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Submissions Analysis Team
Climate Change Commission

Submitted via the Climate Change Commission consultation webpage at:
<https://haveyoursay.climatecommission.govt.nz/>

Dear Submissions Analysis Team

Thank you for the opportunity to provide comment on the Climate Change Commission's (the Commission) draft advice on *Climate action for Aotearoa*.

The New Zealand Green Building Council (NZGBC) has always been a leading advocate for encouraging sustainable building practices and for policies and regulations to decarbonise Aotearoa's built environment. We are passionate advocates for better buildings, because we know that better buildings mean healthier, happier Kiwis.

Established in 2006 as a not-for-profit industry organisation, we believe all New Zealanders deserve to be safe, healthy and happy – at home, at school, at work. Everywhere.

The NZGBC represents more than 520 companies and organisations, including government departments, banks, energy companies, insurers, property and construction companies, architects, developers, designers and tertiary education institutions. This includes many of the NZX50. These members have a combined market turnover of \$40 billion. We also work with local government members, representing over 60% of New Zealand's population.

The NZGBC commends the Commission on its work to date. We fully support most of the recommendations and proposed actions in the draft advice and partially support several others. We have identified five main points where we think the Commission's advice can be strengthened:

- Goals for building energy efficiency should be more ambitious. With existing technologies, much better results can be achieved than a 6% improvement for existing homes and 35% improvement for new builds by 2035.
- Improved energy efficiency should be a first priority, not an after-thought. Energy efficiency replaces the need for fossil fuel use in buildings, enables fossil fuel electricity generation to be retired, and is the lowest-cost path to freeing up electricity supply to power the electrification of transport, rather than going to the expense of creating new generation.

- There is a lack of discussion around the role of building standards in reducing emissions through reduced embodied carbon. Those emissions are accounted for under industrial heat emissions, but what the Commission’s analysis overlooks is how building standards can be used to drive demand for low-carbon materials thereby significantly reducing industrial heat emissions.
- It would be useful to have clear advice for Government action in its own operations and procurement, not only in its role as a standard setter, but as the largest consumer of buildings in New Zealand. Government can lead the market by demanding buildings with low embodied carbon and high energy efficiency.
- Similarly, it would be useful to have advice on how local government can streamline consenting for lower carbon buildings and incentivise them in the market by making relevant information available to buyers.

Our reasoning and supporting information are detailed in the enclosed submission and our key points are summarised below.

1. More is possible

The NZGBC believes that targets and plans for action on buildings, the built environment and the construction industry outlined in the draft advice could – and should – be much more ambitious and could be achieved in shorter timeframes. At the very least, the Commission’s draft advice should be aligned with the Building for Climate Change (BFCC) programme proposed by the Ministry of Business, Innovation and Employment in 2020.

The path proposed in the Commission’s draft advice assumes a 30% improvement in commercial and public buildings’ energy intensity is possible by 2035 compared to today’s performance. The draft advice assumes that the energy intensity of existing homes will improve by 6% by 2035 and that newly built homes will be 35% more energy efficient compared to today’s performance. This is woeful. We can go faster.

There are no technological barriers to improving energy efficiency dramatically – the building techniques, materials, and operating practices are already mature and widely-available.

Under the European Union (EU) energy performance of buildings directive, EU countries have experience with ramping up the energy efficiency of their building code, improving the energy efficiency by 20-30% every three to four years.¹ The International Energy Agency (IEA) and OECD have cited the New Zealand Building Code as needing serious improvement.²

The Climate Change Committee (the Committee) in the United Kingdom (UK) states; “New build homes should deliver ultra-high levels of energy efficiency as soon as possible, and by

¹ European Commission. 2014. Nearly zero-energy buildings. https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/nearly-zero-energy-buildings_en

² OECD. 2019. OECD economic surveys: New Zealand. <https://www.oecd.org/economy/surveys/new-zealand-2019-OECD-economic-survey-overview.pdf>

2025 at the latest. This should be consistent with a space heat demand of 15-20 kWh/m²/yr.”³

The Committee commissioned analysis which showed that building to these standards ought only to cost around £4,800 extra per home. By contrast, carrying on building homes with current practices would incur unaffordable retrofit costs in order to meet climate targets — five times more than getting it right in the first place, the Committee noted.

The NZGBC suggests that the Commission’s advice should call for new buildings and homes to achieve 30% less energy consumption from 2024 and to recommend that the New Zealand Building Code be progressively tightened to achieve zero carbon energy new buildings by 2030.⁴

We must also be much more ambitious with our existing buildings. We know that energy efficiency in existing buildings can be improved using technologies and practices available now. The Department of Planning, Industry and Environment in New South Wales confirms that the average energy intensity of office buildings rated almost halved over 12 years following the introduction of the Commercial Buildings Disclosure (CBD) Program in Australia which mandated NABERS for office buildings. This, along with Government procurement has lead to Aus\$1bn of savings for businesses and the tax payer.

NABERSNZ has been in New Zealand for seven years. Hundreds of buildings have been rated and hundreds of people trained in NABERSNZ, and the sector knows and understands it. The Commission’s advice should call for legislation to pass a CBD Programme in New Zealand in this term of Parliament.

The EU has already set a near-zero energy standard for its new buildings from 2021, and member states are undertaking massive retrofit programmes to improve the energy efficiency of their existing buildings.

The NZGBC recommends the Commission set more ambitious targets for energy efficiency in both new and existing buildings. A clearer pathway could be set for achieving these including legislating for a CBD programme in New Zealand by 2022, with a start date of 2024. Similarly energy labels on homes could be legislated for in 2022, with a start date of 2026.

For more information regarding the NZGBC’s position on targets, timeframes and plans for action, please see our response to Q.2. and Q. 12. in the detailed submission.

2. Energy efficiency first

³ de Selincourt, K. 2019. New housing should be to passive house standard – Climate Change Committee. Available from Passive House Plus. <https://passivehouseplus.ie/news/climate-change/new-housing-should-be-to-passive-house-standard-climate-change-committee>

⁴ NZGBC. 2019. *Net zero carbon roadmap for Aotearoa*. https://www.nzgbc.org.nz/Attachment?Action=Download&Attachment_id=3000

Reports prepared for the Energy Efficiency and Conservation Authority (EECA) identify energy efficiency as the most cost-effective way to decarbonise New Zealand's energy grid.⁵ A report by the IEA similarly identifies energy efficient new builds and renovations as the least-cost ways to reduce emissions, with negative lifetime costs thanks to the savings on energy.⁶

Energy efficiency can displace fossil fuels used in buildings and, by reducing electricity demand, can allow the retirement of fossil fuel generation and/or free up electricity generation to power the electrification of the transport fleet at less cost than new renewable generation, thereby helping reduce transport emissions.

The NZGBC notes that while the draft advice has provided some targets for improvement in building energy efficiency, beyond transitioning away from using gas in buildings, no energy efficiency or other emissions reduction policies specific to buildings are proposed.

Energy efficiency should be the first priority for every energy initiative identified in the draft advice.

This is not the case at present. In New Zealand, the conversation around energy demand and reducing carbon often focuses on building more renewable energy generation sources. If we use less energy, we will have less need to develop new energy generation.

The fastest, most cost effective, and most equitable way to reduce carbon pollution is a far-reaching energy equity programme across all New Zealand homes and buildings. This energy equity programme would cut household bills, most notably amongst those struggling to adequately heat their homes in winter, business operating costs, and provide thousands of local jobs in every area of the country with homes and buildings. An inclusive and well-planned climate transition must have this energy equity plan at its heart.

To accelerate and maximise the opportunities for energy efficiency in our homes and buildings, the NZGBC recommends that the Commission's advice include introducing a range of initiatives as part of a comprehensive energy equity programme. The following are tried and tested in New Zealand and/or overseas and can be implemented relatively quickly:

- The Warmer Kiwi Homes programme should be tripled and applied on a wider scale. The NZGBC has developed a detailed business case for this.⁷ (We note that the Commission's draft advice recommends the Government "assess whether the existing programmes are delivering at an appropriate pace and scale". This advice could be more direct and recommend increases, rather than being ambiguous).
- A national Voluntary Targeted Rates scheme should be enabled. This has delivered successful outcomes in New Zealand already. For instance, the Retrofit Your Homes

⁵ Concept Consulting. 2018. *The case for energy efficiency action - report for EECA*. <https://www.eeca.govt.nz/assets/EECA-Resources/Research-papers-guides/Concept-electricity-efficiency-report.pdf>

⁶ IEA. 2020. Sustainable recovery: World energy outlook special report. <https://www.iea.org/reports/sustainable-recovery/buildings>

⁷ NZGBC. 2020. *A green recovery* https://12253-console.memberconnex.com/Attachment?Action=Download&Attachment_id=3118

programme in Auckland and similar schemes in several other cities and districts have helped 30,000 homes. While issues with council-based lending have arisen, problems could be addressed and local councils enabled to lend for home improvements. Alternatively, a national, Government-backed scheme could be established.

- Introduce energy labels for homes. An A to G rating (such as used in the European Union energy label), or similar, could be created with the goal of all homes requiring a valid energy label at point of sale from 2026 onwards.
- Introduce energy labels for commercial office buildings. The Commission's advice should call for legislation to pass a CBD Programme in New Zealand in this term of Parliament as set out above.
- Encourage deep retrofits of existing homes. In the United Kingdom a retrofit coordinator scheme has been established to ensure retrofit projects are carried out safely, effectively and efficiently by trained service providers.
- Establish an energy company obligation scheme as has been done in the United Kingdom. This funnels hundreds of millions into energy efficiency measures.
- Tax deductions to incentivise and reduce the costs of green improvements to buildings.

For more information regarding these initiatives and prioritising energy efficiency, please see our response to Q.8, Q.12. and Q.13 in the enclosed submission.

3. Buildings can reduce emissions in the industrial heat category

We must do more to reduce embodied carbon in the built environment. This requires setting goals for the significant reduction of embodied carbon.

Currently, reporting in the Commission's draft advice and evidence does not adequately show the built environment's contribution to total embodied carbon in the economy. The embodied emissions from building materials (such as those related to the production of steel and concrete) fall within the industrial heat category.

While this category has significant crossover with several sectors, no further breakdown or detail has been given so that carbon emissions might be easily noted or attributed to the relevant sectors. While we understand that New Zealand must comply with international conventions for calculating and reporting carbon emissions, we must not miss the opportunity to communicate clearly, promote better understanding and mobilise our own industries.

Recent research the NZGBC commissioned finds that the manufacture of materials for the built environment made up 6% of New Zealand's total carbon emissions in 2015 (the highlighted figures under 'Materials' in the table below) without adjusting for imports and exports. Excluding exports, this rises to 9% of NZ's gross emissions.⁸

⁸ thinkstep. 2019. *Under construction: Hidden emissions and untapped potential of buildings for New Zealand's 2050 zero carbon goal*. https://www.nzgbc.org.nz/Attachment?Action=Download&Attachment_id=2453

Table 4: Breakdown of New Zealand's total gross carbon footprint in 2015, both before and after adjusting for imports and exports

	Unadjusted		Adjusted	
	Emissions (kt CO ₂ eq.)	% of gross emissions	Emissions (kt CO ₂ eq.)	% of gross emissions
Built environment (Total)	10,127	13%	11,882	20%
Energy use	4,814	6%	5,172	9%
<i>Electricity production & fugitive emissions</i>	3,014	4%	3,014	5%
<i>Fossil fuel production, combustion & fugitive emissions</i>	1,800	2%	2,158	4%
Materials	5,021	6%	5,185	9%
<i>Electricity production & fugitive emissions</i>	949	1%	949	2%
<i>Fossil fuel production, combustion & fugitive emissions</i>	829	1%	994	2%
<i>Direct emissions</i>	3,243	4%	3,243	5%
Garden & construction waste landfill emissions	292	0.4%	292	0.5%
Imported emissions	-	0%	1,233	2%

We need to rapidly improve industry knowledge and understanding of embodied carbon and carbon reporting needs to reflect the challenge and opportunity. If the Commission provided analysis on carbon emissions by consumption it would more clearly illustrate to industry and the community how we can drive change and improved, publicly available statistics would enable better benchmarking of the embodied carbon in New Zealand's building stock and tracking of improvements over time.

Embodied carbon/industrial heat emissions can be reduced through building standards that encourage low-carbon steel and concrete, reducing demand for these materials by reducing construction waste, and the use of low-carbon alternatives like timber.

The NZGBC proposes the Commission's advice include a target of 40% less embodied carbon in new buildings from 2030. Research commissioned by NZGBC⁹ shows that it is possible to get much of the way there, even just with the use of existing materials.

A 40% reduction goal for embodied carbon aligns with World Green Building Council (WGBC) research and targets¹⁰ and will contribute to significant emissions reductions in the industrial heat category. The report from the WGBC is backed by 80 entities including the Global Cement and Concrete Association, HeidelbergCement, CEMEX, LafargeHolcim, Ramboll, Saint-Gobain, Steel Construction Institute, thinkstep-anz, The We Mean Business coalition, worldsteel (World Steel Association), BAM Construct, Bouygues Construction, C40, Cembureau (European Cement Association).

The BFCC programme provides the framework for putting this goal into effect. The NZGBC notes several other critical actions are needed to support the achievement of this goal that the Commission should include in its advice:

⁹ Thinkstep ANZ. 2019. *Under construction: Hidden emissions and untapped potential of buildings for New Zealand's 2050 zero carbon goal.*

¹⁰ WGBC. *Advancing net zero.* <https://www.worldgbc.org/advancing-net-zero>

- A clear target provides materials producers with certainty so that they can invest in transitioning to low carbon outcomes.
- Industry need support to amend standards such as the modifying of NZS 3101 and/or related cement/concrete production standards targeting the need to increase the use of concrete mixes with reduced emissions.
- Removing barriers to timber construction, particularly for mid- to high-rise projects.
- Government must lead change by immediately setting its embodied carbon reduction goals for its own projects and demanding inputs such as concrete be low carbon.

4. Government must lead with its own building projects, as well as the buildings it owns and leases

The BFCC programme sets out a stepped plan for improving operational efficiency requirements in the buildings sector. The programme also proposes that public sector buildings should achieve requirements a step ahead of industry.

Government leadership and setting high standards for government procurement can have a powerful influence on accelerating change in the industry/market. A commitment to improving energy efficiency will also reduce the operating costs of the Government's property portfolio and ultimately benefit the taxpayer.

In addition to reducing embodied carbon in its own projects as noted above, the NZGBC recommends the Commission include the following advice to Government on its own building procurement:

- Commit to achieving the requirements set out in the BFCC programme a step ahead of industry.
- Always build and procure beyond the minimum requirements of the New Zealand Building Code and commit to using recognised best practice rating systems focusing on lower carbon and verifying this through Green Star and Homestar.

For more information on the NZGBC's call for government leadership please see our *Net zero carbon roadmap for Aotearoa*¹¹ and our response to Q.12. in the detailed submission.

5. Councils can incentivise greener buildings

Local governments have the most direct impact on the shape and transformation of our built environment. If we are to see swift and cost-effective change in the built environment, the NZGBC believes it is critical that local government is encouraged and empowered to adjust regulatory policy and financial policy to support more sustainable outcomes for buildings, as well as playing a key role in awareness raising and providing more education to industry. The NZGBC has developed a list of options for local government to better support the sustainable design, construction and operation of homes and buildings, which we believe should be included in the Commission's advice. These options include:

¹¹ NZGBC. 2019. *Net zero carbon roadmap for Aotearoa*.

- Prioritise, streamline or provide extra support in the consent process for buildings with Green Star or Homestar ratings.
- Reducing the costs associated with the consent process for buildings with higher sustainability standards such as Green Star or Homestar.
- Reducing the number of building inspections required if a building achieves a higher quality standard such as a 6 Homestar Built rating or higher.
- Provide trained advisers that can help homeowners, home designers, builders and industry professionals to understand how to reduce the environmental impact of buildings.
- Include information about sustainable home and buildings design, Homestar, HomeFit and Green Star in council design manuals and guidelines, and on council websites.
- Include information about Homestar and HomeFit certifications on property files and LIM reports.
- Work with education providers and building companies to facilitate training programmes.

For more information about how local government can drive green building outcomes, please see our response to Q.8. in the enclosed submission.

6. Co-benefits

The advice should also note the co-benefits of improving New Zealand homes. Improving New Zealand's sub-standard existing housing stock is the single greatest opportunity to improve the health of our nation. Currently 30,000 children go to hospital per year due to unhealthy homes. New Zealand has one of the highest rates of respiratory illness amongst OECD countries.

A low carbon trajectory has substantial benefits for New Zealand. In order to bring Aotearoa with us on this journey it is important to clearly and repeatedly articulate the benefits.

For critical energy efficiency gains, for the sake of our health, for the significant potential productivity gains and for a just and equitable transition to a zero-carbon economy, we must do much, much better than a 6% improvement in by 2035.

The NZGBC welcomes the opportunity for discussion of the points made above and our detailed response in the enclosed submission. Please do not hesitate to contact me if there is further information we can provide, or to arrange further consultation.

We look forward to working with the Commission and the New Zealand Government on an inclusive and well-planned transition to a zero carbon economy.

Yours sincerely



Andrew Eagles
Chief Executive Officer