June 2023

Te Kaunihera Hanganga Tautaiao | New Zealand Green Building Council (NZGBC) submission

The Climate Change Commission's 2023 Draft advice to inform the strategic direction of the Government's second emissions reduction plan

Thank you for the opportunity to make a submission on the Climate Change Commission's draft advice to inform the Government's second emissions reduction plan.

Te Kaunihera Hanganga Tautaiao | New Zealand Green Building Council (NZGBC) strongly supports the Commission's mission. It is vital that we succeed in reducing our emissions rapidly and to achieve net zero. Our critiques of the draft advice should be seen in this light: we want the Commission to succeed, and we think there are important changes needed to the advice to make that happen.

In summary, we recommend that the Commission:

- Provide more recommendations with greater detail so that the Government and other stakeholders can properly understand the full scope of actions needed, and the emissions reductions resulting from the options. Not providing detailed advice, which is foundational to the Government's emissions reduction plan, risks undermining the entire programme, substituting action for more layers of strategy.
- Be more ambitious in reducing emissions from buildings. There is an array of policies that create emissions savings with low net cost or, frequently, new cost savings, reducing transition costs across the entire economy. The current recommendations are too narrow and too vague to be properly actioned and miss huge potential to do more.

In our full response below we have laid out our full recommendations and feedback, including additional policies we believe are key to slashing carbon and creating a sustainable future.

These include;

- A strong deep retrofit programme, including extending the existing Warmer Kiwi Homes, and introducing Energy Performance Certificates inline with most OECD countries
- Pushing for the government to deliver the promised Building for Climate Change programme to move the dial on new building requirements
- Encourage education on the dangers and emissions of gas systems.
- Setting an embodied carbon target for 2030 for buildings

- Introduce a clean home feebate scheme (similar to the clean car rebate but for sustainable homes)
- Incentivise lower carbon, healthier buildings through financial and regulatory benefits – in particular to amend the building levy to create a clean home rebate by 2027
- Support energy labels on buildings
- Amending emissions pricing, with alternatives to industrial allocations including a Carbon Border Adjustment Mechanism.
- Expand up-front, transitional finance (in the form of loans or equity stakes) as a way to meet our emissions budgets and manage emissions leakage

Thank you once more for the opportunity to present our views on the Climate Change Commission's draft advice to inform the strategic direction of the Government's second emissions reduction plan. We would welcome the chance to speak with the Climate Change Commission directly to provide further detail on our submission.

Yours faithfully

Andrew Eagles

Chief Executive

About the Te Kaunihera Hanganga Tautaiao | New Zealand Green Building Council (NZGBC)

The NZGBC is a 700+ membership organisation comprising construction firms, suppliers, major property owners, banks, and research institutions focused on improving the environmental sustainability of buildings and building methods.

We represent the construction industry's expertise on sustainability and, with thorough input from industry experts, design and operate the Green Star and Homestar certification programmes that are the benchmarks for the environmental sustainability of buildings in New Zealand. We also administer NABERSNZ on behalf of central Government.

Part 1: The approach of the Climate Change Commission's advice

Proposed advice lacks detail

The Climate Change Commission is fulfilling an important role in defining the emissions reduction task and driving needed policy changes. As the Commission notes, if we are to achieve the 2050 net zero target, then more action will be needed in the second carbon budget period, particularly with regard to long-lived capital investments that lock in emissions for decades into the future.

We at NZGBC are concerned, therefore, that the Commission has moved away from providing detailed policy recommendations as it did in *Ināia tonu nei*.

The hundreds of action points in that advice to the Government set a standard, which was reflected in the Emissions Reduction Plan for the first carbon budget, of focusing on concrete actions, rather than guiding principles. Although the Government did not adopt all of the Commissions' recommendations, it adopted many of them and they now form the bedrock of the government's climate agenda, and guide the climate work of multiple agencies.

In the draft advice, which is only half the length of *Ināia tonu nei,* those detailed policy recommendations are missing, with just a single page of bullet points on "creating low emissions options" and, incredibly "no recommendations proposed" for "enabling system transformation".

The recommendations proposed are so vague that their effect on reducing emissions cannot be adequately assessed. This, again, is in stark contrast to the level of information provided in *Ināia tonu nei*. Not providing information on the efficacy of the recommendations increases the likelihood that they will not be acted on, because the Government is not being given a clear idea of the benefits of the recommendations, to be weighed against their costs.

Whole swathes of policy areas are missing from the draft advice. For example, there is only passing mention of the Building for Climate Change programme and new build standards, effectively treating this as a solved problem, which it very much is not. Energy Performance Certificates, which were an important part of the advice in *Ināia tonu nei*, including specific deadlines, are not mentioned at all – even if actions are in train, such as Energy Performance Certificates which are currently being enabled through a legislative process, the Climate Change Commission can hold the government to account on the delivery of actions, the regulatory settings which will eventually come into discussion, and provide positive and constructive reinforcement.

The Commission explains this, saying *"We have also centred our recommendations on identifying outcomes. If Aotearoa New Zealand can agree on the outcomes needed to achieve the second emissions budget and enable future climate goals, then it's up to the Government of*

the day to work through the details of the policies needed to achieve them." The move away from detailed advice is also reflected in the change of title from the direct *"Advice to the New Zealand Government"* in *Ināia tonu nei* to the wishy-washy *"advice to inform the strategic direction of the Government's second emissions reduction plan"* in the draft advice.

We do not understand this change in approach. It feels like kicking the can down the road. And unfortunately is open to interpretation for the government of the day and further delays.

Lack of ambition during a climate emergency

As the Commission knows, the history of climate action is replete with strategies and plans that only look at the high level and amount to no action. We do not need more 'strategy'. The need for detailed emissions reduction ideas has not decreased. If anything, it has increased.

The risk is that if the Commission presents to the Government a set of high level recommendations that state general approaches to reducing emissions which are, frankly, obvious at this point, rather than recommending specific actions, then that approach will filter through to the second Emissions Reduction Plan and it, too, will lack concrete actions.

Where the Commission provides a detailed set of policy recommendations this helps Governments act more quickly and overcome hurdles to action.

It is an abdication of responsibility and setting up a potential disaster of inaction to say "*it's up to the Government of the day to work through the details of the policies"*. This position missed the point - the Government of the day has already set up the Climate Change Commission to do that sifting of policy options and come up with recommendations that would achieve the emissions reduction goals. The Government did this out of recognition that a dedicated climate agency was needed because other agencies' attention can easily be drawn elsewhere.

The Climate Change Commission was created to be the driving force behind achieving Aotearoa's climate goals. Its mandate was to provide leadership, with science-backed evidence and actionable recommendations. Retreating to obvious, 'strategic' recommendations risks inspiring apathy and inaction in the rest of government.

The lack of specific policies also makes modelling the impact of policy choices impossible. Strong policy decisions that have longevity to reduce carbon require being technically correct, politically supportable and organisationally implementable.

While the Commission has provided a demonstration path to be compared to a current policy reference path, it is unclear how the demonstration path can be achieved given the lack of detailed policy. There is a 20mtCO2e/yr difference between the two paths by 2050, but the Commissions provides no link between the high level recommendations it provides and the very specific emissions reductions modeled. Government can only assess the effects of following the Commission's advice if they understand the effectiveness of specific policies.

It is hard for submitters to engage with the vague advice offered in this draft. NZGBC has extensive technical and policy expertise in improving the sustainability of buildings but the Commission's apparent disinterest in detail makes us worry that our input in this consultation it will not be worth the effort, and that the actionable policies presented below will just be ignored.

It may be the Commission's intent that the recommendations in this draft advice are read as supplementary to those in *Ināia tonu nei*. But that is not at all clear and the references to providing "strategic" advice, rather than actual policies does not lead to that conclusion.

We strongly call on the Commission to restate the specific recommendations from *Ināia tonu nei* that are still relevant or unactioned and highlight additional specific policy actions to address gaps or under-delivery in emissions reductions.

Part 2: Creating low emissions options

Reflecting the above comments, we would want to see a much more comprehensive and ambitious set of recommendations in the Built Environment section.

There are significant opportunities for low net cost or net cost saving emissions reductions in our built environment that go beyond the emissions savings modelled in the demonstration path.

Proposed Recommendation 10

Implement an integrated planning system that builds urban areas upward and mixes uses while incrementally reducing climate risks

NZGBC supports this recommendation. It is consistent with the direction of government policy through the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act, the Natural and Built Environment Bill, Spatial Planning Bill, and Climate Adaptation Bill. It also coincides with the National Policy Statement on Urban Development (NPS-UD) and the National Policy Statement on Highly Productive Land (NPS – HPL).

The Commission's responsibility is to show us more specificity here and we would like to see it. What level of density and mixed use is necessary to produce what level of emissions reduction? Is the current policy direction of travel sufficient or is more needed? This recommendation is insufficiently detailed for us to understand how it contributes to the Commission's demonstration path.

Given this is one of just 19 recommendations, the work already underway regarding densification, and that the Commission has said it is targeting 'gaps', the Commission needs to

explain the gaps it has identified here, and how much more ambitious the Government needs to be. What working definition is the Commission utilising for these "gaps"?

Frankly, some of the commentary in this section is dated. For example, referring to the "quarter-acre dream", when 58% of new consents nationwide are multi-dwelling units, with the figure 78% in Auckland. The need to densify has been known for decades and has been acted on in recent years. The Commission needs to lay out a more detailed path to going further. It is worth considering the useful policy proposals the More Homes Coalition have set out.

Proposed Recommendation 11

Incentivise comprehensive retrofits to deliver healthy, resilient, low emissions buildings.

The NZGBC strongly supports a comprehensive retrofit programme for Aotearoa's homes. Improving our homes can improve health, reduce energy bills for households, improve the resilience of the grid and free up power for other sectors such as the electric vehicles.

A lot could be learned from the UK Climate Change Commissions UK Housing; Fit for the future report. This report found action is needed in the following five areas:

1. *Performance and compliance*. The way new homes are built and existing homes retrofitted often falls short of stated design standards.
2. *Skills gap*. There is a skills gap in housing design, construction and in the installation of new technologies.
3. *Retrofitting existing homes*. Ensuring existing homes are low-carbon and resilient to the changing climate is a major infrastructure priority, and must be supported as such by the Treasury.
4. *Building new homes*. New homes should be built to be low-carbon, energy and water efficient, and climate resilient.
5. *Finance and funding*. There are urgent funding gaps which must be addressed, including securing Government funding for low-carbon sources of heating and better resources for local authorities.

Many of the same recommendations could be said of New Zealand. Ambitiously renovating New Zealand homes would make a fully renewable, fossil fuel free electricity system easier and cheaper to achieve by dramatically reducing electricity demand for heating – while also helping to alleviate the so-called 'dry year problem', research has unveiled.

The NZGBC urges the CCC to extend this recommendation to cover "support" and "incentivise" retrofit so as to cover the following five areas

a. *Deep retrofit*

Deep retrofit programmes are being undertaken across much of the OECD, with the aim of lifting the housing stock to the near zero energy standard, which is already the standard for new builds.

An assessment of the Irish Deep Retrofit pilot showed an 85% reduction in energy use on average for renovated buildings. This is much less costly than demolishing and rebuilding to new standards, and reduces the need for new renewable electricity generation investment.

In 2024 & 2025 we recommend Government funds a pilot deep retrofit programme for 300 – 1000 homes (cost circa $24m - $60m). This would allow Government to collect evidence on:

- actual costs and lessons learnt on ways to reduce costs
- training needs
- benefits, through monitoring of the homes. BRANZ is undertaking a major monitoring programme currently (HEEP 2.0) and is intending to keep the monitoring equipment for future projects.
- how best to structure the programme.

This will help provide the evidence and knowledge to deliver on a deep retrofit programme for hundreds of thousands of homes in the second carbon budget, 2026-2030.

There is a strong call from the sector for a major programme of retrofitting New Zealand's 200,000 coldest homes to lower the cost of living, improve health, and reduce emissions.

The Homes We Deserve campaign is an unprecedented alliance of organisations calling for a "pollution busting home reno programme" for hundreds of thousands of homes has surged to over 160 signatories. The vast alliance includes business, health, sustainability, environmental, consumer, building and housing organisations including;

The Asthma and Respiratory Foundation, 350 Aotearoa, Auckland Property Investors Foundation, Beautification Trust, Beca, Bunnings, Coal Action Network, Child Poverty Action Group, Consumer NZ, Eco Choice Aotearoa, Greenpeace Aotearoa, JLL, Lawyers for Climate Action, Naylor Love, Octopus Energy, OraTaiao: NZ Climate and Health Council, Parents for Climate Aotearoa, Pure Advantage, Vector, WSP.

These organisations and well over 100 other groups are calling for a "fully funded ambitious plan" to improve at least 200,000 homes.

We recommend that the 2026 climate budget include substantially retrofitting New Zealand's 200,000 coldest homes to lower the cost of living, improve health, and reduce emissions.

It would be a major undertaking and require the development of training programmes for installers, finance and delivery mechanisms and take a number of years to implement.

The scheme could be administered by the Warmer Kiwi Homes team at EECA. We understand they are already carrying out smaller scale deep retrofit trials in the South Island.

Driving forward a full retrofit programme requires a focus in a wide range of areas, including grants, finance, legislation, one stop shoppers and training. For an example of a full retrofit programme see Appendix one showing the complete programme of work being undertaken in Ireland.

b. Extend Warmer Kiwi Homes

Warmer Kiwi Homes is currently only open to community service card holders and homes in deprivation zones 8, 9 and 10. We recommend:

i) expanding the scheme to other deprivation zones. In addition, the scheme should expand what it offers to include measures with known short payback times, or that offer significant quick wins from a carbon reduction point of view

ii) a significant programme to target 500,000 homes that have older cylinders that would benefit from a 'wrap'. Insulating these cylinders could save in the region of $40M in electricity costs and reduce carbon emissions by around 20,000 tonnes per year

iii) a greater number of gas system replacement – subsidise the replacement of gas fires with heat pumps and gas hot water systems with electric cylinders. This would insulate lower economic consumers from escalating gas prices. Around 20% of homes have gas space heating

The Warmer Kiwi Homes programme has started with a small number of heat pump hot water systems (7,500). This should be significantly scaled up. Costs of these systems is likely fall if a scheme scaled this up, meaning more NZ families are likely to take it up. Heat pump hot water systems offer efficiencies up to 3 times higher than conventional electric cylinders.

Eliminating gas from New Zealand homes would reduce carbon emissions by around 250,000 tonnes each year if replacing with direct electric heaters and hot water cylinders – more if replacing with heat pumps.

c. Harness the improvements being made to existing homes by driving up double glazing and wall insulation.

At present many people are replacing like for like when improving their homes. This is a missed opportunity to improve health, lower carbon and cost of living.

NZGBC proposes that replacement of 'controlled fittings' (UK terminology) such as windows and walls should trigger the need for building consent, and that building consent should require the controlled fittings to be upgraded to current building code.

To offset the extra admin of this, speed up consents and reduce costs we need a

competent persons' scheme that would mean a builder could carry out the work safe in the knowledge that they have the QA processes/competency to do the work in a compliant manner.

Risk could be managed through use of a national accredited installer scheme for retrofit wall insulation, and requiring replacement items in homes that meet the current standards for insulation and energy efficiency – as other countries already do.

d. *Allow homeowners to pay for home insulation and energy efficiency through voluntary targeted rates*

There was good demand for Voluntary Targeted Rates (VTR) schemes before they were shut down under the Credit Contracts and Consumer Finance Act (CCCFA). An exemption for council VTR lending would be needed.

Central government could underwrite local authorities (particularly smaller ones) to offer VTR programme by providing nationally consistent collateral and loan guarantees. Alternatively, it could be managed by the central government to reduce the likelihood of a postcode lottery.

Capital costs are taken on by individual homeowners with only a small administration cost for local authorities. This is an easy win to achieve targeted carbon reductions at the Council level, while contributing to achieving our shared climate goals.

e. Improve data and make performance transparent -

At present we know that 30-40% of New Zealand homes are damp or mouldy. We do not have data on asset conditions, insulation, heating and ventilation properties of homes. Nor are home buyers made aware of the health or energy performance of a home before they buy.

Energy Performance Certificates (EPCs) are similar to energy efficiency labels for vehicles and appliances, they provide prospective homebuyers and renters with information on how well insulated and expensive to heat a home is.

Used in other countries, including the UK and EU, EPCs are the linchpin of housing, health and carbon policies.

EPCs were part of the Government's 2020 manifesto and the first Emissions Reduction Plan included measuring energy performance. However, this has not yet been implemented. We understand that the Government will soon be introducing legislation to enable energy performance measurement of existing buildings. Much of the initial analysis and regulations is focused on commercial buildings. This should be expanded to consider homes also.

The Healthy Home Standard (HHS) can be a starting point with EPCs. It is already mandatory to record the level of compliance with the HHS on rental agreements. We recommend taking this a stage further by:

- recording the level of compliance on a national register, preferably with a formal inspection regime with trained and licensed inspectors
- expanding the requirement to report on homes for sale. There would be no requirement to reach a minimum level of energy efficiency, merely the requirement to report when marketing a home for sale
- expanding the items required to be reported on to include the presence of wall insulation, glazing type, hot water type and level of insulation (if a cylinder).

EU legislation requires the above information to be fed into an algorithm that gives the home an energy efficiency score (A-G). To keep the scheme simple, this need not be introduced at first. Government could leave it to the market to come up with a rating scheme based on the information provided on the national register.

In New Zealand, for example, E could be compliance with the current Healthy Homes Standard, while A would be aligned with the near zero energy standard to be set for new builds from 2030 or 2035 under the Building for Climate Change programme

It is hard to manage what is not measured. EPCs are the linchpin for other potential initiatives such as deep retrofit, regulations, financial incentives and sustainable finance. Government should aim to legislate for goal of EPCs at point of sale by 2027. This would improve data we have on NZ homes helping to identify where the issues are and ensure greater transparency about the quality of the homes being sold.

Proposed Recommendation 12.

Prohibit the new installation of fossil gas in buildings where there are affordable and technically viable low emissions alternatives in order to safeguard consumers from the costs of locking in new fossil gas infrastructure.

The NZGBC supports a ban on new gas connections. However, it would appear that this directive is losing momentum. The current government has already rejected this recommendation just last year. A new government would be even less likely to adopt it. It is obviously not the Commission's job to be political but its advice should be grounded in reality, and that includes not pinning hopes on something no government is likely to agree to.

It is ironic that this is the most detailed proposal of the three. Those details, themselves, show that the Commission recognises how politically fraught the proposal is.

Further, it would be useful for the Commission to provide some data on how this recommendation helps achieve the demonstrated path - it is hard to see how a government is going to burn political capital on a recommendation that doesn't even explain how much it would reduce emissions.

Finally, given how unlikely it is that this proposal will be implemented, the Commission should look to other options for achieving the emissions reductions it would enable. The following three steps are recommended.

a) Implement ambitious carbon caps in new buildings (as MBIE's Building for Climate Change programme has signaled). Given the difficulty gas will have in meeting lower carbon levels this could drive down gas connections in new buildings without this being explicit.

b) Extend the Warmer Kiwi Homes programme to subsidise the swapping out of gas systems.

c) Educate New Zealanders on the dangers of gas systems. - More and more studies are showing that home gas cooking appliances may be exposing people to levels of indoor air pollution that breach international regulations. When in use, gas hobs and ovens emit carbon monoxide, carbon dioxide (CO2), nitrogen dioxide (NO2), and ultra-fine particles, which can linger indoors for hours after use.

As a fossil fuel, burning gas when cooking emits both CO_2 and unburned methane, two potent greenhouse gases. Even when switched off, gas hobs leak methane – the main component of fossil gas used for cooking, which can warm the Earth more than 80 times as much as the same amount of carbon dioxide over a 20-year period.

The NZGBC recommend that Te Whatu Ora take responsibility for educating New Zealanders on health risks of gas cooking systems.

Part 2: Additional recommendations for emissions reductions

Tackling emissions from residential construction

Under the Commission's demonstration path, there are still significant emissions from the operation of residential buildings (both from direct use of fossil fuels and emissions from electricity generation).

In the second budget period, 12mt/CO2e is forecast. By 2050, annual emissions are still expected to be over 0.7mt/CO2e. (again, it would be useful if the Commission's draft advice showed how it expects its proposed recommendations to contribute to these emission reductions).

Residential buildings are projected to account for 32% of electricity consumption in the second budget period, and still account for 26% in 2050. Another way of looking at this is the 17,000GWh of annual residential electricity consumption in 2050 is equal to two thirds of the additional electricity generation needed under the demonstration path between now and 2050.

A greater emphasis on improving the energy efficiency of residential buildings would not only reduce emissions directly, it would also reduce the cost of building new electricity generation capacity/make it easier to achieve the target of 100% renewable electricity, and ease the labour and consenting constraints for new electricity generation, which the Commission is concerned about.

In fact, the largest contribution building energy efficiency can make is likely to be freeing up renewable electricity for other uses, such as electric vehicles, reducing the cost of decarbonising those sectors by reducing the investment needed in renewable electricity.

Additionally, there is potential to reduce the embodied carbon emissions in residential building through reducing use of energy intensive materials and reducing waste. As we've seen recently with the announcement of New Zealand's biggest ever emissions reduction project through the electrification of steel recycling, there are huge emissions savings to be had from the construction supply chain. We need more developments like this in other hard to abate industries like cement.

Not only is there potential to do better than the demonstration path, aiming for greater reductions is also an insurance policy. The Commission notes that the Government has chosen not to enact several of the recommendations in *Ināia tonu nei* and emissions reductions in some sectors are less than the demonstration path. It would be wise, therefore, to make recommendations that are more than sufficient to attain the demonstration path.

Bring the Building Code to the near zero energy standard as quickly as possible

The Building for Climate Change programme is flagging. Key consultation dates have been delayed a year. Information the sector needs is not being collated or released. It is not clear the technical analysis is being undertaken. Aotearoa is falling behind as other countries adopt near zero energy standards for new buildings. Four steps need to be taken.

1. *The Commission should recommend Government deliver on the promised Building for Climate Change. This programme aimed to amend the Building Code to require near zero operational energy buildings by 2030.*

Government has set out that the first cap will come in around 2025. A clear pathway for the future changes also needs to be set out at this stage. The second carbon cap should come into force around 2028.

The delays in starting the Building for Climate Change programme is placing pressure on future years. The early 2030 date needs to be retained. Every house built below the near zero energy standard is going to make attaining the zero carbon target harder and costlier, as those homes will still be part of Aotearoa's housing stock for decades to come.

Research from BERL on zero carbon homes and buildings clearly showed that building near zero emissions houses earlier has the greatest impact and the earlier these houses are built, the greater the economic impacts, electricity savings and emissions avoided

Hitting near zero carbon in the early 2030s would cut 13 million tonnes of carbon while electricity demand from new build houses and offices would be slashed by over 8,000 gigawatt hours in 2050 compared to standard homes and offices built today

It would also contribute an additional $147 billion to New Zealand's GDP, and support an average 46,000 additional full-time jobs every year between 2025 and 2050.

2. *Government should continue to commit to building above the building code standards, helping lead the sector*

Currently Government procurement guidelines require departments to certify to 5 star Green Star on new buildings budgeted at $9m or over. Kāinga Ora are building to 6 star Homestar. Government must continue to honour these commitments and lead by certifying to above Building Code levels in the 2026-2030 carbon budget period. This will help the sector to gain knowledge and prepare for the coming changes to the Building Code.

3. *Amend the building levy to create a clean home feebate scheme by 2027*

Emissions from construction and property are rising in New Zealand. They will continue to do so unless we make systemic change. NZGBC proposes changing the building levy to help the sector decarbonise. This is especially important in the 2026 – 2030 timeframe this budget covers.

The way we build homes and buildings at present is five times our carbon budget. It is going to take a great deal of education and guidance material to help the sector deliver on energy modelling, calculating and reducing embodied carbon emissions between now and the early 2030s.

We are in a climate emergency. We need to draw on all the levers we have available to help drive change. Many in the sector would like to lead with lower carbon homes, helping the sector learn and prepare for regulatory change. It is recommended that analysis is undertaken to create a feebate system for lower carbon homes.

The building levy is currently in consultation. It should not be reduced to a lower rate instead, it could draw income with which incentives could be paid out for lower carbon healthier homes. Designed correctly this could create a circular scheme with no capital cost to Government.

The clean car feebate has been a success in helping the transport sector transition to lower carbon cars. The same could apply for construction of homes.

Currently it is proposed to reduce the building levy from 1.75 to 1.48 per $1,000. A suggestion is not reducing this amount but instead recycling the additional funds for a discount for lower carbon healthier homes.

The scheme is potentially self-financing. Aurecon and Kwanto, quantity surveyors, have recently worked together to cost the building of two bed terrace and four bed stand alone homes. They found throughout New Zealand an average build costs $510k and $1.15m respectively. Based on these numbers the current building levy would return an additional $1.4k - $3.1k per house. With a conservative estimate of 38,000 consents per year this could deliver $85m, allowing 15% of the market to gain a discount of $15k.

It would be particularly helpful for the second cap change to the building code helping cover the cost for a lower energy design and build of homes. This incentive could work the same way the clean car feebate works. The "fee" could be generated by the building levy. Homeowners with homes built to lower carbon standards could receive a feebate of $15k upon provision of an approved certificate evidencing the home is lower carbon.

The Climate Change Commission should recommend the clean home feebate come into effect from 2027. It would provide an incentive for builders who want to lead the sector and deliver better homes. Many of the mechanism are available now to make this happen. For instance, the certification regimes of Homestar and Passive House can verify new build homes have been built to more sustainable lower carbon standards.

4. *Climate Change Commission should call on Government to make a clear embodied carbon target in the region of 40% less by 2030*

Building materials – like steel, aluminium, wood, concrete and others – can cause large amounts of carbon pollution long before the key is turned in the lock or the lights go on for the first time. Embodied carbon is 9% of New Zealand's emissions.

While it's good that the Climate Change Commission advice mentions embodied carbon, it's lacking a specific goal. The Climate Change Commission seems to skirt around this significant issue.

Without a target the sector lacks clarity, investors won't invest, those designing new manufacturing processes won't build new factories. We risk missing out on all the benefits of healthy, zero carbon Aotearoa if this isn't tackled, and it's a big hole in the recommendations.

We're calling for a target of 40% less embodied carbon in new buildings by 2030. That is the target established by the influential World Green Building Council in their seminal work Bringing embodied carbon upfront

Government departments, global business groups, consultants and global construction material providers support this call including Lafarge Holcim, C40 Climate Leaders Group, Heidelberg Cement, Microsoft, Ministry of the Environment (Finland), Royal Institute of British

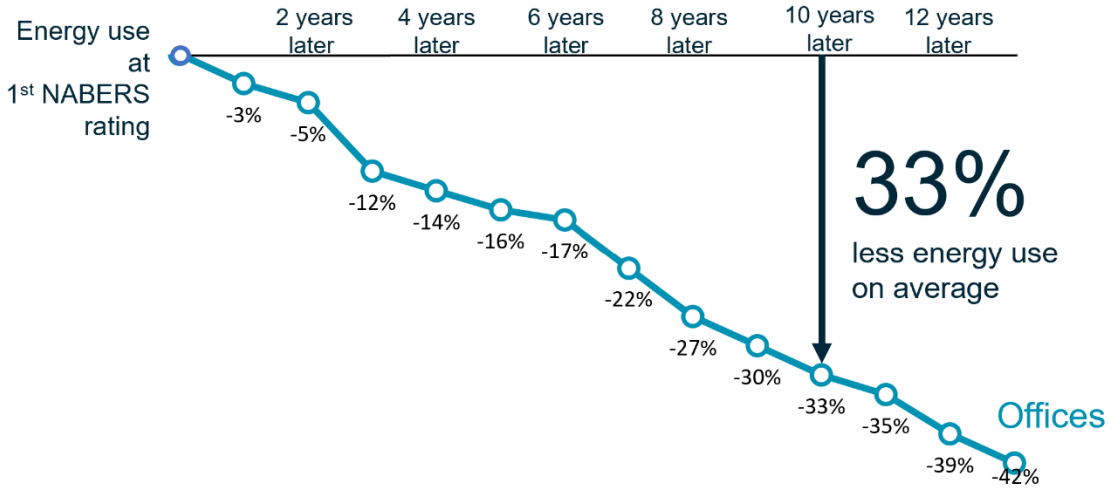
Architects, Volvo Construction Equipment, We Mean Business, Willmott Dixon, World Business Council for Sustainable Development, WSP, The Climate Group, Dalmia Cement (Bharat) Limited and many others.

Make the energy performance of our buildings transparent

Climate Change Commission needs to recommend making the energy performance of buildings transparent a proven method for the market to drive down carbon emissions

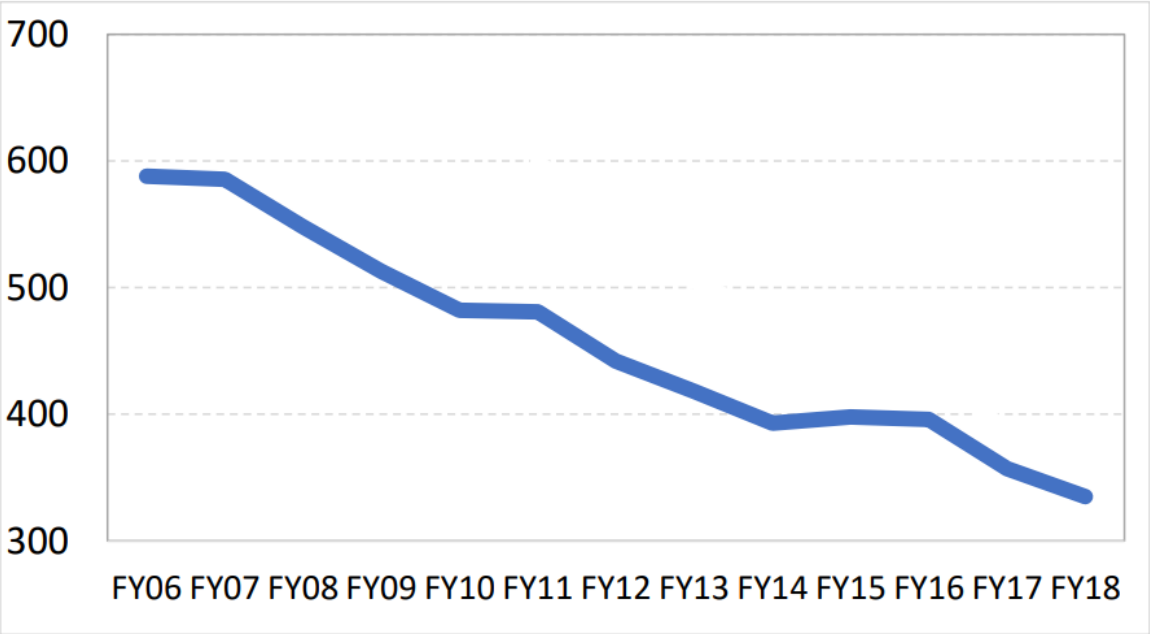
The NABERSNZ tool, licensed in New Zealand by EECA, is adapted from the Australian NABERS (National Australian Built Environment Rating System) tool, which was developed by the Australian Government and has been compulsory there since 2010. NABERS reduces energy used by an average of 30-40% over time, with nationwide savings exceeding AUD$1billion and a 7 million tonne reduction in CO2 emissions.

In Australia, NABERS is required on the sale or rent of any commercial office building of more than 1,000m2. NABERS helps reduce energy use significant. It also verifies this reduction in a robust way. The following graph shows how energy use tracks down over time in buildings undertaking regular NABERS ratings.



Graph Source: Department of Planning, Industry and Environment, New South Wales, Australia

The following graph shows energy use in office buildings (MJ/m2) reducing almost 50% between 2006 and 2018 following mandation of NABERS in Australia.



Graph Source: Department of Planning, Industry and Environment, New South Wales, Australia

There are undoubtedly significant emission reductions and energy savings to be achieved by improving the energy efficiency of more commercial buildings, which will make it more practical to achieve the Government's renewable energy and emissions reduction targets and freeing up for other uses such as the strong demand from the electrification of transport and industrial processes.

It is recommended that the compulsory EPC regime is rolled out as follows:

- For buildings from 1000 sq metres and above as is required in Australia
- Start with office buildings, warehouses (and cold stores) and shopping centres and moves on to other building types

It is also recommended that by 2026 additional building typologies are bought to New Zealand for use on a voluntary basis. These are to include data centres, hotels, retirement living, education.

Amend approach to emissions pricing laid out in Chapter 4

When we all play our part in reducing emissions, then we can get further together, faster. New Zealand businesses are at their best when finding creative ways to tackle hard problems. But right now, some of New Zealand's biggest industrial polluters get a free pass for their pollution, locking in unsustainable business as usual.

For the last 15 years, people in successive governments have handed out free carbon credits to heavy industries like steel, cement and fertiliser that make up 10% of Aotearoa's pollution, costing the government $600 million a year, and encouraging these companies to maintain business as usual, not to invest in decarbonisation.

Under current legislation, these companies will still be getting free credits for decades to come, even after the whole country is meant to be at net zero emissions. Meanwhile, everyday households play their part by paying the carbon price in our petrol and electricity bills. This is putting the burden of action on individual households while locking thousands of jobs into fossil fuel dependency, and liable to shock transitions as the rest of the world takes faster action.

The recent announcement of NZ Steel's decarbonisation plans with support from government, shows that these industries can transition, and that free carbon credits are no longer needed.

By ending free carbon credits, providing upfront loans for industries with decarbonisation options, and protecting domestic producers from more polluting competitors with a carbon border mechanism, the government can accelerate emissions reductions and ensure every sector is taking responsibility for its pollution.

We can protect jobs that are necessary for decarbonising the wider economy, while supporting a just transition for those in industries that don't have a place in a climate safe future.

It's time to end free carbon credits, cut pollution and unlock green jobs for our clean industrial future.

NZGBC calls on the Climate Commission to recommend that Government urgently starts a work programme on alternatives to industrial allocation including a Carbon Border Adjustment Mechanism and expanded up-front, transitional finance (in the form of loans or equity stakes) as a way to meet our emissions budgets and manage emissions leakage.

We also call for Government to legislate for:

- Ending free industrial allocation in the Emissions Trading Scheme by 2030 and accelerate emissions reductions
- Use revenue generated from ending free allocation to contribute to the upfront costs for decarbonising highly emitting industries (in the form of loans or in return for equity stakes)
- Protect jobs in the national interest with a Carbon Border Mechanism, by prioritising NZ made products for a due period, such as 10-15 years, and fund a just transition for any affected workers.

Where recommendations on Chapter 4 - ETS pricing is delivered this will help deliver on Chapter 6 - Maintaining and enhancing employee wellbeing through the transition.

Amend recommendations to energy and industry laid out in Chapter 9

The NZGBC calls on the Climate Change Commission to recommend Government investigate an Energy Company Obligation (ECO) similar to that adopted in the UK.

The ECO scheme works by placing a Home Heating Cost Reduction Obligation (HHCRO) on medium and large energy suppliers. Under HHCRO, obligated suppliers must promote measures to improve the energy efficiency and health of UK homes.

This includes actions that result in reduced energy usage, such as installing insulation or upgrading a heating system. The overall target for these measures is divided between suppliers based on their relative share of the domestic gas and electricity market.

ECO3 ran December 2018 until March 2022 delivering £8.3 billion in cost saving.

The ECO3 final determination report provides details on the scheme performance and a summary of energy suppliers' achievement against their obligations.

This could revolutionise energy efficiency and carbon reductions in New Zealand providing additional funds to help decarbonise NZ's homes and improve health.

In the UK 1.03 million energy saving measures were installed over the course of the three and a half year ECO3 programme including

- Inefficient boilers replaced with energy efficient condensing boilers or low carbon heating alternatives.
- Wall insulation
- Underfloor insulation
- Loft insulation installed

It is estimated that measures installed since the first ECO scheme was introduced in 2013 will provide lifetime carbon savings of around 58.2 MtCO2e. This is equivalent to the amount of carbon absorbed by 264 million mature trees over 10 year.

This could be a way to ramp up the funding for Warmer Kiwi Homes programmes enabling more homes to be reached, reducing energy load on the grid therefore reducing the amount of renewable generation required.

Appendix 1 - An example of a comprehensive plan for retrofitting – Ireland's National Retrofit Plan

The National Retrofit Plan aims to achieve the equivalent of 500,000 residential homes retrofitted to a B2 Building Energy Rating (or cost optimal or carbon equivalent). The secondary target aims to install 400,000 heat pumps in existing homes to replace less-efficient heating systems. Both targets aim to achieve these numbers by the end of 2030.

To achieve 500,000 homes to B2 BER, significantly more homes will need to be targeted by the programme, as not every home will be able to achieve this rating. The Government of Ireland (2022) estimated that between 2019 and 2025, 185,000 homes will have received energy upgrades, with over 83,000 of those homes upgraded to a B2 or above level.

The retrofits will be organised and monitored by teams from the Department of Energy, Sustainable Energy Authority of Ireland (SEAI), and the newly formed National Retrofit Steering Group. The monitoring teams will develop annual residential retrofit plans to ensure the programme stays on track, and will include additional measures, such as regulation and taxation policy levers, if needed.

Currently, the programme consists of three grant packages:

- **Individual energy upgrade grant package:** Up to 80 percent of the retrofit cost paid for by SEAI, where the retrofit project is self-managed by the homeowner. The homeowner pays for the retrofit work first, then claims the grant afterwards. Homes built before 2011 are eligible for insulation and heating upgrades.
- **One-stop-shop (OSS) service package:** A complete home retrofit service, provided by a registered company approved by SEAI. Up to half (45 to 50 percent) of the cost is covered by SEAI. All work, including the grant application, is managed by the service. The service is for homes built before 2011 and ensures a minimum rating of B2 for all homes.
- **Fully funded upgrade package:** All costs are covered by SEAI. This package is for homeowners who receive welfare support from the government, for example the Job Seekers Allowance and the Carers Allowance. Homes built before 2006 are eligible. This arm of the programme previously existed as the SEAI Warmer Homes Scheme which received $170 million of funding in 2021. The Warmer Homes Scheme previously delivered 143,000 upgrades to homes, with an average value of $30,000.

The grants are only one dimension of the plan. The other products of the plan include:

- **Upgrading the BER into the BER Advisory Report:** The scope of the BER is expanded to provide more to homeowners than just an energy efficiency rating. Similar to work which proposed the idea of energy passports (Irish Green Building Council & Limerick Institute of Technology, 2020), the BER will be upgraded to include an advisory report

which details the steps required to get the house to at least a B2 rating. The Advisory report functions as a guide for the homeowner to understand what works will be necessary, and the best routes to seek funding to ensure the works are affordable and feasible. The BER Advisory report is attached to the house (not the owner), which means the information will pass on to new owners if the house is sold.

- **A network of one-stop-shops will be established:** To simplify the homeowner journey, one stop-shops (OSSs) will be linked with the help of SEAI. The SEAI will register all OSSs to ensure they meet performance indicators, and that project pipelines progress at the expected rate.
- **Increased support for Sustainable Energy Communities (SECs):** SECs were set up in 2015 to support communities with energy-saving awareness activities and local energy saving measures. The target is to grow the number of SECs in Ireland from 530 to 1,500 by 2030. Increased funding will support small-scale community programmes that deliver energy-saving products and services to households.
- **Requirements for rental properties:** Because the incentive to improve the energy efficiency of a house is misaligned between landlords and tenants, the National Retrofit Plan will introduce a minimum BER rating requirement for all private rentals from 2025.
- **Expansion of the Local Authority Retrofit Programme:** 36,500 homes will be targeted to be brought up to a B2 standard through the Local Authority Retrofit Programme by 2030. $148 million has been allocated to local authorities in 2022 to deliver these retrofits to their communities.
- **The Energy Company Obligation programme will be expanded:** There has been an energy company obligation (ECO) programme in place in Ireland since 2014. ECOs and how they function are discussed in greater detail in the following section. Energy companies are required to deliver energy saving interventions to households, either through their own programmes, or through partnership with SEAI one-stop-shop providers.
- **Residential Retrofit low-cost loan guarantee scheme:** The Government of Ireland is working with the Strategic Banking Corporation of Ireland to develop a scheme where the Government, through EU funding and Exchequer funds, will provide risk protection to retail credit institutions to deliver loans for low-energy upgrades. Because of the Government backed guarantee, the National Retrofit plan expects the result to produce commercially available low-interest long term loans for efficient residential retrofits.
- **Focused training:** The Government of Ireland will invest in Near-Zero Energy Building training in specialist centres, and further invest into building and construction apprenticeship support. Building capacity within local authorities and central agencies will be prioritised to ensure adequate support is available for retrofit projects. Importantly, a prime focus will be on increasing the number of BER assessors in Ireland to ensure retrofit projects are not bottlenecked at the beginning of their journey.

Funding model

The National Retrofit Plan estimated that the cost to retrofit the fabric of a house and install a heat pump (to achieve a B2 rating) will be between $24,000 and $115,000 per house in 2022 prices. When this cost is multiplied by the number of targeted buildings, a lump sum of $49 billion would be required to deliver all the required retrofits in 2022 (Government of Ireland, 2022). Of course, it was not feasible to provide these funds from government coffers alone.

The budget of the National Retrofit Plan draws from allocations provided under the Government of Ireland's National Development Plan, which earmarked $14 billion of funding to residential retrofits, of which $8.71 billion is to be drawn from carbon tax revenue. The total amount is sizeable but will not be enough on its own to deliver 500,000 B2 retrofits by 2030.

The National Retrofit Plan expects homes that fall outside of central loan and grant packages to be upgraded partly through the Low-Cost Loan Guarantee scheme, which would put less immediate pressure on Government funds (as funds are only needed if debtors' default on their guaranteed loan).

The other element to meet shortfalls will be interventions directly or indirectly delivered by energy companies through their ECO obligations. The plan envisions that those unable to afford retrofits will receive them through appropriate grant packages, and those who can afford retrofits can access cheap and low-risk capital to deliver the retrofits.

The National Retrofit Plan exemplifies that there is no silver bullet to solve residential energy efficiency. Rather, the plan proposes an ambitious mix of policies that can act together and separately to deliver interventions to households across demographics and housing types.