

# Australia's Buildings Must Be Built for a Zero Carbon Future

**Energy standards in Australia's National Construction Code must be urgently upgraded if new buildings are to be fit for a zero carbon future, according to a new report released earlier this year.**

*Built to Perform: An Industry Led Pathway to a Zero Carbon Ready Building Code*, prepared by the Australian Sustainable Built Environment Council (ASBEC) and ClimateWorks Australia, shows setting stronger energy standards for new buildings in the Code could, between now and 2050, reduce energy bills by up to \$27 billion, cut energy network costs by up to \$7 billion and deliver at least 78 million tonnes of cumulative emissions savings.

According to the Report, the National Construction Code is a ready-made policy instrument to influence the operational energy use of new buildings and major renovations. The Code regulates the building 'envelope' and fixed equipment, including heating and cooling equipment, lighting and hot water.

Over time, improvements to the Code can have a significant impact since more than half the buildings expected to be standing in 2050 will be built after the next update of the Code in 2019. Increased minimum energy requirements in the Code are essential to address market failures in the delivery of higher performance buildings that have seen a widening gap between industry leaders and minimum requirements.

As a signatory to the Paris Climate Change Agreement, Australia has committed to reducing economy-wide greenhouse gas (GHG) emissions by 26% to 28% below 2005 levels by 2030. ASBEC's *Low Carbon, High Performance* roadmap found that actions to reduce emissions from the building sector (including new and existing buildings), could deliver 28% of Australia's 2030 emissions reduction target.

According to Suzanne Toumbourou (Executive Director, ASBEC), "Australia needs to transition to a net zero emissions economy by 2050 to meet our commitment to the Paris Climate Agreement. But new analysis by the American Council for an Energy Efficient Economy shows Australia scores the lowest in energy efficiency amongst all developing countries. Although market-leading Australian companies are demonstrating world-class commitment to a sustainable built environment, the market alone cannot fix this problem."

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"We welcome proposed improvements to the 2019 National Construction Code to advance energy performance in commercial buildings and adjust the requirements for residential buildings. "However, to meet the full potential of the Code, we need to shift away from ad-hoc, periodic updates. Governments must agree to a longer-term plan with targets and a clear, regulated and transparent process for Code updates out to 2030, starting with a step-change in residential standards in 2022," said Toumbourou.

According to Professor Tony Arnel (Chair of ASBEC's Building Code Task Group and President of the Energy Efficiency Council), "If developers and manufacturers know how the Code requirements will evolve over the next 15 years, this will provide the regulatory certainty industry needs to plan and invest in new technologies, delivering higher building energy performance at lower cost."

"Even this conservative analysis shows that, by 2030, improvement in Code energy requirements could reduce energy consumption of new buildings by up to 56%. This could be achieved through simple, cost-effective energy efficiency measures such as improved air tightness, double glazed windows, increased insulation, outdoor shading, and more efficient air conditioners, hot water systems and lighting," said ClimateWorks Project Manager Michael Li. "With the costs of solar PV and battery storage rapidly reducing, adding on-site renewable energy into the Code could deliver significant additional gains."



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Although there are upfront costs associated with these improvements, these are small (less than 4% for detached homes) relative to overall construction costs and land prices.

"While the Code is important, it can only take us part way to net zero," said Toumbourou. "Improving compliance and enforcement with Code requirements is paramount, as well as improving appliance energy standards, retrofitting existing buildings, providing building owners and occupants with better information, and driving faster decarbonisation of the electricity grid. The Code should be seen as one part of an integrated strategy to deliver a zero carbon building sector by 2050."

"Delaying action will mean that many of these opportunities are lost," said Mr Li. "A three-year delay in further upgrades to building energy performance standards could lead to a further \$2.6 billion in wasted energy expenditure and lock in an additional 9 million tonnes of emissions by 2030, increasing to 22 million tonnes by 2050."

## About the Report

*Built to Perform: An Industry Led Pathway to a Zero Carbon Ready Building Code* presents the results of the Building Code Energy Performance Trajectory project, which quantifies the opportunities of establishing a clear, consistent and ambitious long-term plan for the energy requirements in the National Construction Code.

The Report outlines a set of energy performance targets for different building types across different climates, based on societal cost-benefit analysis of energy efficiency and on-site renewable energy opportunities. The goal of the analysis is to assess the contribution that the Code could make towards achieving GHG emissions reductions in line with overarching zero carbon targets.

The Report modelled eight different building types across four climate zones. It investigated the costs and benefits to society of simple energy efficiency and on-site renewable energy opportunities. The analysis assessed upfront costs associated with improvements, as well as benefits from reduced energy bills, downsizing of heating, cooling and ventilation equipment, and reduced network costs.

The report was produced with the generous support of the Cooperative Research Centre for Low Carbon Living, the RACV and dozens of building industry and government partners. The project was delivered in partnership with CSIRO, Energy Action, Strategy. Policy. Research., and the Sustainable Buildings Research Centre at the University of Wollongong (UOW).

For further information, visit the ASBEC website: [www.asbec.asn.au](http://www.asbec.asn.au)

# BUILT TO PERFORM: RECOMMENDATIONS

## COMMIT

### to a Zero Carbon Ready Building Code

The COAG Energy Council and Building Ministers Forum should commit to deliver a 'Zero Carbon Ready' Code. This would mean setting energy efficiency targets in the Code at least as stringent as the conservative energy efficiency targets in *Built To Perform* (excluding renewable energy potential), introducing net energy targets (including renewable energy potential), and establishing a clear set of rules and processes for implementation and adjustment of the targets in the Code.

## DELIVER

### a Step Change in 2022

The COAG Energy Council and Building Ministers Forum should jointly agree to task the Australian Building Codes Board (ABCB) to deliver a step change in the energy requirements in the 2022 Code, with a strong focus on residential standards and a further incremental increase in non-residential standards.

## EXPAND

### the Scope of the Code and Progress Complementary Measures

The COAG Energy Council and Building Ministers Forum should jointly establish work programs that investigate expanding the scope of the Code to prepare for future sustainability challenges and opportunities, including health, peak demand, design for maintainability, provision for electric vehicles and embodied carbon. The Building Ministers Forum and COAG Energy Council should also progress measures to complement the Code and drive towards zero carbon new and existing buildings.