



**MASTER BUILDERS**  
AUSTRALIA

## Master Builders Australia Submission to the National Energy Performance Strategy Consultation Paper

### Introduction

#### **About Master Builders**

Master Builders Australia (Master Builders) is the nation's peak building and construction industry association which was federated on a national basis in 1890. Master Builders' members are the Master Builder state and territory associations. Over 130 years, the movement has grown to over 32,000 businesses nationwide, including the top 100 construction companies. Master Builders is the only industry association that represents all three sectors, namely residential, commercial and engineering/ civil construction.

#### **Building and Construction Businesses**

The most up-to-date ABS data indicate that as at 30 June 2022, there was a total of 445,081 construction businesses in operation across Australia. This is more than every other sector of the economy. The most striking feature of our industry's construction businesses is their size: of the total, the overwhelming majority (98.7 per cent) are small in size with less than 20 employees. Well over one half of our construction businesses (58.0 per cent) have no employees at all, typically operating as sole traders or partnerships. The small size of construction businesses is reflected in their pattern of turnover. The majority (57.2 per cent) turn over less than \$200,000 per year with about one in five (20.5 per cent) earning less than \$50,000 annually. Just 1.4 per cent of building and construction businesses have annual revenues in excess of \$10 million.

#### **Building and Construction Output**

The structure of construction activity means that the support offered by it to other parts of the economy is strong. This is because there is a high domestic content to our industry's inputs including building materials, labour and professional services. As a result, it is estimated that for every \$1 million worth of residential building activity the entire economy is better off to the tune of \$3 million. Similarly, \$1 million worth of building and construction activity is estimated to support a total of 9 full-time jobs across Australia's economy – including three jobs in other sectors outside of building and construction

#### **Building and Construction Outlook**

The latest Master Builders Australia forecasts assess the prospects for activity up to 2026-27. The current environment is a difficult one for building and construction activity with a range of challenges on both the supply and demand sides. Despite this, the total volume of construction activity grew modestly (+1.5 per cent) to \$215.1 billion during 2021-22. However, we are anticipating that activity will slip back by 1.8 per cent during 2022-23 largely because of the weakness in residential building. Beyond that, activity is projected to recover gently before picking up from the middle of the decade onwards. By 2026-27, the volume of work is forecast to reach \$232.0 billion.

#### **Challenges in future building**

For our industry, the greatest long-term challenges relate to providing for Australia's future building and infrastructure needs, including the supply of housing. At present, this manifests itself in the form of shortages of key trades workers in our industry as well as bottlenecks in the market for key building materials and products whilst substantial industry transformation is underway for a net zero economy, with an ageing population.

## Summary of Master Builders response to the Consultation Paper

The Consultation Paper outlines that significant investment is underway to address supply-side challenges through Powering Australia and Re-wiring the Nation. This process seeks feedback on initiatives in regard to the demand side and options to improve building performance and boost materials supply and workforce capability.

In its response Master Builders identifies areas for further improvement in regard to existing reforms and identifies broader options for further consultation and development that could sit under a longer term 2050 plan to further enhance energy performance in the built environment and boost the capability of the sector supply chain and workforce. **A summary of Master Builders recommendations is in Attachment A.**

More detailed responses in regard to the five themes identified in the Consultation Paper in regard to governance, residential, commercial, industry, supply chain and workforce issues follows.

### 2.1 Governance

#### 2.1.1 Energy Governance

The Consultation paper has identified what's underway including:

- National Energy Transformation Partnership between levels of government.
- Energy and Climate Change Ministerial Council.
- Work to build on the Trajectory for Low Energy Buildings and Existing Buildings.
- Gap identification through CSIRO/AEMO/international best practice.

#### **How demand considerations can be better integrated, what are the priorities and what new/modified mechanisms would be better?**

The ongoing challenge in the development of policy reforms is ensuring reforms developed can be implemented in a practical and effective way. When this is done badly reforms can lead to costly outcomes for building/homeowners, the sector and government. Poor conversion of policy reforms into building regulations is contributing to an annual building defect bill in the order of \$2.5 billion per annum.<sup>1</sup>

Getting effective buy in from not just the policy making agencies leading work but also the agencies across department portfolios that have better interaction with industry on the outcomes of reform, as well as industry, is critical to the success of the transformation agenda. For Australia's buildings this must be done across each of the states and territories in a nationally consistent way.

In addition, there needs to be better alignment and coordination of actions from energy supply companies with broader government policy. All stakeholder industries need to be contributing. There is no gain for example in providing incentives and encouraging

<sup>1</sup> The CIE Report, Building Confidence Report: A Case for Intervention, July 2021

<https://www.abcb.gov.au/sites/default/files/resources/2022/Building-confidence-report-case-intervention.pdf>

installation of solar systems, if the response from suppliers is increased energy prices, supply charges or export fees. This undermines confidence in the energy transformation journey.

We are also seeing for example in Victoria, misalignment of energy and health policy amenities in regard to where energy efficiency policies are impacting people's health.

To enhance the National Energy Transformation Partnership, Master Builders along with other building industry stakeholders support the establishment of a new national building and construction energy performance body with a cross-section of stakeholders; that coordinate and builds cross portfolio expertise on energy demand and supply reforms for the building and construction sector.

This should include energy, building, infrastructure, health and housing portfolios, as well as industry stakeholders. An effective feedback and reporting mechanism will be a key part of the governance framework so good data, records and reporting is collected and disseminated to all stakeholders – and informs the ongoing evolution of the energy transformation agenda and performance outcomes in the built environment.

The public sector accounts for a large portion of activity in non-residential building. Of the non-residential building work which was approved during 2022, the public sector accounted for 33.7 per cent equivalent to \$20.5 billion worth of activity.

The public sector footprint is much higher in certain areas. For example, health building projects worth a total of \$7.21 billion were approved on behalf of the public sector during 2022. This was equivalent to 83.4 per cent of all health building work.

Other areas where the public sector was responsible for a large share of newly per cent approved projects during 2022 included transport buildings (70.2 per cent), education (67.4 per cent of the total) and entertainment/recreation buildings (54.3 per cent). In addition public sector-sponsored projects account for a major share of Australia's civil and engineering construction market.

During 2021-22, a total of \$98.46 billion worth of work was done across Australia. Of this, \$42.64 billion was financed by the public sector equivalent to just under one half of the total (43.3 per cent). In specific areas like roads, bridges, railways and utilities.

In addition to this, the Albanese Government has announced an ambitious plan for delivering 40,000 new social and affordable homes and 1 million homes over the next five years.

Governments should lead by example in achieving net zero outcomes in buildings and infrastructure which accounts for 33.7 per cent of construction activity. This will also enable government to get a clearer picture on the real cost of reform efforts both in terms of increased financial commitment and a decrease in what is delivered.

In this process governments should also ensure risk and cost transfer is effectively shared between government and industry in its procurement processes. This is necessary to enable a broader cross section of industry to be competitive in tender processes, adopt new approaches to building and construction and bring about cultural change in the sector.

### 2.1.2 Targets

The Consultation paper has identified:

- Australia is lagging on demand side action.

- EU has a 42 per cent target based on final energy consumption.
- Japan has a benchmark system for 70 per cent of industrial and commercial sectors with each sub sector (e.g. Cement/leased offices) having a specific target.

### **Are targets suitable for Australia? What are appropriate methodologies and how should measurement be progressed?**

Master Builders is tentative about applying further targets but is supportive of developing a sectoral strategic plan to establish a mix of options that could be consulted on and developed further.

Like other industry stakeholders, Master Builders would support an extension of the Trajectory for Low Energy Buildings to 2050 to establish more certainty on options for and the cost of change going forward. The National Energy Productivity Plan (NEPP) already has a 40% productivity target between 2015-2030. The performance of reforms implemented since 2015 should be measured against this target.

Built outcomes from NCC 2018 and NCC 2022 changes for commercial and residential buildings and industry led change needs to be measured against NEPP and any future targets. This needs to be reported back to stakeholders to ensure transparency and to track the effectiveness of reforms. This should help identify what is working well and where there are problems to inform future policy changes. Other industry stakeholders report that a 60% energy performance improvement for existing buildings has been delivered by industry leaders.

Programs that have been embraced and successfully adopted need to be promoted and should be leveraged for future reforms; and risks associated with NatHERS need to be mitigated to rebuild industry confidence in the energy transformation journey.

The government should progress its review of the Commercial Buildings Disclosure program. This program has played a key role in driving energy performance outcomes in commercial offices.

Improvements to the thermal fabric of new buildings has been the primary focus of energy efficiency reforms for the past few decades with only marginal, high cost gains remaining. The opportunity to manage energy demand in existing buildings and the construction materials that go into buildings is largely untapped

The focus of future work should be targeted at upgrading existing buildings, embodied carbon and product innovation outcomes, government funded infrastructure and energy disclosure. Any targets and performance standards developed from this process should be supported by incentives/grants to offset energy transformation costs.

## **2.2 Residential**

### **2.21 General**

The Consultation Papers has identified existing government policies that encourage energy performance for buildings and appliances/equipment as being:

- NCC 6 to 7 Star NatHERS rating,
- Greenhouse and Energy Minimum Standards (GEMS)
- Equipment Energy Efficiency (E3) program.
- Further work is underway on a draft National Framework for Disclosure of Residential Energy Efficiency.

## What are the key opportunities to improve energy performance of new and existing buildings or streamline existing policies?

Energy efficiency and performance efforts until now have focused mostly on new houses. With less than two per cent of building stock replaced each year, there is a need to focus efforts on housing built before any substantial energy efficiency measures were required. A 2020 ClimateWorks report identifies that 45 per cent of building stock built before 2015 is expected to still be in use by 2050. These statistics highlight the importance of retrofitting.

Future opportunities for improving energy performance in homes should be targeted at existing homes, which make up approximately 14 per cent of Australia's emissions. There is no clear plan for the transformation of existing homes. All industry stakeholders support establishing a plan. What this looks like needs to be explored further. This would benefit from development of tools that explain the steps to transformation that could be more widely promoted in the community through partnerships between industry and government.

Master Builders is participating in government led work on a National Framework for Disclosure of Residential Energy Efficiency – the broad objective of which is supported by the sector.

The Albanese Governments commitment to delivering 40,000 new social and affordable homes to 7 Stars or the state/territory equivalent should be closely monitored to assess the successes and challenges in delivering quality and affordability and reported back to all stakeholders. Information on whether or not investments are made in higher performing buildings should also be collected.

For existing NCC NatHERS 7 Star and whole of house changes, Master Builders has consistently advocated for a three year implementation transition to give the industry a reasonable timeframe to adjust and for further work on moisture risk to be completed. Some states have applied a longer transition timeframe, despite the national approach recommending a 12 month transition. The reasons for a longer period are:

- The impact of the pandemic profitless boom and challenging environment for adjustment with extreme economic pressures impacting business viability.
- The costs added to new buildings conflict with the ambition of governments and the community to deliver more affordable housing.
- Giving industry reasonable timeframes to transition will underpin the success in implementing these changes and help build sector confidence in the energy transformation agenda.

The cost of NCC 2022 changes like future energy transformation reforms should be offset by government incentives, concessions, grants. Free access to Australian Standards and free content for training being made available to industry is a first step towards offsetting some of the costs. States like Victoria are funding the cost of industry delivered training, this approach could be applied across the country.

### Risks associated with NCC 2022

With the implementation of the 7 Star standard through NCC 2022, only small gains can be made to further reduce the energy use of new housing by focusing on the NatHERS rating alone.

Research and modelling in the field of hygrothermics show that a move to 7 Star will significantly increase the risk of condensation and mould in Australian Buildings (Nath et al, 2019, has a singular focus on building regulations that created unhealthy homes). The work involving Dr Mark Dewsbury (University of Tasmania) and other work by Clarke and Mole (2022, an Australian-based study on airtightness and moisture management) uses WUFI modelling to predict mould growth. We are already receiving reports from members of condensation problems in 6 Star houses built to the Code. Further research will need to be conducted into indoor air quality and condensation management.

The Australian Building Codes Board (ABCB) is leading work reviewing and clarifying risk around the shift to 7 Star in the 2022 NCC that is progressing well and supporting building industry confidence in the reform process but this should be completed before the reforms are implemented.

### Improvements to NCC 2022

While the star rating is about the energy use required to heat and cool the house to keep internal parameters within set temperatures, it also indicates temperature fluctuations within those houses. It is generally accepted that cold temperatures harm human health. It is also now recognised that heat spells also affect human health and consequently increase the stress on, and cost of, public health systems (Sustainability Victoria 2020). [A carefully structured and delivered program regarding temperature fluctuations to support the NCC 2022 changes would provide a number of benefits to public health and the environment.](#)

Increasing the required NatHERS rating in the 2022 NCC also increases the importance of the allotment orientation and the siting of a building. It is vital that when subdivisions are developed, building sites must be laid out so that they all have good solar access. These two factors become critical, so houses can be constructed to ensure that there is solar access to the living areas. Preliminary discussions with NatHERS assessors indicate that the ABCB modelling has not considered overshadowing by neighbouring properties, which has a significant impact on the Star Rating and design. It is encouraging to see that this was noted by the Victorian Department of Environment, Land, Water and Planning (DELWP), in the recently released, Environmentally Sustainable Development of Buildings and Subdivisions - A roadmap for Victoria's planning system. However, a better lot layout has to occur before regulations change.

[Land use planning requirements for developments should be designed to contribute to and be assessed for energy efficiency outcomes.](#) This could be done through block rating or other tools that rate the orientation or position of your home in relation to the path of the sun and the prevailing wind to maximise the comfort of a home and reduce heating and cooling needs.

[Further benefits could be achieved by broadening the NCC assessment pathway. As built standards, air tightness, PV systems and whole-of-home ratings can be incorporated into the overall NatHERS rating or objectives and provide a reward for addressing these.](#) In this manner, the same energy reduction outcomes can be achieved without risking health consequences to building occupants, unduly restricting design or adding unnecessary costs. If the objective is net zero energy homes, this can easily be achieved at the 7 Star standard by adding a PV system.

## Consumer education and information

Consumers value the benefit of more resilient, healthy and comfortable homes but lack the technical knowledge about what's available and how to live in an energy efficient home. This is compounded by the fact that home ownership is diverse. This relates to both new and existing homes. Better coordination and promotion of information and education resources for consumers should be a focus of governments. [Better partnerships with industry should be established to assist promotion of education and information resources about how to achieve an energy efficient homes.](#)

### What are the key financial and non-financial barriers to uptake and how can they be overcome?

An overwhelming majority of building and construction business are small businesses. While change is more easily adopted with Tier One builders that are larger, more sophisticated and capable of capitalising on energy efficiency savings, it is more complicated for medium and small businesses. [Targeted investment and information campaigns are needed to encourage broader adoption. This could be in the form of national and or state-based incentives and programs to support transformation efforts. Some examples of how this could be done in the Victorian context through its Residential Energy Efficiency Scorecard are provided.](#)

#### Victorian Energy Efficiency Scorecard

The Victorian Government has produced a Residential Efficiency Scorecard, and independent accredited assessors could be used to identify approved works. The cost of the scorecard assessment could be claimed back as part of the grant if works go ahead. Works could include insulation upgrades, double glazing, exhaust fan dampers/upgrades, draft sealing work, old appliance replacement, PV, solar hot water and heat pumps as prioritised by the Residential Efficiency Scorecard assessment.

Each Residential Efficiency Scorecard assessment will also include a risk assessment to ensure risks are flagged and managed prior to work being carried out. For example, an electrician would need to have carried out an inspection check for electrical hazards and, at the same time provide covers to light fixtures and fans. Likewise, a plumber may need to confirm that any services with gas as a fuel source are in a suitable condition that will not create a risk. Approved insulation installers would need to have completed the Insulation Council of Australia and New Zealand's (ICANZ) training program. A set percentage of work would undergo independent checks to ensure work has been undertaken to the required levels.

Each upgrade would be entered into a database. This would improve overall housing stock and Australian housing data systems over time. An evaluation would run alongside the package to provide real-time feedback on the program and allow for fine-tuning to optimize performance. This would link with the research, which shows that restarting the economy through a sustainability focus will deliver more jobs now and in the future. Any program should leverage research opportunities to build an evidence base to strengthen the retrofit experience, process and industry in Australia.

This scheme would be open to owner-occupiers, landlords and tenants and offer dollar-for-dollar grants or tax rebates for approved energy efficiency upgrades up to \$20K for existing housing. An instant tax write-off scheme for landlords, in addition to rebates/matching, would be attractive and require a simple tenant signature of consent for works to proceed.

While, previous programs have been problematic and open to roting, steps taken since then in similar programs and the use of approved installers and licensed trades would limit these concerns. A research program evaluating different elements of the package and how it is undertaken would help to provide feedback for the program and evaluate outcomes.

Any program will also need to consider the impact that improved insulation levels and air tightness may have on increased levels of condensation and the resultant requirement for moisture management on previous construction systems.

This program would likely be sufficient to lift the average performance of existing housing built prior to the introduction of the 5 and 6-Star requirements from around 1.5 Stars to between 5-6 Stars and to lift housing built since the mid-2000s to over 7 Stars. It focusing on the existing housing stock, would open the opportunity for lower living costs and improve thermal comfort, health and wellbeing for more Australians, particularly those in vulnerable households.

Evaluation will show how this investment provides local jobs for Australian workers, while benefiting Australian households both immediately and into the future. It will also calculate energy and carbon savings from the scheme, contributing to Australia's emissions targets and productivity.

These works offer opportunities to a number of different trades and also to manufacturing, retail and transport. It would also offer an opportunity for the retrofit industry to move from a more siloed approach of delivering one or two retrofits to delivering a more comprehensive list of retrofits.

### **How can demand management and electrification support lowering energy bills and emissions?**

Demand management reduces energy bills in the first instance by reducing energy use in buildings.

Demand management programs that reduce peak demand and spread energy use more consistently across the day, reduce the need for infrastructure that is only used for short periods of time, increasing the expense of power produced as capital costs need to be recouped over a shorter time period.

The new generation of electric household appliances have become smarter, more efficient and now outperform their gas counterparts in terms of energy efficiency and running costs. Coupling these with PV systems that talk to each other allows them to be operated where possible at times of excess onsite renewable power production. This decreases energy demand on the networks during peak time and reduces problems caused by excess feed in.



Programs that encourage a switch to smart electric appliances that are able to communicate with the PV system will play a significant role in demand management.

### 2.2.2 Low-income households

#### What are the opportunities, financial barriers, actions and delivery mechanisms?

A recent study by RMIT University (Willand *et al.* 2020) shows that low-income households and renters have not taken up the benefits of programs such as the Residential Efficiency Scorecard in the past. Therefore, programs will also need to target these areas. This can reduce energy stress and inequality, have positive health outcomes, and, in turn, reduce public health costs.

The Albanese Government's commitment to delivering 40,000 new social and affordable homes to 7 Stars or the state/territory equivalent is the start of the process of improvement for new dwellings. The design, cost of construction and performance of completed buildings should be monitored and evaluated to assess the successes and challenges in delivering quality and affordability.

The National Housing Supply and Affordability Council and future National Affordable Housing Agreements should play a key role in overseeing monitoring and evaluation work that's aligned with provisions in future housing agreements for delivery of more energy efficient homes. The lessons learnt from this can be shared with the broader community and influence change in the private rental market.

In addition, governments could commit to achieving 5 star NatHERS by 2030 in the 319,800 existing state/territory public and community housing dwellings (including indigenous housing).

The ACOSS National Low Income Energy Productivity Program (NLEPP) provides a guide on options that could be considered further by governments and other stakeholders. The NLEPP calls for direct investment by Federal and State governments in five areas:

1. Public housing - Federal and State/territory governments provide matching funds to invest in up to \$5,000 per dwelling on energy efficiency upgrades and/or solar PV installations for the roughly 31,853 State owned and managed public and Indigenous Housing dwellings.
2. Community Housing - Federal and State/territory governments provide matching funds to invest up to \$10,000 (with a matching contribution) per dwelling on energy efficiency upgrades and solar PV installations for the roughly 117,865 community and Indigenous Community Housing dwellings.
3. Low-income home owners - The Federal Government provide funds to be managed by third party to implement energy efficiency audits, upgrades and/or solar PV installations for up to \$5,000 per dwelling, for the roughly 1.1 million owner-occupier on the lowest 20% of incomes.
4. Inefficient rental properties – The Federal Government provide funds to be managed by third party to provide free energy audits on private rental properties built before 5star ratings were introduced and provide up to \$5,000 for energy efficiency and/or solar installation for qualifying poor performing rental properties targeted at low-income renters.
5. Low-income appliance replacement offer – Federal and State Government provide matching funds to provide subsidies for low income households to replace inefficient appliances.

The energy productivity measures would include, reverse cycle air conditioners for heating and cooling, more efficient hot water (heat pumps), draught sealing, ceiling fans, efficient thermal building envelope, lighting, shade structures, and roof top solar.

### 2.23 Renters

The Consultation Paper has identified that around 30.6 per cent of Australia's housing stock is rented. Owners tend to be in a better position to make improvements, but do not accrue the energy savings – known as the 'split-incentive'.

#### What are the opportunities to improve performance of rental buildings?

Other industry stakeholders support the development of a National Framework for Minimum Energy Efficiency rental requirements. The ACT Government is the only jurisdiction that requires rental properties to meet minimum standards for ceiling insulation. [All levels of government consider developing a nationally consistent approach for Minimum Energy Efficiency rental requirements subject to further consultation with industry stakeholders.](#)

[Consider tax incentives to offset the cost of energy performance upgrades for private rental properties. For example, allowing improvements to the building for energy efficiency upgrades to be considered an expense that can be claimed as a tax deduction for negative gearing purposes.](#)

[At the state level, existing programs can be improved.](#) For example, Victoria's Residential Efficiency Scorecard, could provide a solution, since the scheme would be open to owner-occupiers, landlords and tenants. The proposal is for dollar-for-dollar grants or tax rebates for approved energy efficiency upgrades up to \$20,000 for existing housing. [An instant tax write-off scheme for landlords in addition to rebates/matching would be attractive and require a simple tenant signature of consent for works to proceed.](#)

[The Albanese Government's commitment to delivering 40,000 new social and affordable homes to 7 Stars or the state/territory equivalent is the start of the process of improvement for new dwellings.](#) The design, cost of construction and performance of completed buildings should be monitored and evaluated to assess the successes and challenges in delivering quality and affordability.

### 2.2.4 Apartments

The Consultation Papers has identified that approximately 16 per cent of Australia's housing stock are apartments or flats.

#### How can government support better energy performance?

Similar to those outlined for renters.

### 2.3 Commercial

The Consultation Paper has identified that commercial and service activities in Australia account for 22 per cent of overall electricity use and 11 per cent of greenhouse gas emissions.

Businesses often require substantial investments in energy management and monitoring systems; feasibility studies and energy audits to identify potential saving opportunities. This can be financially challenging for small business, SMEs, and energy intensive industries.

The successful Commercial Building Disclosure Program (CBD) since 2011 that applies to the premium and mid-tier market for buildings of 1000 m<sup>2</sup> has delivered:

- an average reduction of intensity of buildings of 37 per cent
- saved \$1 billion in energy bills
- 7.1Mt CO<sub>2</sub> emissions
- \$168 million in improved occupant productivity

The National Australian Built Environment Scheme (NABERS) applies to office spaces, (most leased spaces by government) warehouses, cold stores and aged care facilities. 23 per cent of office buildings are not rated because they do not get sold or leased or are strata buildings.

### **What are opportunities, effective private interventions, barriers to investment and how can government support?**

Recent Australian Sustainable Built Environment Council (ASBEC) research has identified 100 per cent electrification is the lowest cost option to decarbonise the built environment and therefore the case for phasing out gas.

The ASBEC report found that within the commercial sector, the predominant gas use is in space heating with a small proportion to domestic hot water.

ASBEC has recommended the emissions reduction fund should be renewed to deliver significant, low cost emissions reductions that engages the built environment and commercial building methods. The current fund appears not to support commercial building outcomes.

The CBD program and NABERS are successful national programs that could be built on. Opportunities for expansion should be considered and involve further consultation with stakeholders.

Some industry stakeholders have identified the following options for consideration:

- As part of an extended Trajectory for Low Energy Buildings consider a schedule of cost effective upgrades to the National Construction Code in regard to thermal performance and electrification.
- Federal Government provides long term funding commitments to support expansion of NABERS to other building types (apartments, hotels, data centres, and strata titled buildings), as well as a pathway to mandatory disclosure.
- Disclosure is one of the most effective mechanism available to lift performance of building stock. Consider and consult on options for expanding The CBD program to new commercial building sectors.
- Establish a plan for existing buildings to transition to 100 per cent electrification. There are significant costs involved with an electrification transition that would need to be supported by incentives from government to adopt least cost approaches. Government could lead the transition in government assets (community/public housing, commercial offices).
- Consider developing a standards regime for existing buildings, with the National Construction Code now only relevant to new buildings and those undergoing a

significant renovation. Development of a minimum standards framework for existing buildings could apply to all buildings (homes, rental properties, commercial, public infrastructure/assets).

The barriers to investment relate to split-incentives, knowledge gaps, lack of incentives to support transition, lack of upfront capital to cover cost of step change from minimum to more premium standards, supply chain limitations and cost of materials, policy and regulator uncertainty.

Master Builders supports further consultation on digital transformation options raised by other industry stakeholders, including:

- Support development of a process for better coordination of data flow from new electric systems to more accurately measure emissions reduction outcomes. For example synchronising data from heat pumps, appliances and electric vehicle usage.
- Federal government coordinate and lead work on a strategy to develop the capacity of commercial buildings to prioritise energy load shifting on the grid. A grid efficient building (GEB) is capable of providing energy efficient building services and dynamic grid services through connected smart control of multiple flexible building loads and distribution of energy resources.
- Promote industry best practice in digitisation.

## 2.4 Industry

The Consultation Paper has identified that mining, manufacturing and construction account for 43 per cent of Australia's energy consumption.

The government provides support through existing safeguard mechanisms: Industrial Energy Transformation Studies program, the cross government E3 program, Clean Energy Finance Corporation funding.

New programs for further support include: Powering the Regions Fund and National Reconstruction Fund (focus: Agriculture, transport, renewable and low emission technology).

### **What are interventions, barriers, addition to existing measures, electrification/ demand management support?**

The capacity of the electricity grid to transform and support the transition to electric and manage demand for higher loads in the future is a significant barrier. This requires substantial government investment in the grid that needs to be done first to give industry and the broader community the confidence to transition to electric.

## 2.5 Supply chain and workforce

The Consultation Paper notes that Energy Ministers have committed to assessing supply chain needs and included the clean energy supply chain as a priority theme under the National Energy Transformation Partnership.

The Australian Government has committed \$95.6 million over nine years from 2022-23 for 10,000 new energy apprentices to build the clean energy workforce. \$9.6 million has been set aside over four years from 2022-23 for a New Energy Skills Program. Jobs and Skills will also develop a Clean Energy Capacity Study providing evidence and insights to support Australia's clean energy workforce sector.

## What support is needed for manufacturing and other supply focused businesses?

A targeted program for the building and construction sector is needed that develops a plan for manufacturing and distribution, transformation and capability, as well as workforce planning and development. The plan must extend to reducing the embodied energy of manufactured products used in construction.

### Supply Chain:

The National Reconstruction Fund could be leveraged to do this to assist the energy transition and expand innovation and development in Australia's onshore manufacturing and distribution capacity. Key building materials impacted include timber, steel and modern manufacturing output. Most appliances are imported and therefore subject to supply and back up maintenance issues. This can lead to premature discarding of appliances because of the inability or high cost to service.

### Pre-fab and modular construction:

As building processes become more complex, the risk associated with, and cost of building becomes greater. The recent pandemic crisis and subsequent economic decline has exacerbated the challenges of managing risk and cost in construction. Prefabricated and modular construction is one way to ease cost pressures and risks. This method of construction is growing in the international market and has the potential to grow in Australia and assist to create new jobs while making energy efficiency gains.

A recent report funded by the Advanced Manufacturing Growth Centre identified benefits from this approach to building includes reduced onsite construction time, increased productivity, greater cost control, improved environmental impact and quality control with more benefits to the end user (affordability, reliability and an effective way of providing housing after disasters). However, the report also identified that the planning and regulatory environment is hindering growth of the prefab market.<sup>2</sup>

Undertake further research on the benefits and advantages that prefab and modular construction can provide with a focus on improved environmental impact and quality control.

## What's need in the finance sector?

More clarity and focus is needed on future manufacturing investment, including what the broader national and regional impacts will be to accessing finance.

Master Builders has examples of home lenders refusing to properly finance a home because they are not able to cost energy efficiency improvements such as better windows or construction methods associated with passive house. If the Government introduces more processes to monitor impact investment in a new sustainable finance architecture, this will become a bigger issue if the materials side of construction is unable to adequately respond to change.

<sup>2</sup> Swinburne University et. Al, Regulatory Barriers associated with prefabricated modular construction, October 2022, P.6, [regulatory-barriers-with-modular-and-prefabricated-construction-FINAL-REPORT \(1\).pdf](#)

Government should put more focus on mandatory requirements targeting the embodied energy that goes into building. One action government can require is more robust product assurance requirements in the National Construction Code.

The governments' work on the Building Confidence Report<sup>3</sup> has already produced the National Building Products Assurance Framework which included a recommendation for regulation to require that manufacturers and suppliers of building products provide minimum and standardised building product information. Providing this information can be extended to include information on the energy 'cost' of a product, allowing designers, builders and building owners to make informed choices to minimise the embodied energy in buildings they build or retrofit. State governments, through the Building Minister Meeting, are currently looking at how the National Building Products Assurance Framework can be best implemented.

### Workforce:

The construction sector is the subject of substantial regulatory change that is changing building and construction methods with impacts on the future of work in construction. These changes are shifting the dial towards more of a building science and physics approach with greater dependence on expert advice and digital solutions.

At the same time, the pandemic crisis, natural disasters and subsequent pressures on the economy are adding to the risk and cost of construction, whilst governments and communities are seeking cheaper buildings.

The capability of the sector to respond to a more complex operating environment needs to be supported by forward looking, quality information and education tools.

An overarching plan for future workforce needs that supports development of training programs that are flexible, up to date and relevant is needed for the sector. The Construction and Property Industry Cluster should develop this work as a matter of urgency once the entity is established and operational in 2023.

The built environment continues its journey on a trajectory of change over the coming decades as new measures are designed to enhance the resilience and performance of buildings and to transition to renewable energy. As the climate changes, buildings and infrastructure need to be more tolerant to weather extremes.

The short- and long-term responses on the journey to net zero in the built environment will involve:

- new methods of construction to improve thermal building performance
- improvements in appliance and services performance (transition to all electric services and the phase out of gas)
- preparing buildings for renewable power supply and electric cars
- transforming the supply chain to net zero and delivering less energy intensive products, materials and services
- implementing better processes to recycle building products and waste.

**Short term Changes** to requirements for new buildings are generally brought about through regulatory interventions. [There are substantial changes for housing in the NCC 2022 that to be effectively implemented will require reasonable transition timeframes, and clear](#)

<sup>3</sup> [Building Confidence Report Outputs | ABCB](#)

regulatory, information and education resources that are freely available to industry practitioners.

The 2023 changes to the NCC involve the roll out of new National House Energy Rating Scheme (NatHERS) requirements for 69 climate zones across Australia and the Building Sustainability Index (BASIX) requirements in NSW. NatHERS and BASIX are software tools that calculate energy performance for the whole home including major appliances (heating, cooling, hot water, solar panels and batteries) and the thermal fabric of the building. There are also moisture management building quality risks in this change that need to be clearly understood and communicated to instill confidence in the change process.

The quality of NCC changes, information and education to support the 2023 regulatory update and future changes will be key to mitigating building quality risks. As new building methods become more complex and scientific, we are seeing a shift to more dependence on software solutions to provide assessments of building performance and compliance.

Software tools are creating opportunities for people and are attractive to an innovation focused workforce but it is challenging traditional methods of building. More work needs to be invested in alignment of skills and expertise, potentially through better processes for continuing professional development.

### Medium to long term

The building and construction industry has commenced the journey toward greater energy efficiency and will continue to progress toward meeting net zero targets for building.

- Thermal comfort changes in commercial buildings were introduced in NCC2019. It is expected further developments for thermal comfort will occur in future revisions of the NCC.
- The energy supply chain transforming to deliver less energy intensive products and materials and to better recognise embodied carbon values in construction.
- Over 70 per cent of Australia's housing stock is more than 20 years old, renovations to these buildings will see retrofitting to improve energy performance.
- As we move to a more circular economy, improvements in the re-use and recycling of building products and waste will become the norm.
- Over time the roll out of mandatory energy performance disclosure for all segments of building will likely broaden.

The energy transformation process presents the opportunity for workers to develop specialised skills and for new businesses and occupations (such as energy assessors) to emerge. [A review of skills needs around energy efficiency in building and construction should be a priority and is needed to support sector transformation.](#)

[The establishment of Industry Clusters and the transformation of the National Skills Commission into Jobs and Skills Australia presents a significant opportunity to improve industry and occupation skills analysis and forecasting capability, as well as speed to market on training product delivery – all of which will be critical to maintaining Australia's world leading workforce as it navigates the challenges and structural changes ahead.](#)

### Apprentice payments

The Australian Apprenticeship Priority List that has recently been updated and identifies the apprenticeship pathways eligible for the Government's New Energy Apprentice Support Payment, of which 28 occupations are relevant to the building and construction industry. The

payment provides eligible apprentices with five \$2,000 payments over the course of their apprenticeship.

A multi-levered approach, including apprentice subsidies, will be required to sustainably grow the workforce and support sector transformation. As workforce planning and development continues, the Australian Apprenticeship Priority List will require ongoing review and updates.

The relevant building occupations currently on the list are below:

### Building and construction occupations on Australian Apprenticeship Priority List

Apprentice List & Clean Energy		Apprentice List only	
ANZSCO	Occupation	ANZSCO	Occupation
334112	Airconditioning and Mechanical Services Plumber	331111	Bricklayer
342111	Airconditioning and Refrigeration Mechanic	312113	Building Inspector
342411	Cabler (Data and Telecommunications)	394112	Cabinetmaker
312211	Civil Engineering Draftsperson	331212	Carpenter
312212	Civil Engineering Technician	331211	Carpenter and Joiner
342211	Electrical Linesworker / Electrical Line Mechanic	312114	Construction Estimator
341111	Electrician (General)	334113	Drainer / Drainlayer
341112	Electrician (Special Class)	333211	Fibrous Plasterer
342313	Electronic Equipment Trades Worker	399918	Fire Protection Equipment Technician
342315	Electronic Instrument Trades Worker (Special Class)	332111	Floor Finisher
323212	Fitter and Turner	394211	Furniture Finisher
323213	Fitter-Welder	362611	Gardener (General)
334114	Gasfitter	362711	Landscape Gardener
333111	Glazier	322311	Metal Fabricator
331213	Joiner	333311	Roof Tiler
312511	Mechanical Engineering Draftsperson	333212	Solid Plasterer
312512	Mechanical Engineering Technician	331112	Stonemason
322311	Metal Fabricator	333411	Wall and Floor Tiler
334116*	Plumber (General)	394213	Wood Machinist
322312	Pressure Welder		
334115	Roof Plumber		
322211	Sheetmetal Trades Worker		
342212	Technical Cable Joiner		
399999	Technicians and Trades Workers nec		
342412	Telecommunications Cable Joiner		
342413	Telecommunications Linesworker / Line Mechanic		
342414	Telecommunications Technician		
322313	Welder (First Class)		



## SUMMARY OF RECOMMENDATIONS

### 2.1 GOVERNANCE

- To enhance the National Energy Transformation Partnership, Master Builders along with other building industry stakeholders support the establishment of a new national building and construction energy performance body with a cross-section of stakeholders; that coordinate and builds cross portfolio expertise on energy demand and supply reforms for the building and construction sector.
- Governments leading by example in achieving net zero outcomes in buildings and infrastructure which accounts for 33.7 per cent of construction activity. In this process governments should also ensure risk and cost transfer is effectively shared between government and industry in its procurement processes.

#### 2.1.2 Targets

- Master Builders is tentative about applying further targets but is supportive of developing a sectoral strategic plan to establish a mix of options that could be consulted on and developed further.
- Master Builders would support an extension of the Trajectory for Low Energy Buildings to 2050 to establish more certainty on options for and the cost of change going forward.
- Built outcomes from NCC 2018 and NCC 2022 changes for commercial and residential buildings and industry led change need to be measured against NEPP and any future targets. This needs to be reported back to stakeholders to ensure transparency and track the effectiveness of reforms.
- Programs that have been embraced and successfully adopted need to be promoted and should be leveraged for future reforms; and risks associated with NatHERS need to be mitigated to rebuild industry confidence in the energy transformation journey.
- The focus of future work should be targeted at upgrading existing buildings, embodied carbon and product innovation outcomes, government funded infrastructure and energy disclosure. Any targets and performance standards developed from this process should be supported by incentives/grants to offset energy transformation costs.

### 2.2 RESIDENTIAL

#### 2.2.1 General

- Future opportunities for improving energy performance in homes should be targeted at existing homes, which make up approximately 14 per cent of Australia's emissions.
- Master Builders is participating in government led work on a National Framework for Disclosure of Residential Energy Efficiency – the broad objective of which is supported by the sector.

- The Albanese Government's commitment to delivering 40,000 new social and affordable homes to 7 Stars or the state/territory equivalent should be closely monitored to assess the successes and challenges in delivering quality and affordability and reported back to all stakeholders.
- For existing NCC NatHERS 7 star and whole of house changes, Master Builders has consistently advocated for a three year implementation transition to give the industry a reasonable timeframe to adjust and for further work on moisture risk to be completed. Some states have applied a longer transition timeframe, despite the national approach recommending a 12 month transition.
- The cost of NCC 2022 changes like future energy transformation reforms should be offset by government incentives, concessions, grants. Free access to Australian Standards and free content for training being made available to industry is a first step towards offsetting some of the costs.
- The Australian Building Codes Board (ABCB) is leading work reviewing and clarifying risk around the shift to 7 Star in the 2022 NCC that is progressing well and supporting building industry confidence in the reform process.
- A carefully structured and delivered program regarding temperature fluctuations to support the NCC 2022 changes would provide a number of benefits to public health and the environment.
- Increasing the required NatHERS rating in the 2022 NCC also increases the importance of the allotment orientation and the siting of a building. Land use planning requirements for developments should be designed to contribute to and be assessed for energy efficiency outcomes.
- Further benefits could be achieved by broadening the NCC assessment pathway. As built standards, air tightness, PV systems and whole-of-home ratings can be incorporated into the overall NatHERS rating or objectives and provide a reward for addressing these.
- Better partnerships with industry should be established to assist promotion of education and information resources about how to achieve an energy efficient homes.
- Targeted investment and information campaigns are needed to encourage broader adoption. This could be in the form of national and or state based incentives and programs to support transformation efforts. Some examples of how this could be done in the Victorian context through its Residential Energy Efficiency Scorecard are provided.
- Programs that encourage a switch to smart electric appliances that are able to communicate with the PV system will play a significant role in demand management.

### 2.2.2 Low Income Households

- The Albanese Government's commitment to delivering 40,000 new social and affordable homes to 7 Stars or the state/territory equivalent is the start of the process of improvement for new dwellings.

- Governments commit to achieving 5 star NatHERS by 2030 in the 319,800 existing state/territory public and community housing dwellings (including indigenous housing).
- The ACOSS National Low Income Energy Productivity Program provides a guide on options that could be considered further by governments and other stakeholders.

### 2.2.3 Renters

- All levels of government consider developing a nationally consistent approach for Minimum Energy Efficiency rental requirements subject to further consultation with industry stakeholders.
- Consider tax incentives to offset the cost of energy performance upgrades for private rental properties. For example, allowing improvements to the building for energy efficiency upgrades to be considered an expense that can be claimed as a tax deduction for negative gearing purposes.
- At the state level, existing programs can be improved. In Victoria for example, an instant tax write-off scheme for landlords in addition to rebates/matching would be attractive and require a simple tenant signature of consent for works to proceed.
- The Albanese Government's commitment to delivering 40,000 new social and affordable homes to 7 Stars or the state/territory equivalent is the start of the process of improvement for new dwellings.

### 2.2.4 Apartments

- Similar to recommendations outlined for renters above.

## 2.3 COMMERCIAL

- ASBEC has recommended the emissions reduction fund should be renewed to deliver significant, low cost emissions reductions that engages the built environment and commercial building methods. The current fund appears not to support commercial building outcomes.
- The CBD program and NABERS are successful national programs that could be built on. Opportunities for expansion should be considered and involve further consultation with stakeholders.
- Federal Government provides long term funding commitments to support expansion of NABERS to other building types (apartments, hotels, data centres, and strata titled buildings), as well as a pathway to mandatory disclosure.
- Establish a plan for existing buildings to transition to 100% per cent electrification. There are significant costs involved with an electrification transition that would need to be supported by incentives from government to adopt least cost approaches. Government could lead the transition in government assets (community/public housing, commercial offices).
- Consider developing a standards regime for existing buildings, with the National Construction Code now only relevant to new buildings and those undergoing

significant renovation. Development of a minimum standards framework for existing buildings could apply to all buildings (homes, rental properties, commercial, public infrastructure/assets).

- Further consultation on digital transformation options raised by other industry stakeholders, including:
  - Support development of a process for better coordination of data flow from new electric systems to more accurately measure emissions reduction outcomes. For example synchronizing data from heat pumps, appliances and electric vehicle usage.
  - Federal government coordinate and lead work on a strategy to develop the capacity of commercial buildings to prioritise energy load shifting on the grid. A grid efficient building (GEB) is capable of providing energy efficient building services and dynamic grid services through connected smart control of multiple flexible building loads and distribution of energy resources.
  - Promote industry best practice in digitisation.

## 2.4 INDUSTRY

- The capacity of the electricity grid to transform and support the transition to electric and manage demand for higher loads in the future is a significant barrier. This requires substantial government investment in the grid that needs to be done first to give industry and the broader community the confidence to transition to electric.

## 2.5 SUPPLY CHAIN & WORKFORCE

### Supply Chain:

- A targeted program for the building and construction sector is needed that develops a plan for manufacturing and distribution, transformation and capability, as well as workforce planning and development. The plan must extend to reducing the embodied energy of manufactured products used in construction.
- The National Reconstruction Fund could be leveraged to do this to assist the energy transition and expand innovation and development in Australia's onshore manufacturing and distribution capacity.
- Undertake further research on the benefits and advantages that prefab and modular construction can provide with a focus on improved environmental impact and quality control.
- More clarity and focus is needed on future manufacturing investment, including what the broader national and regional impacts will be to accessing finance.
- Government should put more focus on mandatory requirements for product manufacturing, rather than focus on an energy ratings. Examples include making double glazing of certain U-values and SHGC mandatory, or requiring more robust product assurance requirements in the National Construction Code.

- The governments' work on the Building Confidence Report<sup>4</sup> has already produced the National Building Products Assurance Framework which included a recommendation for regulation to require that manufacturers and suppliers of building products provide minimum and standardised building product information. Providing this information can be extended to include information on the energy 'cost' of a product, allowing designers, builders and building owners to make informed choices to minimize the embodied energy in buildings they build or retrofit. State governments, through the Building Minister Meeting, are currently looking at how the National Building Products Assurance Framework can be best implemented.

#### Workforce:

- The capability of the sector to respond to a more complex operating environment needs to be supported by forward looking, quality information and education tools.
- The establishment of Industry Clusters and the transformation of the National Skills Commission into Jobs and Skills Australia presents a significant opportunity to improve industry and occupation skills analysis and forecasting capability, as well as speed to market on training product delivery – all of which will be critical to maintaining Australia's world leading workforce as it navigates the challenges and structural changes ahead.
- An overarching plan for future workforce needs that supports development of training programs that are flexible, up to date and relevant is needed for the sector. The Construction and Property Industry Cluster should develop this work as a matter of urgency once the entity is established and operational in 2023.
- There are substantial changes for housing in the 2023 NCC that to be effectively implemented will require reasonable transition timeframes, and clear regulatory, information and education resources that are freely available to industry practitioners.
- Software tools are creating opportunities for people and are attractive to an innovation focused workforce but it is challenging traditional methods of building. More work needs to be invested in alignment of skills and expertise, potentially through better processes for continuing professional development.
- A multi-levered approach, including apprentice subsidies, will be required to sustainably grow the workforce and support sector transformation. As workforce planning and development continues, the Australian Apprenticeship Priority List will require ongoing review and updates.

<sup>4</sup> [Building Confidence Report Outputs | ABCB](#)