

Interim Targets Independent Expert Panel
Energy, Environment and Climate Change
Department of Environment, Land, Water and Planning
8 Nicholson Street
EAST MELBOURNE VIC 8002

By email: anna.drutschinin@delwp.vic.gov.au

Dear Expert Panel,

VICTORIAN INTERIM EMISSIONS REDUCTION TARGETS ISSUES PAPER - SUBMISSION

The Green Building Council of Australia (GBCA) welcomes the opportunity to provide feedback to the Interim Targets Independent Expert Panel in relation to Victoria's interim emissions reduction targets for the periods 2021 – 25 and 2026-30.

The GBCA is an industry association committed to developing buildings, cities and communities that are productive, liveable, healthy, resilient and sustainable. To achieve this goal, we:

- Rate the sustainability of buildings and communities through Australia's only national, voluntary, holistic rating system – Green Star.
- Educate industry and government practitioners and decision-makers and promote green building programs, technologies, design practices and operations.
- Advocate for the sustainable transformation of the built environment.

The GBCA is committed to playing a leading role in developing a pathway to a modern, decarbonised built environment. We are driving a range of measures that will drive emissions reduction of Australia's buildings and communities and the continued investment in renewable and near zero emissions technologies. Through our Carbon Positive Roadmap project, we are also seeking to play a leading role in the transition of the buildings sector, consistent with Australia's commitment under the Paris Agreement.

We are supportive of Victoria's interim emissions targets, and welcome the Department's approach in the issues paper to examine the challenges and opportunities for emissions reduction across the Victorian economy. These targets represent an important tool for the Victorian Government to realise its broader commitment to zero emissions, and to transitioning the state's built environment to a lower emissions future through complementary policy mechanisms such as the Energy Efficiency and Productivity Strategy. The GBCA urges the Victorian Government to prioritise the built environment in its plans for emissions reduction. The decarbonisation potential of the built environment cannot be underestimated – according to the Australian Sustainable Built Environment Council (ASBEC), Australia's buildings could meet over half the National Energy Productivity Target and a quarter of the national emissions target with the right policies and incentives in place.

The GBCA believes that consideration should be given to the way in which Victoria's interim emissions targets and other complementary policy initiatives would interact with national policy mechanisms and in this context, we ask the Expert Panel to give consideration to the NEG's implementation by state jurisdictions. The GBCA has been pleased to participate actively in policy development supporting the National Energy Guarantee, and note our [submission](#) providing feedback on the mechanism's preliminary design.

This submission provides comment on the ways in which the GBCA and the wider buildings sector can help to deliver on Victoria's emissions reduction targets, support low emissions innovations and deliver broad based transformation across the sector. It focuses on:

- The GBCA's approach to the decarbonisation of Australia's built environment;
- Opportunities for emissions reductions in Victoria within the built environment; and,
- Considerations in designing Victoria's interim emissions targets.

The GBCA welcomes the opportunity for further collaboration and consultation. Please do not hesitate to contact Sandra Qian, Senior Advisor – Policy and Government Relations on email at Sandra.qian@gbca.org.au should you require any further information, or to discuss any points raised in this submission.

Yours Sincerely



Jonathan Cartledge
Head of Public Affairs



The GBCA is committed to developing buildings, cities and communities that are healthy, liveable, productive, resilient and sustainable.

Established in 2002, the GBCA is the nation's authority on sustainable buildings, communities and cities. Our vision is to create healthy, resilient and positive places for people and the natural environment. Our purpose is to lead the sustainable transformation of Australia's built environment through three core functions:

- We **certify** the sustainability of buildings and communities through Australia's only national, voluntary, holistic rating system – Green Star.
- We **educate** industry and government practitioners and decision-makers, and promote green building programs, technologies, design practices and operations.
- We **advocate** policies and programs that support our vision and purpose.

The GBCA represents 600-plus individual companies with a collective annual turnover of more than \$40 billion. Our membership reflects the diversity of Australian business with over 500 small-to-medium enterprises through to 75 companies with annual turnover of more than \$100 million and 24 companies now listed in the ASX200, with a combined market capitalisation of more than \$620 billion. Members include major developers, professional services firms, banks, superannuation funds, product manufacturers, retailers and suppliers. We also have 44 local government, 26 state government departments and land organisations, and 18 university members.



Green Star assesses the sustainable design, construction and operation of buildings, fitouts and communities. There are four Green Star rating tools available:

- Green Star – Design & As Built
- Green Star – Interiors
- Green Star – Performance
- Green Star – Communities

The rating tools cover a broad range of sustainable topics including energy and emissions and provide an overall rating, with 4-star meaning 'best practice', 5-star meaning 'Australian excellence' and 6-star meaning 'international excellence'. The program is voluntary and covers residential, industrial, office, retail, accommodation, education and public buildings.

Green Star certification is a formal process during which a building, fitout, or precinct is awarded a rating by an independent, third party assessment panel of sustainable development experts through a documentation-based assessment. A Green Star certified rating provides independent verification that a building or community project is sustainable.

As of April 2018, the GBCA has certified over 1760 projects with a further 575 projects registered.

While office buildings make up the largest proportion of certified buildings to date, Green Star has been applied to almost every type of building and a wide range of communities from business precincts to communities designed to become home to over 50,000 people.



Interim Emissions Reduction Targets for Victoria (2021-2030) Issues Paper

Should Victoria's interim emissions reduction targets relate to a national reference point?

If yes, what is the most relevant reference point?

- i. Australia's current national emissions reduction target of 26-28% below 2005 levels by 2030**
- ii. The Climate Change Authority's recommendation of 45-65% below 2005 levels by 2030**
- iii. Other (please specify)**

Yes. The GBCA believes the Victorian Government should align Victoria's interim emissions reduction targets to a national reference point to provide better consistency between state and national climate policy. This reference point should be consistent with Australia's target to reduce emissions under the Paris Agreement, which requires Australia to reach net zero emissions by 2050.

In light of the global momentum towards zero net emissions and the need to establish a durable pathway to meet Australia's obligations under the Paris Agreement, our preference is for the interim emission targets to be set at a more ambitious level than the current national emissions target. However, we recognise that Australia's Nationally Determined Contribution is the only committed target at this point in time and consider this should be the minimum reference point for Victoria's interim reduction target. We would also urge the Victorian Government, through its membership of the Coalition of Australian Governments, to encourage a progressive commitment to a stronger national ambition. Lastly, we would urge consideration of the policy mechanisms that are needed to deliver on the interim target and their interaction with existing and proposed policy settings at both the state and federal level.

Do you think a Victorian emissions budget should be used as a tool in the Panel's analysis?

Yes. The GBCA supports the use of a Victorian emissions budget as a tool in the Panel's analysis. We further support the use of a carbon budget and linking Victoria's total emissions to climate science and the global goals articulated in the Paris Agreement. In presenting a case for action by the built environment sector, the GBCA's research for the Carbon Positive Roadmap noted the carbon budget advice provided by the Climate Change Authority (CCA) in 2013, which projected a national budget of 10.1 Gt CO₂-e for the period 2013 to 2050. We therefore urge the Panel to use the CCA's analysis to calculate the Victorian budget.

What do you see as the relative advantages and disadvantages of early versus late action to reduce Victoria's emissions to reach net zero by 2050?

Victoria's transition to net zero by 2050 will require deep decarbonisation in a number of sectors, including buildings, transportation, electricity generation and industrial equipment. Early action allows stakeholders in these sectors to identify the measures and interventions that are needed now.

For policy makers, taking early action means accelerating the research and development of technologies, and laying a groundwork of policy solutions that are needed to prepare for deeper decarbonisation.

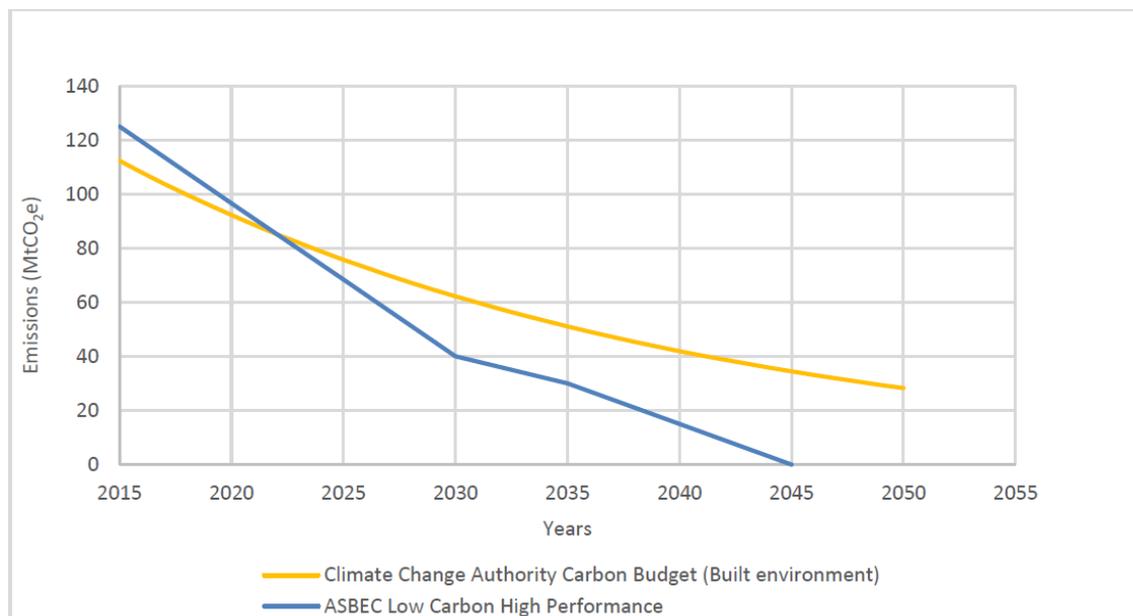
For business and industry, early action provides regulatory certainty and a better understanding of the opportunities or challenges that will arise in a low carbon economy. With investors increasingly aware of the risks that inaction poses to long term productivity, the business community is able to take actions that are more cost effective in the longer term, such as making sensible investment decisions that avoid locking in high emissions technologies or business practices.

On the other hand, delayed action means a steeper, costlier pathway to net zero emissions in the future. Research by ASBEC shows that in the built environment where assets have long lifespans, just five years of delayed action can have costly consequences: the construction of low performing buildings could lead

to \$24 billion in lost energy savings for households and businesses to 2030, with a cumulative loss of 176MtCO₂e reduction opportunities¹.

What are the most significant opportunities and technologies for reducing emissions in Victoria during the period 2021-2030 and to reach net zero emissions by 2050?

The built environment holds many cost-effective opportunities for emissions reduction. Buildings currently account for almost 25 per cent of Australia’s national emissions and they could contribute up to one tenth of the national 2030 emissions target through energy efficiency, and more than a quarter with high levels of uptake of distributed energy. ASBEC’s report, *Low Carbon High Performance*, shows that significant emissions reduction in the sector is achievable using existing technology, including energy efficiency measures; switching non-electric equipment and appliances to electricity; and greater use of solar photovoltaic panels. Its analysis shows the building sector should be on a decarbonisation pathway ahead of the CCA’s two degree budget, and reflected the greater potential for and lower cost of abatement available to the building sector as compared to other segments of the Australian economy.



Source: GBCA, 2018, *A Carbon Positive Roadmap for the Built Environment (Stage 1: Commercial, Institutional and Government Buildings and Fitouts – For Discussion)*

The GBCA is committed to delivering healthy, resilient and positive places for people and the natural environment. We have been working to develop a pathway towards carbon positive buildings, and recently released a summary of our *Carbon Positive Roadmap for the Built Environment* which outlines our plan for carbon positive buildings and communities. We anticipate a more detailed discussion paper supporting the Carbon Positive Roadmap will be released in the coming weeks, and will be pleased to provide this subsequently for your consideration. The roadmap is the result of extensive industry and government consultation and engagement and refined through workshops and one on one sessions with stakeholders across five major cities.

¹ Australian Sustainable Built Environment Council and ClimateWorks Australia, 2016, *Low Carbon, High Performance*, p.5

Through the development of our roadmap project it has been clear that the built environment should decarbonise earlier than most sectors, given there are comparatively greater opportunities and lower costs for this to happen. Market leaders are already making substantial progress in reducing their emissions, and the sector as a whole is well placed to follow a trajectory for carbon reduction that helps keep global warming below the more stringent 1.5 °C target under the Paris Agreement.

Notably, our work shows that in order for the built environment to achieve a 1.5°C target as outlined in the Paris Agreement:

- All new buildings and fitouts should have no carbon emissions from their operations by 2030, and;
- All existing buildings and fitouts must have no carbon emissions from their operations by 2050 or earlier.

We believe these targets can be met by facilitating a transition to buildings and fitouts that are built, refurbished and operated with no greenhouse gas emissions. To do so the roadmap sets out five goals for the sector and stakeholders:

- Commit to a permanent transition to a built environment with no greenhouse gas emissions;
- Operate low energy intensive buildings and fit outs;
- Invest in resilient and renewable energy infrastructure in Australia;
- Support the transition to electrification of vehicles;
- Adopt net zero carbon products, materials and services.

The roadmap also notes that there is scope for government at all levels to introduce well integrated climate change and energy policies which target deep emissions reduction in the buildings sector. To ensure the sector's smooth transition, the government's approach to public policy should be focussed on:

- Establishing targets by which the built environment and its supply chain must decarbonise;
- Creating incentives to drive the built environment to meet a 2050 target; and,
- Removing barriers to renewable energy installations, purchasing and distribution.

The Carbon Positive Roadmap recognises that Australia's commitment to the Paris Agreement provides a common goal towards which policy at all levels of government should be designed and coordinated to deliver. This includes energy and climate policies, but also the National Construction Code, international policy, innovation policy, government backed finance and funding mechanisms and the government's own policies on procurement and energy productivities working towards the same goal. Key areas for government leadership and collaboration with industry and other stakeholders are highlighted as follows:

Action	Position	Targets	
		New	All
Adopt a vision for a zero emissions built environment by 2050	In consultation with industry, establish a national plan towards 2050 zero carbon buildings and establish responsibilities at the ministry level.	2030	2050
Reduce building total and peak energy demand by driving	Support, in the National Construction Code, the upgrade of energy performance standards and an upgrade trajectory consistent with ASBEC's proposal.	2030	-

Action	Position	Targets	
		New	All
passive design first and efficient systems next	Introduce ambitious targets and incentives at the city and state level aiming to achieve energy demand reductions of 20 to 30% for all buildings by 2035.		
	<p>To achieve the above, create new tipping points for change with incentives and financing mechanisms that encourage upgrades and retrofits of existing buildings. Specifically, a call for:</p> <ul style="list-style-type: none"> • Incentives to accelerate uptake of energy upgrades • States & Territories introduce incentives incl. stamp duty concessions & differential rates for new buildings & significant refurbishments. • Promotion and expansion of low interest loans for green retrofits. 	2050	
Measure, improve, and disclose the ongoing performance of buildings	Improve access to energy consumption data requiring energy metering and sub-metering for all buildings by 2030.		
	<p>Introduce requirements in the NCC for all new buildings to be commissioned and tuned from 2025 onwards.</p> <p>Expand mandatory disclosure to new sectors, with a priority focus on tenancies & fitouts.</p>	2030	
Power buildings with 100% renewable electricity and switch away from fossil fuel use	Reform policy and markets as necessary to: increase the uptake of renewable energy; facilitate district-based utilities; address energy market barriers; ensure and provide fair tariff structures and value for distributed solutions; and improve access to networks.		
	National energy policy delivers long-term certainty, incentivises investment in renewables, and provides clarity on the attributes of any certificates or tracking mechanism used to account for renewable energy distribution and use.	2050	
Increase use of on-site or near site solar and storage.	Require on-site renewable energy as part of upgrades to the NCC in 2025.		
	Incentivise the replacement of non-electric appliances including natural gas, and avoid incentivising installation of non-electric appliances.	2030	2050
Increase access to active transport	Support better governance for improved decisions, ongoing investment, long-term integrated planning and sustainable development across our major cities and urban growth areas.	2030	2050

Action	Position	Targets	
		New	All
facilities and public transport	Prioritise policies that incentivise and better value active transport infrastructure consistent with the broader social, economic, and environmental benefits it provides.	2030	2050
Promote the electrification of vehicles	Support mechanisms designed to reduce the use of private fossil fuel vehicles (e.g. congestion pricing) and incentivise the increasing adoption of electric vehicles (e.g. charging infrastructure).	2030	2050
Stimulate markets for carbon neutral products and services	Expand the reach of the National Carbon Offset Standard to cover a larger share of building products and materials	2030	2050
Phase out high-GWP refrigerants	Incentivise the phase-down of high-Global Warming Potential (GWP) refrigerants, e.g. in HVAC systems.	2035	2050
Support high quality offsets for remaining emissions as a transition strategy	Lead a review of the availability and market for domestic carbon offsets in Australia, and to identify opportunities to use offsets as part of an incentivise mechanism to encourage building upgrades.	2030	2050

We call on the Victorian Government to support the delivery of the roadmap through complementary policy settings that incentivise action and remove obstacles to the delivery of these goals. More information about the Carbon Positive Roadmap can be found at www.gbca.org.au

What are the key barriers to reducing Victoria's emissions by 2025 and 2030?

In terms of barriers in the buildings sector that prevent the industry from investing more in energy efficiency and distributed energy opportunities, ASBEC's *Low Carbon, High Performance* report identified four broad categories of factors inhibiting buildings energy efficiency from various decision makers perspectives (occupants, owners, the building industry as well as policy makers).

Three types of impediments affect decision makers for energy efficiency opportunities in buildings (usually the building owner or tenant):

Capability: The decision maker may lack (or lack access to) appropriate data and information, skills, services and products, or capital or finance, which can undermine their ability to identify or implement energy efficiency opportunities.

Attractiveness: While most energy efficiency opportunities offer a financial return, some technologies (e.g. high efficiency heat pumps) may not yet be commercially attractive compared to less efficient alternatives (e.g. gas heaters). Alternatively, the financial return may exist but be less attractive than the return offered by other investments available to the decision maker. This can be amplified by market distortions such as discounted energy pricing.

Motivation: Internal and external factors can have a strong influence on the motivation for a decision maker to consider implementing energy efficiency projects, regardless of financial attractiveness and capability. These include the fact that for many households and businesses, energy represents a low share of total expenditure and is therefore a low priority, or a lack of awareness of the non-energy benefits of energy efficiency, or 'split incentives' between tenants and landlords.

A further issue relates to overarching policy processes and governance for energy policy and regulation. A lack of good processes and governance can lead to unresolved regulatory barriers, regulatory uncertainty which can stifle investment, uncoordinated policy measures by different governments and agencies leading to suboptimal outcomes, duplicative consumer information and confusion amongst businesses and the community about the path forward. Policy uncertainty is a barrier to emissions reductions, as it leads to lack of incentives for industry to invest in renewable energy projects. For instance, the federal Renewable Energy Target was established to incentivise renewable energy generation. However, lack of certainty over the target and unclear treatment of net zero electricity in carbon accounting has prevented the buildings industry from maximising its capacity to generate renewable energy.

ASBEC has identified a suite of policy types have been identified that can help unlock this opportunity:

- Supportive policy frameworks, including a national plan to coordinate actions at other levels of government and across government departments, agencies and policy processes such as energy market reform processes.
- Mandatory minimum standards, including mandatory regulated standards for the energy performance of new buildings and new appliances, and potentially for existing buildings at the time of sale or lease.
- Measures to motivate and support higher performance, which provide market stimulus to accelerate action in the short- to medium-term, including incentives to overcome low motivation or unattractive project returns, use of government market power to accelerate action over the short term and targeted sectoral programs and support.
- Measures to provide the enabling conditions, including energy market reform to ensure that the energy market supports roll-out of cost-effective energy efficiency and distributed energy improvements, and a range of supporting data, information, training and education measures. Table 4 shows at a high level how each of the policy types influences the main barriers and impediments to improved energy performance in buildings.

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

Source: Australian Sustainable Built Environment Council and ClimateWorks Australia, 2016, *Low Carbon, High Performance*

What further steps can the Victorian Government take to support emissions reduction opportunities and the uptake of low carbon technologies?

Support renewable energy and decentralised utilities

The built environment holds many cost-effective opportunities for driving the transformation of the energy and utilities sectors. These opportunities can provide additional baseload generation, reduce demand peaks, build resilience and support longer term security across the National Energy Market.

Many GBCA members are already delivering district-based/decentralised energy and water utilities, using emerging technologies including solar PV and battery storage. The most effective solutions and services for the project proponents as well as the end-users are often limited by state legislation and regulation supporting existing distribution infrastructure. This reduces the commercial viability of more innovative solutions, stifles investment and erodes the consumer experience. These requirements differ across states and distribution networks within states, imposing substantial costs on customers and delaying the uptake of new technologies. The GBCA is working with its members, industry and all levels of government to address barriers to the connection of renewable distributed utilities, services and supporting technologies and calling for a more consistent approach to how standards for connections are set, governed, and applied.

A wider uptake of distributed energy solutions would increase generation, reduce demand and improve energy security through increased resilience. It will also be a critical factor in ensuring that Victoria can meet its emissions reduction commitments and in achieving a carbon positive built environment.

The success of Green Star projects such as Alkimos Beach in Western Australia, a master planned community with more than 100 homes connected virtually to innovative solar energy storage, demonstrates the need for regulatory frameworks that are fit for purpose and sufficiently flexible to cope with the effects of emerging technologies and market innovation that is taking place across Australia.

This would play a significant role in boosting generation capacity, increasing resilience and security, delivering new productivity benefits for businesses and improvements in quality of life for households.

The GBCA supports the removal of market barriers to district-based utilities and calls for a fair tariff structure and value for distributed utility solutions. A number of reforms will be necessary to facilitate sustainable utility infrastructure, including:

- Enabling district-based utilities, fair tariff structures, value for distributed solutions and better access to networks and opportunities for innovative financing solutions.
- Streamlining opportunities for building owners to supply renewable energy to building tenants to create net zero whole buildings
- Providing incentives for network providers and building owners to work in partnership to improve energy security as part of renewable energy developments through grid services such as energy storage, demand management and modern transmission solutions in buildings.

Support a trajectory for future upgrades to minimum energy performance

Australia's National Construction Code (NCC) is a ready-made policy instrument to influence the energy efficiency of new buildings and major renovations. Improvements to the NCC can have a large impact because new construction adds up fast: More than half of the buildings expected to be standing in 2050 will be built after the next update of the NCC in 2019.

Improved building energy efficiency presents many benefits, including:

- Reducing stress on the electricity network;
- Supporting a least-cost pathway to decarbonisation ; and,
- Delivering cost savings and improved comfort to households and businesses.

The GBCA is [supportive](#) of the work by the Australian Building Codes Board to increase stringency for commercial buildings and improve compliance requirements for residential buildings in the 2019 update to the NCC. The recent shift to a three year review cycle for the NCC presents an opportunity for strategic reform for the NCC's energy efficiency provisions, however, it is unclear how the Commonwealth would adopt a long term trajectory for the NCC once the work is completed.

To ensure future updates to the NCC occur regularly, a trajectory should be established for future energy provisions in the NCC. The GBCA is proud to support the Building Code Energy Performance Trajectory Project – an industry-led initiative seeking improvements to the energy requirements in the NCC through long term targets and forward trajectories beyond 2019. We are actively engaging state governments in addition to the Commonwealth around this work to ensure government is a key contributor in this project. A final report will be published in mid-2018 focused on the establishment of a long-term trajectory for Code energy requirements for both residential and non-residential buildings.

We urge the Victorian Government through its presence on the COAG Energy Council and the Building Minister's Forum to advocate for the implementation of a trajectory for future upgrades to minimum energy performance requirements in the NCC. This trajectory should have broad industry support and be aligned with the longer term goal of a net zero emissions economy by 2050. A shared ultimate goal of net zero emissions for the NCC supported by a trajectory of planned updates over time will encourage innovation and regular upskilling of industry, and deliver more high performing buildings.

More information about the Building Code Energy Performance Trajectory Project is available at www.asbec.asn.au/publications.

Lead by example



Governments typically hold some of the largest property portfolios in the country, and lease large amounts of office space. As both an owner and tenant the Victorian Government is capable of creating a demand for low carbon buildings by driving improvements in energy performance in premises that it owns and occupies.

Given the Victorian Government's commitment to reach zero net emissions by 2050, it is important that parallel commitments are reflected in its own procurement policy. Best practice procurement by government is a powerful mechanism to drive transformation through supply chains and catalyse improvements in the behaviour of responding markets for goods and services. Governments must consider supply chains holistically to achieve the best value.

We urge the Victoria Government to consider the following measures to improve government buildings:

- Setting targets for zero net emissions across government operations by 2030 with strengthened requirements for transparency and performance of government tenancies.
- Introducing a requirement for Green Star-rated buildings or office fit-outs to be a pre-condition for the procurement of any government building or office. The use of rating tools like Green Star can provide evidence to support a claim of sustainability and energy efficiency. Green Star certified buildings on average produce 62% fewer greenhouse gas emissions and use 66% less electricity than the average building; 51% less potable water than minimum industry requirements; and recycle 96% of their construction and demolition waste. On average, Green Star projects are also delivered for less than 3% of the overall project budget.
- Establishing a mandate that government officers only use Green Star or NABERS accredited hotels that meet a best practice rating threshold.
- Requiring contractors on government construction projects to meet a minimum level of energy efficiency training or accreditation.

The impact of visionary government leadership on driving change cannot be overlooked. Leveraging government market power would not only provide leadership and demonstration, it would also deliver substantial savings for government budgets, build skills and capability in the deployment of new technologies and business models, and improve public facilities such as schools and hospitals.

Capture the mid-tier opportunity

The GBCA commends the Victorian Government's leadership to date in leveraging opportunities for decarbonising the mid-tier office buildings sector, through programs such as Sustainability Victoria's Energy Efficient Office Buildings program and facilitating access to Environmental Upgrade Financing.

In 2015, the GBCA led a project to examine mid-tier office building sector, resulting in the release of the *Mid-tier commercial office buildings in Australia – A national pathway to improving energy productivity*. This and other recent reports, including the Finkel Review, CSIRO Low Emissions Technology Roadmap and ASBEC's *Low Carbon, High Performance*, create a compelling evidence base for new policy development targeting mid-tier buildings. Collectively these reports are clear on the necessity for governments to lead practical policy interventions that will deliver real benefits across the economy.

The mid-tier pathway project proposed a range of actions and initiatives to improve the energy efficiency of the mid-tier commercial buildings sector. These actions fall into the following categories:

- Develop a robust and trusted evidence base through conducting further research into the size, location, grade and energy performance of buildings, ownership and tenant profiles, the potential benefit of successful policies and programs that can be adapted for the mid-tier, and identify best practice and gaps through the Building Retrofit Toolkit project.
- Build a compelling and quantified business case for energy efficiency upgrades by compiling case studies and data sets, as well as information about building life cycle costs in relation to energy efficiency upgrades.

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- Create a shift in awareness, knowledge and behaviour by educating building owners and other stakeholders and service providers, and expanding building disclosure policies.
 - Develop and identify tools to promote improved energy performance such as a user review app for buildings, and raise awareness of existing tools such as Green Star, NABERS, Calculating Cool and the LEASA application.
 - Establish representative bodies and networks and leverage existing organisations to bring together key stakeholders to increase collaboration, innovation and exchange.
 - Promote innovative financing mechanisms, such as tax breaks, accelerated depreciation, rebates, Environment Upgrade Agreements and low interest loans, as well as creating ways for mid-tier buildings to access existing schemes such as the ERF and state-based white certificate schemes.

For more detailed information about the recommendations in Mid-tier commercial office buildings in Australia – A national pathway to improving energy productivity, please visit www.gbca.org.au

What lessons can be learned about reducing emissions in Victoria from actions taken in other states and countries to reduce emissions?

The GBCA is proud to be a member of the international coalition of 73 Green Building Councils that make up the World Green Building Council. Last year, the WorldGBC released a report, *From Thousands to Billions – Coordinated Action towards 100% Net Zero Carbon Buildings by 2050*² outlines how the building and construction sector can transition to a completely zero carbon built environment. Noting that the building and construction sector is responsible for around 30 per cent of global energy consumption and associated GHGs, the report calls for the dual goals of:

- All new buildings must operate at net zero carbon from 2030
- 100% of buildings must operate at net zero carbon by 2050

The report presents a set of key principles that should guide programmes for action and proposes concerted actions for three core groups of actors: business, government and non-government organisations. Included are a number of case studies at the national and sub-national level which demonstrate how these core groups are working together to recognise and implement net zero concepts in their own jurisdictions.

The Low Carbon Living CRC's research report, *Policy and Regulation for Low Carbon Outcomes in the Built Environment*³ is another key resource which provides an analysis of Australian and global (Europe, North America and the Asia Pacific) best practices in policy and regulation for the energy and carbon performance of the built environment. This study examined opportunities and barriers relating to the adoption of best practice in Australia and proposed a potential set of optimal measures, at national, state/territory and local levels, along with an indicative pathway for their implementation.

² Accessed at http://www.worldgbc.org/sites/default/files/From%20Thousands%20To%20Billions%20WorldGBC%20report_FINAL%20issue%20310517.compressed.pdf

³ Accessed at <http://www.lowcarbonlivingcrc.com.au/research/program-3-engaged-communities/sp0009-policy-and-regulation-low-carbon-outcomes-built>