Retailer Energy Efficiency Scheme and the ACT Energy Efficiency Improvement Scheme.

These market-based programs have been highly effective at driving single-technology upgrades to residential and commercial buildings, such as lighting upgrades. As a result, these programs and have permanently transformed Australia's lighting markets to deliver enormous savings to homes and businesses.

In contrast to the ERF, state energy efficiency schemes have been very effective at driving emission-reducing upgrades to buildings due to:

- **low transaction costs:** The schemes have relatively low transaction costs, and administrative costs effectively cease after projects are completed.
- **incentive certainty:** Building owners have a rough idea of how much incentive they will receive before a project commences, in contrast to the ERF where they may fail to secure any incentive even after significant transaction costs.
- **upfront payment:** Building owners are generally paid incentives in full shortly after energy efficiency measures are installed. This has much greater appeal to CFOs, as incentives are provided in the same year that costs are incurred, they do not need to trust that incentives will be maintained over time and ongoing costs are eliminated. Upfront payment also makes more sense for energy efficiency measures, we tend to be 'set and forget', in contrast to measures such as revegetation.
- **size of incentive:** Incentives are generally in the region of $20-$40 per tonne of abatement. While this is a higher cost per tonne than provided by the ERF, because projects have knock-on impacts via market transformation, the actual cost of abatement is far lower.

The success of these programs at driving single-technology market transformation means that we advocate for similar programs to be established in Queensland, Western Australia, Tasmania and the Northern Territory.

To date, these schemes have been less effective at driving whole-of-building retrofits to either residential or commercial buildings. Therefore, we recommend that the Australian Government complement these state and territory-based programs by focusing on policies that would encourage 'deep retrofits' to whole buildings, which go beyond single technology upgrades and take an integrated approach.

5. Immediate opportunities for the Commonwealth to drive abatement

5.1. Incentivise deep retrofits in whole buildings by leveraging existing benchmarks and professional certifications

5.1.1. The National Built Environment Rating System (NABERS)

NABERS is a national government program administered by the NSW Department of Planning, Industry and Environment on behalf of the Commonwealth, States and Territories. It is the largest and most robust energy performance program in Australia, with over 2,000 buildings measuring, verifying, and certifying their carbon emissions under NABERS Energy every year. At current rates, buildings already participating in NABERS are expected to emit over 30 MT CO2 over the next decade. This figure is likely to rise, as NABERS continues to grow the number of buildings participating in the program every year, as it is leveraged elsewhere in complementary Government policies such as the Commercial Building Disclosure (CBD) Program and Government procurement policies.

Currently, NABERS can rate the energy and emissions performance of offices, shopping centres, hotels, data centres, public hospitals and apartment buildings. NABERS received Commonwealth funding in 2019 to expand to all other major building types in accordance with NABERS' strategic plan 2019-2023.

5.1.2. Green Star – Performance

Green Star is Australia's leading standard for sustainability in the design, construction and performance of buildings, fitouts and communities and is independently awarded by the Green Building Council of Australia. Green Star – Performance is designed to monitor and benchmark a building's operational performance and building owners are awarded for reducing greenhouse gas emissions associated with the use of energy in building operations. To date, there have been 1065 certifications under the tool, of buildings across both the private and public sectors.

Under the Greenhouse Gas Emissions credit, buildings are awarded for the achievement of percentage reductions in GHG against established Building Energy Baselines, a peer group of comparable buildings or a baseline established from the building's historical data. Whilst the tool also awards points for GHG outcomes as verified by a NABERS Energy certificate, the availability of alternative pathways provides a means of compliance for buildings residing outside the sectors covered by NABERS Energy.

5.1.3. Energy Efficiency Certification Scheme (EECS)

The Energy Efficiency Certification Scheme (EECS) is an industry led certification for professionals that have the skills and experience to lead and manage all types and scale of building energy upgrades, up to and including an Integrated Building Energy Retrofit (IBER) and to work effectively with their clients.

An IBER approaches a building as an integrated system and looks to upgrade its energy performance in a comprehensive way. An IBER:

- include all stages of an energy efficiency retrofit, from scoping to verification of energy savings
- consider all major energy using processes and activities within the building
- take a comprehensive approach to design, incorporating multiple technologies when appropriate; and,
- take an integrated approach to implementation, avoiding unnecessary disruption of the building's occupants and systems.

The Scheme is delivered under the supervision of an independent expert Steering Committee made up of energy management and property sector experts, academics and state and federal governments. It is administered by the Energy Efficiency Council, Australia's peak body for energy efficiency.

5.1.4. Using NABERS, Green Star and the EECS to drive deep retrofits

We recommend the Commonwealth establish a targeted program where individual buildings and portfolios could be rewarded for improving their NABERS Energy ratings or Green Star – Performance ratings and reducing emissions year-on-year from a specified baseline. Design features of the program should include:

- **minimal barriers to entry** - no minimum carbon abatement threshold and neither an obligation to participate in the scheme nor to meet fixed emission savings quotas in future years
- **incentive certainty based on performance** – incentive payments should be linked to verified performance and emissions reduction through certified annual NABERS Energy ratings and Green Star – Performance ratings with a proportion deemed upfront
- **keep transaction costs low** – applications for incentives should be implemented directly by NABERS or Green Star Assessors at the time of completing and certifying a rating. NABERS and Green Star are national programs with Assessors accredited throughout Australia, so this program could be implemented at scale without a separate requirement for a Measurement & Verification plan or additional auditors to be engaged. This would limit unnecessary administrative costs and increasing the incentive available directly to the building owners
- **target the program at poor performing and hard-to-reach buildings** – buildings with lower NABERS Energy ratings (the average is 4.5 stars for office buildings, 3.9 stars for shopping centres, 4.4 stars for data centres, 3.4 stars for apartment buildings[10]) present the largest opportunities for deep retrofits, so the incentive could be geared towards the cohort of buildings that perform the poorest,
- **fund expert advice to assist building owners to upgrade** – besides offering a financial incentive for improved performance, the program should include complimentary measures such as funding assistance to support skilled professionals certified under the EECS to support building owners through the entire upgrade process. The CIE's independent review of the CBD Program highlights that often the biggest barriers to improved performance are not financial but relate to information asymmetries, split incentives and lack of knowledge (bounded rationality)[11]. Funding expert support from EECS certified professionals would be an effective way of addressing this barrier.

[10] NABERS, Annual Report 2018/19 Program Statistics, 2019
[11] The CIE, Independent Review of the Commercial Building Disclosure Program draft report, 2019

5.2. Commonwealth tax incentives

The Commonwealth could improve existing tax incentive frameworks to be more effective and to provide a strong signal towards improved energy performance and reduced emissions. Priority should be placed on:

- modernising the 10 per cent green building withholding tax regime by:
  - expanding the regime to all buildings held for rental purposes (regime is currently limited to offices, hotels, and shopping centres).
  - applying the rate to buildings that have been refurbished to achieve the necessary NABERS Energy and Green Star ratings (regime is currently limited to newly constructed buildings).
  - applying the test on an asset by asset basis (regime currently requires all of the managed investment trust (MIT)'s assets to satisfy the NABERS Energy and Green Star rating requirements).
- extend the instant asset write-off scheme to include energy efficiency upgrades of buildings up to $100,000. Currently the scheme is limited to investments of $30,000, too low for most large energy-using equipment in commercial buildings like chillers, air handling units, pumps, fans etc,
- introduce green depreciation, which would see the deferment of taxable income in early years in exchange for bringing forward investment in large upgrades that exceed the instant asset write-off threshold.

5.3. Commonwealth as an aggregator of demand for single-technology transformation

As outlined in Section 4, energy efficiency schemes in NSW, VIC, SA and ACT have successfully driven single-technology transformation for commercial and residential lighting and other equipment and appliance upgrades within commercial and residential buildings.

There is significant untapped potential for these kinds of projects in states that do not currently have similar schemes in place. We support programs to be established in Queensland, Western Australia, Tasmania and the Northern Territory, and suggest there is potential for the Commonwealth to act as an aggregator of demand for activities in states without established schemes.

Considerations include the need to maintain a harmonised approach to project methods and administration, possibly allowing certificates to be fungible between jurisdictions for the purpose of Commonwealth procurement. As the prices of certificates in NSW and VIC fluctuate with demand and supply in response to fixed energy savings targets, careful consideration would need to be given to any consequence of the Commonwealth seeking to procure additional abatement either on top of or alongside existing schemes.

5.4 Strengthen the role of CEFC and ARENA in delivering abatement through energy efficiency

As the energy system decentralises, businesses across the economy are playing a more proactive role in the energy system. However, there is also a steep learning curve for businesses that take a leadership position in energy innovation. Demonstrating and deploying smart energy management technologies in business contexts where they are uncommon or non-existent can have significant risk and cost.

Alongside broader carbon reduction efforts, there is a role for the Federal Government in driving this energy innovation agenda, which will bring down the cost of abatement in the medium and long term. Leadership and innovation in low-carbon buildings should be further catalysed through the support of best-practice products and services, exposing the benefits of energy efficient buildings, and communicating how they can be delivered.

Australia has a very well-developed set of research and innovation entities. An expanded remit and additional funding for ARENA – and on ongoing role for the Clean Energy Finance Corporation – will be crucial to unlock these opportunities over the next decade. Immediate innovation priorities include:

- **Demonstrating experience with 100% electric buildings:** utilising technologies such as electric heat pumps coupled with smart controls and building envelope upgrades to shift away from old equipment like gas boilers. This will help building owners deliver comfortable, healthy buildings for occupants while lowering running costs, grid load and emissions.
- **Delivering low-carbon residential homes at scale:** home builders are the frontline of low-carbon residential construction for new buildings and major renovations; whether attached, detached or multistorey apartments. Volume builders, who construct 40 per cent of new detached homes, have great potential to embed energy efficiency attributes into their standardised home packages and thereby transition the industry at scale. However, discounts for volume purchasing, together with lock-in to supply chains, reduce the incentive for innovation. ARENA is well placed to spearhead a 1,000-home pilot program that incentivises volume builders to deliver better performing homes and mobilise the broader market with resulting market trends.
- **Demand side flexibility**: literacy around – and experience with – demand response opportunities in the commercial building sector is low. Research, development, and demonstration projects focused on understanding the role of demand side flexibility in the property sector is warranted.
- **Integration of electric vehicles into the built environment**: there is an urgent need to explore the impact that EV proliferation will have on grid load and stability, particularly in concentrated commercial contexts such as CBDs where very significant load is likely to be added to networks as consumer preferences drive a shift to electric vehicles.
- **Dealing with embodied carbon**: the property sector is turning its attention to the challenges of sourcing low or zero carbon building products. An integrated innovation agenda working with property developers and local manufacturers could drive the innovation necessary to dramatically lower the embodied carbon in building products and create a major new export market for Australia.

The Commonwealth should commit to funding a reinvigorated ARENA to support product development, pilots and demonstration projects that drive transformation through the building sector; and expand the funding for the Clean Energy Finance Corporation.

6. Further abatement opportunities

6.1. Tackling the performance of homes

Australia's homes currently generate around 13 per cent of Australia's greenhouse gas emissions through their operation. As our population grows to an estimated 31 million people by 2030, as many as 197,000 homes a year will need to be constructed to meet population growth[12].

Already high – and rising – house prices, and the flow-on impacts on rental pricing, are exerting significant financial stress on households, particularly in the context of low real wage growth. Rising energy prices are adding to the burden. The average Australian family spends around $2,115 on household electricity and gas costs per year. This adds up to almost $20 billion across the whole economy[13].

Existing residential buildings are particularly challenging to drive abatement at scale, given highly fragmented ownership structures, and an absence of policies that allow for the measurement and disclosure of their energy and emissions performance.

6.1.1. We need a single, national rating scheme for the energy performance of homes

Low-energy homes can reduce living costs, empowering inhabitants to put money that would otherwise have been spent on energy bills towards essential expenses, and investment in additional energy efficiency improvements which further reduce living costs. [14] However, research confirms that consumers are unclear of their choices and the residential building supply chain is locked into structures that severely limit the support and growth of a market for more energy efficient homes.[15]

Working with state and territory governments, the Federal Government should develop a single, coherent national rating scheme to facilitate disclosure of performance in residential buildings, that includes:

- providing benchmarks for market comparison of best practice sustainability performance; and
- a best practice governance model based on NABERS that brings the Commonwealth, state and territory governments together to collectively manage benchmarks for new homes.

6.1.2. Support for retrofits tied to ratings for homes

A national rating scheme that measures the energy performance of homes – either in a voluntary or mandatory context – could be leveraged to incentivise and reward improvement of home energy ratings by home owners through a similar program to that outlined in Section 5.1.4.

Once we can measure the performance of our homes, the possibilities for other incentives tied to increased performance improve significantly.

The Commonwealth should work with state and territory governments, as well as the property and finance sectors, to accelerate the expansion of financing mechanisms incentivising energy efficient, low emissions homes and retrofits. Measures could involve funding the development of home finance products such as discounted mortgages which have recently taken off in New Zealand with the NZ branch of the ANZ launching their Healthy Home Loan package[16]. Other measures include equity loans and home improvement loans, or incentivising industry to develop innovative ways of reducing the cost of retrofitting housing stock.

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[12] ASBEC and CRC for Low Carbon Living, *Growing the market for sustainable homes: Industry roadmap*, 2019
[13] ASBEC and ClimateWorks Australia, *The Bottom Line - The household impacts of delaying improved energy requirements in the Building Code*, 2018
[14] ASBEC and ClimateWorks Australia, *The Bottom Line - The household impacts of delaying improved energy requirements in the Building Code*, 2018
[15] ASBEC and CRC for Low Carbon Living, *Growing the market for sustainable homes: Industry roadmap*, 2019
[16] https://www.anz.co.nz/personal/home-loans-mortgages/loan-types/healthy-homes/

6.2. State planning incentives

At a State level, there are planning incentives that have been shown to be effective when implemented. The following policies could be used across states and territories to increase the energy performance of buildings:

- Stamp duty concessions for buildings that invest in energy efficiency and clean energy upgrades.
- Green door approvals for energy upgrades to existing building stock.
- Floorspace bonuses for buildings with higher Green Star or NABERS ratings.
- Height bonuses for buildings with higher Green Star or NABERS ratings.

About our organisations

The Property Council of Australia

The Property Council is the peak body for owners and investors in Australia's $670 billion property investment industry. Our members have a long-term stake in what is Australia's biggest industry. The property sector represents one ninth of Australia's GDP (the largest of any sector) and employs 1.1 million Australians (more than mining and manufacturing combined).

Australian Sustainable Built Environment Council

The Australian Sustainable Built Environment Council (ASBEC) is a body of peak organisations committed to a sustainable built environment in Australia. ASBEC's membership consists of industry and professional associations, non-government organisations and government observers who are involved in the planning, design, delivery and operation of our built environment.

Green Building Council of Australia

Established in 2002, the Green Building Council of Australia is the nation's authority on sustainable buildings, communities and cities. Our vision is to create healthy, resilient and positive places for people. Our purpose is to lead the sustainable transformation of Australia's built environment. To do this, we rate the sustainability of buildings and communities, educate industry and government practitioners and decision-makers, and advocate policies and programs that support our vision and purpose.

Energy Efficiency Council of Australia

The Energy Efficiency Council is Australia's peak body for energy efficiency, energy management and demand response. The Council is a not-for-profit membership association that exists to make sensible, cost effective energy efficiency measures standard practice across the Australian economy. We work on behalf of our members to promote stable government policy, provide clear information to energy users and drive the quality of energy efficiency products and services.