SUMMARY / WESTERN AUSTRALIA

Built to Perform

An industry led pathway to a zero carbon ready building code

Improved energy performance of buildings presents a win-win-win opportunity, reducing stress on the electricity network, offering bill savings, supporting a least-cost pathway to a zero carbon built environment, and improving health and resilience outcomes for households and businesses.

The National Construction Code is a ready-made policy instrument to influence the operational energy use of new buildings and major renovations. *Built to Perform* investigates opportunities to make the Code 'Zero Carbon Ready'.

A Zero Carbon Ready Code would maximise the potential for new construction to cost-effectively contribute to achieving zero carbon buildings, and prepare buildings built today for the 2050 zero carbon environment in which they will ultimately be operating.

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 analysis shows that by 2030, improvements in Code energy efficiency requirements could deliver between 19 and 56 per cent of the energy savings required to achieve net zero energy in new buildings, with further savings possible through on-site renewables (see graphic overleaf).

Achieving the targets could deliver 1.7 million tonnes of cumulative emissions reductions across Western Australia to 2030, and 9.7 million tonnes to 2050. It could also cut residential energy bills by $2.7 billion across Western Australia, and non-residential energy bills by $1.2 billion, between now and 2050, while reducing electricity network investments across Australia by approximately $12.6 billion between now and 2050. These benefits more than offset the upfront costs, resulting in a net benefit to society. In order to achieve zero carbon buildings, residual energy use would need to be addressed through a combination of on-site renewable energy, improved efficiency of plug-in appliances and decarbonisation of centralised grid electricity supply.

Urgent action is needed to unlock these opportunities. *Built to Perform* recommends that the COAG Energy Council and Building Ministers Forum jointly take the following actions:

RECOMMENDATION 1:
Commit to a Zero Carbon Ready Building Code.

Commit to delivering a 'Zero Carbon Ready' Code by: Setting energy efficiency targets in the Code at least as stringent as the conservative energy efficiency targets in this report (excluding renewable energy potential); introducing net energy targets (including renewable energy potential); and establishing clear rules and processes for implementation and adjustment of the targets in the Code.

RECOMMENDATION 2:
Deliver a step change in 2022.

Task the Australian Building Codes Board (ABCB) to deliver a step change in energy requirements in the 2022 Code, with a strong focus on residential standards and a further incremental increase in non-residential standards.

RECOMMENDATION 3:
Expand the scope of the Code and progress complementary measures.

Establish work programs that (i) progress complementary measures to complement the Code and address existing buildings and (ii) investigate expanding the scope of the Code to prepare for future sustainability challenges and opportunities, including extreme temperature resilience, peak demand, design for maintainability, provision for electric vehicles and embodied carbon.

BUILDING CODE ENERGY PERFORMANCE TRAJECTORY PROJECT

ClimateWorks AUSTRALIA
Founding partners Monash University and The Myer Foundation

asbec AUSTRALIAN SUSTAINABLE BUILT ENVIRONMENT COUNCIL

Full report is available at www.asbec.asn.au/publications **or** www.climateworksaustralia.org/built-environment

The Building Code can significantly reduce energy consumption and emissions from new construction*

Nationwide energy efficiency opportunities for new buildings

By 2030, stronger energy efficiency requirements for new building 'envelope' (including walls, roof, floors, and windows) and major energy-using equipment (including lights, hot water heaters and air conditioners) could reduce average energy consumption by 19-56%.

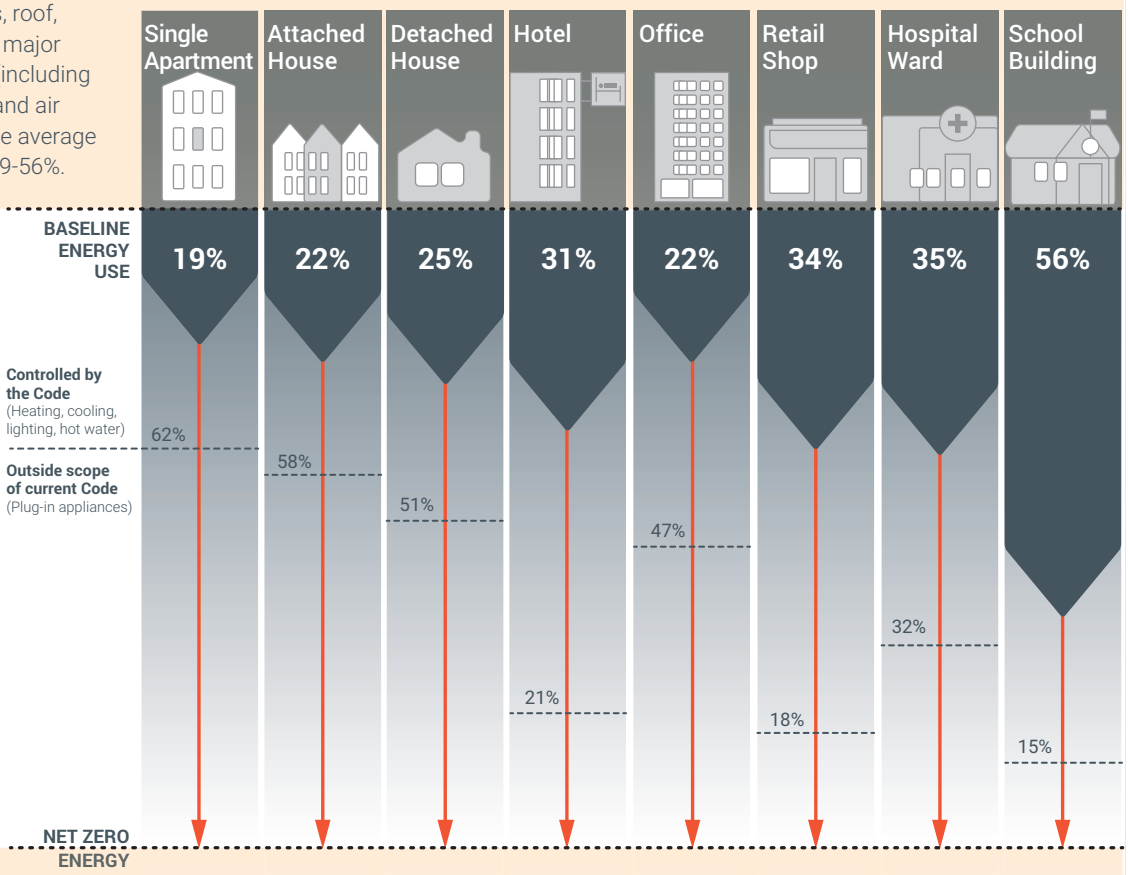
How national changes to the Building Code could help Australian households:

$300 - $1,300
LOWER ANNUAL HOUSEHOLD ENERGY BILLS IN 2030

What this could mean for Western Australia:

$4 BILLION
TOTAL REDUCED ENERGY BILLS BY 2050

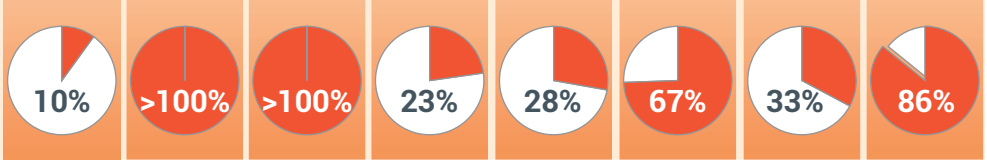
10 MILLION
TONNES LOWER GREENHOUSE GAS EMISSIONS BY 2050



On-site renewables
(solar)

After improving energy efficiency, remaining energy and emissions (see the red arrow above ↓) can be reduced through a combination of best practice building design, improved plug-in appliance efficiency, on-site renewable energy and decarbonised grid electricity supply.

For each building type shown above, on-site renewable energy could close this gap by:#



* Data presented in this graphic is an average for each building archetype across the modelled climate zones (2, 5, 6 and 7) for new buildings in 2030, unless otherwise specified.

^ The apartment results refer to energy efficiency opportunities for apartment dwellings, excluding central services and common areas.

On-site renewables analysis was based on cost-benefit analysis of installation of solar PV systems on available roof space (discounted to account for potential shading, angling and maintenance access) for each archetype, assuming typical consumption profiles.