MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

COVERSHEET

Minister	Hon Megan Woods	**Portfolio**	Building and Construction
Title of Cabinet paper	Emissions Reduction Plan - Building and Construction Sector Initiatives	**Date to be published**	26 August 2022

List of documents that have been proactively released		
Date	**Title**	**Author**
16 March 2022	Emissions Reduction Plan - Building and Construction Sector Initiatives	Office of the Minister for Building and Construction
16 March 2022	Appendix One: Proposed list of building and construction initiatives for first emissions reduction plan	Office of the Minister for Building and Construction
16 March 2022	Appendix Two: Government response to Climate Change Commission recommendations	Office of the Minister for Building and Construction
16 March 2022	Appendix Three: Two scenarios to illustrate building and construction emission reductions	Office of the Minister for Building and Construction
21 March 2022	CAB-22-MIN-0080.01 Emissions Reduction Plan: Building and Construction Sector Initiatives	Cabinet Office

Information redacted **YES**

Any information redacted in this document is redacted in accordance with MBIE's policy on Proactive Release and is labelled with the reason for redaction. This may include information that would be redacted if this information was requested under Official Information Act 1982. Where this is the case, the reasons for withholding information are listed below. Where information has been withheld, no public interest has been identified that would outweigh the reasons for withholding it.

Some information has been withheld for the reasons of confidentiality of advice tendered by Ministers of the Crown and officials.

Sensitive

Office of the Minister for Building and Construction

Cabinet Economic Development Committee

Emissions reduction plan: building and construction sector initiatives

Proposal

1 I am seeking Cabinet's agreement to include a package of building and construction initiatives in the first emissions reduction plan. These initiatives seek to:

1.1 reduce the embodied carbon of buildings

1.2 reduce the operational emissions of buildings.

2 I am also seeking decisions on next steps to progress proposed initiatives that require legislative or regulatory change.

Relation to government priorities

3 The proposals in this paper relate to:

3.1 Government's declaration of a climate change emergency on 2 December 2020 [CBC-20-MIN-0097 refers] and subsequent work to enable a just transition to a low-emissions, climate-resilient future

3.2 the Cooperation Agreement between the Labour and Green Parties, in that achieving the purpose and goals of the 2019 zero carbon amendments to the Climate Change Response Act 2002 is an agreed area of cooperation.

Executive Summary

4 This paper focuses on measures to reduce emissions in the building and construction sector. It is one of a set of papers being presented to Cabinet on proposals for inclusion in the first emissions reduction plan.

5 The building and construction sector is a significant driver of other sectors' emissions, so decarbonising it will be crucial to meeting New Zealand's net-zero 2050 target. There are significant work programmes already underway to reduce emissions in this sector, but further work is needed to ensure New Zealand can meet its emissions budgets.

6 An overview of the initiatives proposed for inclusion in the building and construction chapter of the first emissions reduction plan is provided in Appendix One. These are informed by extensive consultation that took place in October and November 2021 and are broadly supported by submitters.

7 The proposed initiatives are at different stages of development and include:

7.1 existing initiatives

7.2 initiatives that require funding

7.3 initiatives that require further development and that will be the subject of future consultation, funding and/or Cabinet decisions.

8 I intend to seek further policy or funding decisions for these initiatives at the appropriate time.

9 This paper also seeks Cabinet's agreement to:

9.1 accelerate the timeframes of the proposed *Building (Climate Change Response) Amendment Bill* with the aim of introducing it to the House before the end of 2022

9.2 return to Cabinet in September 2022 with a public discussion paper on proposed changes to the Building Code.

10 These two actions will progress the most significant of my proposed policies. They will enable Government to realise as much emissions reductions as possible from within the existing legislative framework, while also progressing longer-term amendments to the system to enable it to better respond to climate change.

Background

11 Government must publicly issue an emissions reduction plan by 31 May 2022 setting out the policies and strategies for meeting the next emissions budget (2022-25). It may also include policies and actions towards meeting future emissions budgets (2025-2030, 2031-2035).

12 This paper is the building and construction sector's contribution to a coordinated series of papers seeking Cabinet policy decisions on sector-specific content for the first emissions reduction plan.

Building-related emissions

13 The building and construction sector directly produced about four per cent of New Zealand's domestic emissions in 2018.[1] However, it is a more significant driver of emissions from other sectors.

14 If taking an international whole-of-life consumption approach, buildings were responsible for about 15 per cent of New Zealand's emissions in 2018, or 10.3 megatonnes of carbon dioxide equivalent (Mt CO_2-e). This approach considers emissions from the entire supply chain that is required to produce the goods, services or energy consumed in buildings' lifecycles. This includes

[1] Mostly from fossil gas and coal used for space and water heating and cooking in buildings. The majority of the sector's emissions are reported in the energy and industry sectors.

extraction and manufacturing of materials, construction, maintenance, operation, deconstruction, and waste disposal. It also includes emissions related to imported goods but excludes exported goods.

15 The majority of whole-of-life building and construction sector emissions are in the energy and industry sectors, with a small proportion realised in the transport and waste sectors.

16 I propose that the building and construction chapter of the emissions reduction plan take an international whole-of-life consumption approach. This recognises that action in the building and construction sector can play a significant role in reducing other sectors' emissions, meaning it can be used as a lever to help reduce emissions across the whole economy. The Climate Change Commission also recognised the benefits of this approach for the building and construction sector.[2]

Case for change

17 Some initiatives are already underway across government to reduce emissions from the building and construction sector. This includes the work of the Ministry of Business, Innovation and Employment's (MBIE's) Building for Climate Change Programme, the Energy Efficiency & Conservation Authority's Warmer Kiwi Homes programme, Kāinga Ora's carbon neutral housing and waste minimisation programmes, and the sustainable procurement rules and guidance set within the Carbon Neutral Government Programme.

18 For instance, in 2021 MBIE progressed updates to Building Code compliance documents to lift roof, window, wall, and underfloor insulation requirements for small and large buildings and clarify energy efficiency requirements for heating, ventilation, and air conditioning systems in commercial buildings. This will make new builds warmer, drier and healthier, while reducing the amount of energy they need to operate. These changes represent a significant shift for the sector, including material and product suppliers, and come into force in November 2022.

19 Parts of the sector are also shifting practices and approaches to reduce emissions, for example:

19.1 over 2,000 New Zealand homeowners have invested in Homestar[3] ratings for their homes

19.2 the Heavy Engineering Research Association is developing guidance to help steel manufacturers calculate and understand their carbon footprint

19.3 the concrete sector has reduced its emissions from cement by 15 per cent between 2005 and 2018

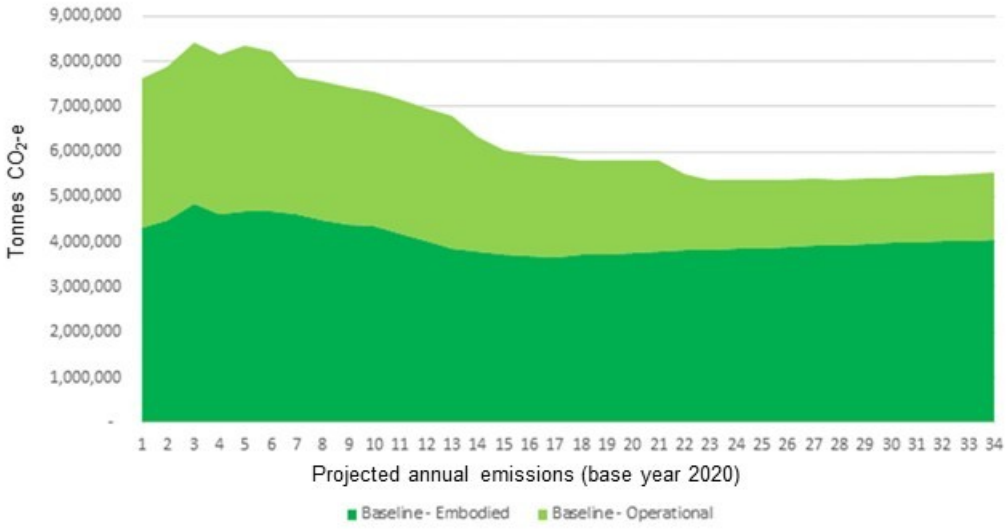
[2] Climate Change Commission (2021). *Ināia Tonu Nei: a low emission future for Aotearoa*. Page 293.
[3] Homestar is a holistic tool administered by the New Zealand Green Building Council that can be used to rate a home's performance and environmental impact.

19.4 the timber industry has invested in creating a market for new engineered timber products

19.5 Green Gorilla has established a waste processing facility which diverts more than 70 per cent of incoming construction and demolition waste from Auckland landfills.

20 However, these shifts are not sufficiently deep, fast or widespread to enable New Zealand to reach emission budgets – especially as housing supply increases across the country. Graph 1 illustrates that baseline emissions for the sector to 2050 are significant, and increase during peaks of construction activity:

Graph 1: Baseline (consumption) emissions from building and construction



21 Stakeholder engagement has identified barriers to further change, including:

21.1 **low information and awareness** – most people do not understand the best actions to minimise the carbon impact of their homes and workplaces, know how or why to design and build in a lower emissions way, or know what to ask for if they would like to investigate lower emissions options

21.2 **financial barriers** – lower emission building products and designs are not perceived as affordable, or not available to the sector or consumers as standard options, and shifting to lower-emissions construction may present financial or business risks for some in the sector

21.3 **regulatory barriers** – building system regulations do not currently require people to consider or reduce their emissions, and consenting processes for novel lower-emission products or designs tend to be more complex and time-consuming

21.4 **a lack of infrastructure** – physical infrastructure (including transportation and waste) and technical infrastructure (such as data

and tools to understand emissions) are either unavailable, underutilised, or do not focus on emissions reduction

21.5 **difficulty driving and adopting innovation** – investment in building and construction innovation has historically been low and potentially constrained by commercial considerations.

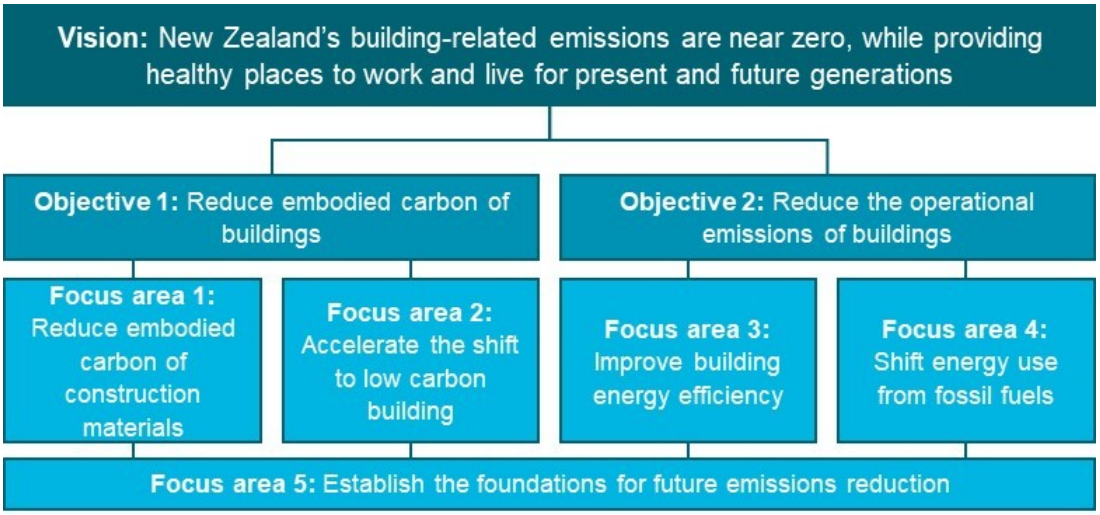
22 We need to take significant and coordinated action to address these barriers at a systemic level and increase the pace of change. We will need to involve all parts of the sector (eg businesses, suppliers, local government and consumers), and establish a range of new levers – including regulatory tools, incentives, education, innovation, and infrastructure.

23 We also need to understand and actively manage distributional impacts of the transition and consider wider environmental impacts, such impacts on biodiversity, and how the sector can minimise these and support or enable nature-based solutions.

Proposed initiatives for the first emissions reduction plan

24 My vision for 2050 is that New Zealand's building-related emissions are near zero, while providing healthy places to work and live for present and future generations. This is intended to drive deep and ongoing emissions reductions and ensure we take the opportunity to realise co-benefits for building users and for New Zealand.

25 I propose the following strategic framework to coordinate building and construction initiatives in the first emissions reduction plan:



26 The objectives, focus areas and a selection of initiatives I propose within this strategic framework are outlined below. Appendix One details each initiative, including its stage of development and feedback received during public consultation.

27 The proposed initiatives strike a balance between medium- and shorter-term changes and are likely to realise more significant emissions reductions during

the second and third emissions budget periods (2025-30, 2031-35). They also recognise potential impacts on housing affordability, sector constraints such as material supply chains and workforce, and the sector's overall readiness to change.

28 I consider that this suite of initiatives will adequately respond to the Climate Change Commission's recommendations for the building and construction sector. Further information on the alignment between these proposals and the Climate Change Commission's advice for this sector is provided in Appendix Two.

Objective 1: Reduce embodied carbon of buildings

29 This objective involves reducing the emissions associated with the materials, products and processes used across a building's whole life, from material manufacture, transportation and construction through to building deconstruction at its end of life. These represent about 50 per cent of the building and construction sector's emissions each year.

30 Buildings are long-lived – new buildings have a lifespan of at least 50 years – so they should be designed at the outset to be as low carbon as possible. The greatest opportunities for emission reductions are at the early design stage of new buildings, as this is when decisions about a building's size, materials, and construction are made, and when opportunities to be more efficient with energy use and design can be realised.

31 I propose a range of initiatives to realise these untapped opportunities for emissions reduction.

Reduce embodied carbon of construction materials

32 There are currently no requirements, and few supports or incentives, for people to measure or seek to reduce buildings' embodied emissions. Given embodied carbon emissions make up half of the building and construction sector's annual emissions – and represent twice the annual emissions of, for instance, domestic aviation – this is a missed opportunity for emissions reduction.

33 This focus area seeks to address this by introducing regulatory requirements and supports to reduce embodied carbon emissions across buildings' whole lifecycles, and to encourage the development of a more circular economy for building products and materials.

34 In the first emissions reduction plan, I propose to include a range of existing and new initiatives within this focus area, including:

34.1 updating the Building Code so that new buildings' whole-of-life embodied carbon emissions would need to be measured, reported and, eventually, be below a cap for the building to receive building consent. The cap would progressively tighten over time (3-5 years to implement, to be consulted on in Q3 2022)

34.2 exploring new regulatory requirements for construction waste reduction and exploring potential regulatory barriers to the establishment of a more circular economy (3-5 years to implement, enabling legislation could be introduced in 2022)

34.3 developing measures such as a climate change innovation launchpad to support and encourage commercial scaling-up of innovative lower carbon building designs, processes, materials, and products (1-3 years, subject to funding decisions)

34.4 partnering with other agencies to progress initiatives in the waste and transport sectors (1-3 years).

35 By the end of the first emissions budget period, more people will understand the embodied carbon impacts of their decisions and will be seeking to reduce emissions within the design and development of new buildings. Quantifiable emissions reductions will be realised from buildings that are constructed in future emissions periods.

36 Construction waste requirements will drive some emissions reduction in and of themselves. However, they are also reliant on measures in other sectors. For instance, we need the right infrastructure to enable people to divert waste from landfills, and to establish industry-level policies about de-carbonising the manufacture of building materials. These cross-sector opportunities are discussed in more depth in other sectors' emissions reduction plan Cabinet papers.

Accelerate the shift to low carbon building

37 Stakeholder engagement has indicated that while low embodied carbon building products and practices are currently available, uptake and market demand for them is low. Similarly, choices about building size, refurbishment and material re-use are not always considered at the building design phase.

38 This focus area intends to address this by assessing and shifting system settings to increase availability, uptake and development of lower-emissions products, practices and designs across the sector.

39 In the first emissions reduction plan, I propose to include a range of existing and new initiatives within this focus area, including:

39.1 exploring development of financial incentives or supports to address potential financial barriers to lower emission building, encourage exemplary lower emissions designs, and catalyse market change (1-3 years, will require funding decisions in future)

39.2 evaluating the building consent system to ensure it is efficient, effective, and sufficiently supports low emissions innovation (1-3 years)

39.3 supporting a shift to medium density and modular design by updating Building Code settings and introducing a modular component manufacturer certification scheme (1-3 years).

40 These initiatives reinforce Government's existing investments to grow the low carbon building market, such as procurement guidelines and rules to reduce emissions from new and existing Government buildings introduced as part of the Carbon Neutral Government Programme.

41 These initiatives will largely realise emission reductions from new buildings and those undergoing significant refits or renovations. As we are in a period of significant new building – 48,522 new homes were consented in the year ended November 2021, up 26 per cent from the previous year – they have the potential to realise notable emission reductions. I expect the emissions reductions to increase as proposed regulatory requirements discussed later in this paper come online.

Objective 2: Reduce the operational emissions of buildings

42 Operational energy consumption from building usage – lighting, heating, cooling, hot water, plug loads[4] – is a key driver of emissions. Government has made a variety of regulatory changes and investments to reduce buildings' energy use, but there is significantly more we could do to reduce buildings' emissions. This includes designing new buildings to be more energy efficient and upgrading or retrofitting existing buildings.

43 Some measures for existing buildings are relatively low cost and easy to do, for instance installing more energy-efficient technologies, but others that may result in deeper emissions reduction could be much more costly and disruptive. It will be important to get the balance between emission reduction and social and health outcomes right when considering changes to existing buildings.

44 I propose a range of initiatives to drive further change in this space.

Improve building energy efficiency

45 Half of all the nation's electricity is used in buildings, mostly for space heating and cooling and water heating. Much of this contributes to peak load on the electricity grid (eg during mornings and evenings), which is more likely to lead to electricity generation from non-renewable sources, especially in winter.

46 Despite their significant energy usage, many buildings in New Zealand are insufficiently warm, dry, or healthy, which can contribute to poor health outcomes for building users.

47 Sufficient, affordable and reliable supply of renewable electricity is required to support emissions reduction across the economy – for instance, as the

[4] Energy used by products that are powered by an ordinary AC plug.

transport sector electrifies. Initiatives to address this challenge are outlined in the energy and industry sectors' Cabinet paper.

48 In the meantime, the building and construction sector can make a significant contribution by lifting the energy efficiency of new and existing buildings, including by reducing buildings' load on the electricity grid and shifting usage away from peak times. This will enable New Zealand's building stock to be warmer, drier, use less energy and contribute to improved health, economic and other outcomes for building users.

49 In the first emissions reduction plan, I propose to include a range of existing and new initiatives within this focus area, including:

49.1 updating the Building Code so that new buildings' operational emissions would need to be measured, reported and, eventually, be below a cap for the building to receive building consent. The cap would progressively tighten over time. Buildings would also need to meet minimum indoor environmental quality settings (3-5 years to implement, to be consulted on in Q3 2022)

49.2 progressing development of a legislative framework that could require existing buildings' energy efficiency to be measured, and effective retrofit actions to reduce emissions identified and potentially undertaken (3-5 years to implement, enabling legislation could be introduced in 2022)

49.3 providing specialist advice and guidance to consumers to help them reduce their new or existing buildings' emissions (1-3 years, subject to funding decisions)

49.4 providing specialist advice, guidance and support for construction sector businesses to help them shift to a lower carbon business model (1-3 years, subject to funding decisions).

50 These initiatives will reinforce Government's existing suite of energy efficiency investments such as 2021 Building Code updates, the Warmer Kiwi Homes programme, the Healthy Homes Standard, and Carbon Neutral Government Programme. They are also integrated with MBIE's broader Building Code maintenance work programme.

51 By the end of the first emissions budget period, we will see the sector and consumers increasingly considering new and existing buildings' energy efficiency and investing in building design, orientation, materials, insulation, airtightness and ventilation measures to improve that efficiency. Many people will also be more aware of how their behaviour impacts building energy use.

Shift energy use from fossil fuels

52 Around a third of the operational carbon emissions from New Zealand's buildings – and around four per cent of New Zealand's overall domestic emissions – comes from fossil fuels used for space and hot water heating.

Most of these emissions are from fossil gas, LPG and coal, and are split roughly equally between commercial and residential buildings.

53 This focus area therefore seeks to decarbonise the energy sources that are used for buildings' operation – supporting and enabling the sector to shift from fossil fuels to electricity.

54 In the first emissions reduction plan, I propose to include a range of existing and new initiatives within this focus area, including:

54.1 supporting the development of a Gas Transition Plan to support phased transition away from fossil gas use, including in buildings such as homes and small businesses. This Plan may include exploring further interventions that may be required to mitigate fuel affordability impacts (1-3 years)

54.2 leveraging national policy statements under the resource management system to reduce emissions from fossil fuel boilers in commercial buildings (1-3 years).

55 These proposed initiatives will largely be conducted in partnership with the energy and industry sectors (as noted in those sectors' Cabinet paper) and the associated emissions reductions will be accounted for in the energy and industry sectors. This joined-up approach will help mitigate the complex distributional impacts of the shift away from fossil gas, including by managing security of supply and affordability of energy as use of fossil fuels are phased down.

56 I note that the Climate Change Commission recommended Government set a date to end the expansion of fossil gas pipeline connections.[5] I consider the above proposed initiatives strike a balance between providing certainty for the sector and managing potential distributional impacts from the transition.

57 By the end of the first emissions budget period, people will be reducing the use of fossil fuels in buildings and shifting to lower emissions alternatives. Those who require fossil gas will still be able to access it and infrastructure will still be maintained, but people understand the direction of travel is towards decarbonisation and renewable energy.

Establish foundations for future emissions reduction

58 I also propose to include several cross-cutting, long-term initiatives in the first emissions reduction plan. Undertaking this work now will prepare the building and construction sector to realise deeper emissions reductions in future emissions budget periods.

59 Proposed cross-cutting initiatives include:

[5] Climate Change Commission (2021). *Ināia Tonu Nei: a low emission future for Aotearoa*, Recommendation 20.8.a.

59.1 delivering a behaviour change programme to build the sector and public's understanding of lower emissions building and lift uptake of lower emissions and climate-resilient construction (1-3 years, subject to funding decisions)

59.2 developing a strong data and evidence base and online tools that will enable the sector to understand and measure their emissions, and support them to meet future emissions reduction requirements (1-3 years, subject to funding decisions)

59.3 supporting workforce transition to ensure the sector has the skills and capability required to build for climate change (1-3 years, subject to funding decisions)

59.4 working with Māori to ensure the emissions reduction approach supports Māori aspirations and fulfils our responsibilities under Te Tiriti o Waitangi (1-3 years)

59.5 amending the Building Act to reference climate change and emissions reduction within the purposes of the building system (3-5 years, enabling legislation could be introduced in 2022).

Contribution to emissions reduction

60 Appendix Three provides two scenarios that illustrate the sector's potential emissions reductions against baselines, should the initiatives I propose to implement be progressed. The scenarios illustrate the impact of different decisions that might be made about the timing and intensity of key initiatives when they are brought to Cabinet for policy decisions in future.

61 The emissions reductions are largely driven by proposed regulatory changes which cap the amount of embodied and operational emissions new buildings can produce. These regulations could come online from 2024-25. This means that emissions reductions will largely be realised in the second emissions budget period, with increasingly more significant reductions in the third budget onwards as the emissions caps are lowered.

62 In addition, two non-regulatory initiatives will make a pivotal contribution to energy and industry sector emissions reduction in the first budget period. Modelling indicates that in the first emission budget period:

62.1 the proposed behaviour change initiative could reduce emissions by 262Kt CO_2-e

62.2 the proposed data, evidence and tools initiative could reduce emissions by 305Kt CO_2-e.

63 Without these reductions, the energy and industry sector will be unable to meet its sub-target for the first emission budget period. This would mean other sectors would have to surpass their own sub-targets for New Zealand to be on track against our overall emissions budget.

64 As the full suite of proposed initiatives is further developed, their contribution to emissions reduction will be further quantified and provided to Cabinet as part of seeking policy decisions on them.

Partnership with other sectors

65 I recognise the importance of partnering with the building and construction sector and other agencies that are leading emissions reduction work in other sectors to achieve sufficient emissions reductions across the economy.

66 In addition to seeking public feedback through consultation, MBIE has undertaken more detailed engagement with organisations such as the New Zealand Green Building Council, the Building Research Association of New Zealand (BRANZ) and Kāinga Ora to explore emissions reduction opportunities and recognise existing good work that is already taking place. MBIE is also working with sector leaders through the Construction Sector Accord and Building Advisory Panel.

67 MBIE has also established partnerships with other agencies to reduce building-related emissions. This reflects that, in some instances, achieving emissions reduction in the building and construction sector depends on actions in other sectors. For instance, reducing buildings' operational emissions requires a whole-of-economy plan and actions to decarbonise electricity supply, while reducing embodied carbon on a per-building basis relies on action in the planning sector to support higher-density housing.

68 The final emissions reduction plan will further outline connections between sectors, which includes work with:

68.1 MBIE's Energy and Resource Markets branch, to ensure that the use of fossil fuels in buildings and exploration of developing and deploying low-emissions fuel options such as bioenergy and hydrogen are considered as part of developing of an energy strategy and Gas Transition Plan

68.2 the Ministry for the Environment, to ensure the Waste Minimisation Fund and proposed new national waste strategy and revised waste legislation can help further reduce construction, renovation and deconstruction waste

68.3 ministries involved in the resource management system reform and Urban Growth Agenda, to encourage and facilitate a planning and infrastructure system that enables lower emission buildings, including smaller and denser building typologies where appropriate, and considers biodiversity

68.4 the Ministry of Transport, to consider how transport policies and strategies such as the proposed National Freight and Supply Chain Strategy can help reduce emissions from the transport of building materials, products, and workers.

Stakeholder engagement

69 Section 5ZI of the Climate Change Response Act 2002 requires that in preparing an emissions reduction plan, the Minister for Climate Change must ensure that consultation has been adequate, including with sector representatives, affected communities, and iwi and Māori. Some of the proposals in this paper were consulted on through public consultation on the emissions reduction plan in October and November 2021.

70 Feedback from the emissions reduction plan consultation broadly supported the proposed actions to reduce building-related emissions, and in particular called for:

70.1 an overhaul of or updates to the Building Code

70.2 upgrades and retrofitting of existing building stock

70.3 working with other sectors on circular economy, energy efficiency approaches and urban planning

70.4 reducing embodied carbon of construction materials used in buildings.

71 This feedback broadly aligns with consultation undertaken in late 2020 on MBIE's Building for Climate Change programme. Ninety-two per cent of submitters to this consultation agreed that the sector needs to take action to reduce emissions, 95 per cent agreed measures should be taken to improve buildings' operational efficiency, and 87 per cent agreed measures should be taken to reduce whole-of-life embodied carbon.

72 Submissions from Māori / iwi called for greater partnership between the Crown and Māori to progress the emissions reduction plan proposals. Several also indicated that Māori / iwi should be more involved in decision making and included outside of formal public consultation processes to enable mātauranga Māori expertise and capability to be reflected in building and construction sector initiatives. MBIE is integrating this feedback into further policy development to ensure good outcomes for Māori are realised.

73 Stakeholder feedback on specific actions that are proposed for inclusion in the first emissions reduction plan is included in Appendix One.

Next steps to progress the proposed initiatives

Legislative and regulatory initiatives

74 I intend to realise emissions reductions as much as possible from within the existing legislative framework, while also progressing longer-term amendments to the system to enable it to better respond to climate change.

75 To this end, I seek Cabinet's in-principle agreement to accelerate the timeframes of the proposed *Building (Climate Change Response) Amendment Bill* with the aim of introducing it to the House before the end of 2022. This

would enable the Building Act to better achieve climate change outcomes by introducing enabling legislation and new regulation-making powers such as:

75.1 the enabling framework for measures to reduce emissions from existing buildings, Confidential advice

75.2 the enabling framework for construction waste minimisation and management requirements

75.3 introducing climate change into the purposes and principles of the Building Act.

76 I intend to return to Cabinet later in 2022 to seek policy decisions on the content of this legislation. Many of these proposals have been consulted on by the Climate Change Commission and during emissions reduction plan consultation and would be informed by further targeted stakeholder engagement in 2022. The enabling provisions would require regulations to be developed before they come into force.

77 I also seek Cabinet's invitation to return in September 2022 with a discussion document on proposals for Building Code changes that can be made within the building system's existing legislative framework. These may include:

77.1 introducing operational efficiency and embodied carbon reporting and caps into the Building Code

77.2 revising existing Building Code clauses and compliance documents to support emissions reduction

77.3 implementing other related measures for new buildings within the Building Act's existing regulation-making powers.

78 These proposals will directly build on changes to Building Code compliance documents coming into force in November 2022 and will form the next major stage of improvements to the building regulatory system.

79 I intend to seek public feedback on this discussion document in late 2022 and aim to seek Cabinet policy decisions on the subsequent proposed regulatory changes in the first quarter of 2023.

80 I intend to integrate this legislative and regulatory work with potential adaptation-focused initiatives to ensure homes and buildings are resilient to climate change. Specific actions in this area will be progressed through the National Adaptation Plan, which Cabinet will consider later in 2022.

Non-regulatory initiatives

81 My proposals for the first emissions reduction plan include two foundational non-regulatory initiatives which will begin in the 2022 calendar year – a

behaviour change programme, and the development of data, research and tools.

82 Our modelling indicates that the emissions reductions from these two initiatives will be crucial for the energy and industry sector meeting its sub-target for the first emissions budget period.

83 These initiatives require new funding. I am currently exploring a range of options to fund them, Confidential advice [6]

84 Further exploratory work will take place throughout the first emissions budget period to develop other proposed non-regulatory initiatives that are not yet investment ready. Once they are further developed, I intend to seek funding for them through future Budget periods or other appropriate processes.

Financial Implications

85 The decisions sought by this paper do not have direct financial implications.

86 Confidential advice

87 Appropriate funding sources for other non-regulatory initiatives will be identified once further policy work has been progressed, and specific financial implications will be outlined when further decisions are sought.

Legislative Implications

88 There are no direct legislative implications resulting from the proposals in this paper. However, some of the proposed building and construction policies will have legislative implications as they are further developed. These will be outlined in future Cabinet decisions on these policies.

89 This paper seeks Cabinet's agreement to accelerate the timeframes of the proposed *Building (Climate Change Response) Amendment Bill.* This shifts the category of this Bill in the 2022 Legislation Programme from Legislative Category 5 (instructions to be provided to Parliamentary Counsel Office in the year) to Category 4 (to be referred to a select committee in the year).

[6] Confidential advice

Impact Analysis

Regulatory Impact Statement

90 An overarching Regulatory Impact Statement (RIS) has been prepared by the Ministry for the Environment (with input from other agencies) to support Cabinet consideration of the first emissions reduction plan.

91 The proposals in this paper do not have immediate legislative or regulatory implications. MBIE will engage with the Treasury's Regulatory Impact Analysis Team to confirm the scope of RISes required to support any future decisions by Cabinet on policies that will have regulatory impacts.

92 Appendix One indicates that some policies are subject to separate Cabinet decision-making processes. RISes will be prepared and provided for those decisions as required.

Climate Implications of Policy Assessment

93 The Climate Implications of Policy Assessment (CIPA) team has confirmed that CIPA requirements do not apply to the proposals in this paper as there are no direct emissions impacts from any of the decisions.

94 Some of the initiatives proposed in this paper will require a CIPA when further decisions are sought. MBIE will work with the CIPA team to disclose the emissions impacts of proposals to Cabinet at the appropriate time.

Population Implications

95 There are no implications for specific population groups arising as a direct result of decisions sought this paper, as the initiatives proposed are at the early stages of development.

96 However, analysis and stakeholder engagement has indicated that the proposals in this paper will have a range of distributional impacts across many different groups, including local government, workers, businesses, building occupants, homeowners, renters, lower socio-economic households, iwi/Māori, Pacific peoples, disabled people, seniors, and those in the regions.

97 Proposed energy efficiency initiatives may result in upfront costs for building owners. However, they will contribute to decreased energy costs over a building's lifespan. Further work is being undertaken to understand and manage these potential cost impacts and to ensure they are proportional to improved health and wellbeing outcomes for different groups.

98 The population implications of specific initiatives will be considered during policy development and outlined to Cabinet for consideration when further decisions are sought. A process to understand distributional impacts is outlined in the emission reduction plan Distributional Impacts Cabinet paper.

99 Following stakeholder feedback, MBIE will seek to partner with the Ministry of Housing and Urban Development and Kāinga Ora to undertake targeted engagement with Māori to better understand Māori priorities and aspirations for the building system. This will support further work to mitigate population implications that the proposals in this paper might have for Māori iwi, hapū and whānau. These will be outlined when future decisions on initiatives are sought.

Human Rights

100 The proposals in this paper are consistent with the New Zealand Bill of Rights Act 1990 and the Human Rights Act 1993.

Consultation

101 The following agencies were consulted in the development of this paper: Ministry for the Environment; Ministry for Primary Industries; Treasury; Ministry of Foreign Affairs and Trade; Te Puni Kōkiri; Ministry of Social Development; Te Arawhiti; Ministry of Housing and Urban Development; Te Waihanga, Ministry of Transport; Energy Efficiency and Conservation Authority; Inland Revenue Department; Department of Conservation.

102 Further targeted and public stakeholder engagement will be undertaken on the proposed initiatives before they are brought back to Cabinet for further policy decisions.

Communications

103 There will be no proactive communications of the proposals in this paper. Communications will be developed in line with any decisions made as part of the emissions reduction plan and Budget 2022.

Proactive Release

104 This paper will be proactively released once the emissions reduction plan has been published in May 2022, with redactions as appropriate under the Official Information Act 1982.

Recommendations

The Minister for Building and Construction recommends that the Committee:

1 **note** that the building and construction sector is a key driver of emissions in other sectors, so decarbonising the building and construction sector will be crucial for meeting New Zealand's net-zero 2050 target

2 **note** that updates to Building Code compliance documents are coming into force in November 2022, forming the first stage of regulatory work to reduce emissions in the building sector

3 **note** that the building and construction chapter of the emissions reduction plan will take a consumption approach in considering building-related emissions, which recognises the potential role the sector can play in helping to reduce emissions from the industry, energy, waste, and other sectors

4 **note** that public consultation on a range of policies proposed for inclusion in the emissions reduction plan took place in October and November 2021, and that submitters broadly supported the building and construction proposals

5 **agree** to include in the first emissions reduction plan the package of initiatives at Appendix One, which seek to:

5.1 reduce embodied carbon of construction materials

5.2 accelerate the shift to low carbon building

5.3 improve building energy efficiency

5.4 shift energy use from fossil fuels

5.5 establish foundations for future emissions reduction

6 **note** that a number of the initiatives at Appendix One are subject to separate Cabinet decision-making and regulatory impact analysis processes, outside of emissions reduction plan processes

7 **agree** that proposed building and construction initiatives sufficiently respond to the Climate Change Commission's final advice from May 2021, as outlined in Appendix Two

8 **invite** the Minister for Building and Construction to return to Cabinet later in 2022 to seek policy decisions for the *Building (Climate Change Response) Amendment Bill*, which may include introducing:

8.1 an enabling framework for measures to reduce emissions from existing buildings, Confidential advice

8.2 an enabling framework for construction waste minimisation and management requirements

8.3 climate change into the purposes and principles of the Building Act.

9 **agree in principle** to the *Building (Climate Change Response) Amendment Bill* aiming to be introduced to the House before the end of 2022

10 **invite** the Minister for Building and Construction to return to Cabinet in September 2022 with a discussion document on regulatory changes that can be made within the existing legislative framework, including:

10.1 introducing operational efficiency and embodied carbon reporting and caps into the Building Code

10.2 revising existing Building Code clauses and compliance documents to support emissions reduction

10.3 implementing other related measures for new buildings within the Building Act's existing regulation-making powers

Confidential advice

12 **note** that these foundational non-regulatory initiatives are crucial for the energy and industry sector meeting its sub-target for the first emissions budget period

13 **note** that other proposed building and construction initiatives require further exploratory work to develop, and that this will be conducted with other agencies, the sector and iwi and Māori

14 **note** that once they are investment ready, funding for these initiatives will be sought through future Budget periods or other appropriate processes.

Authorised for lodgement

Hon Poto Williams

Minister for Building and Construction

Appendices

Appendix One: Proposed list of building and construction initiatives for first emissions reduction plan

Appendix Two: Government response to Climate Change Commission recommendations

Appendix Three: Two scenarios to illustrate building and construction emission reductions

Appendix One: Proposed building and construction initiatives for the first emissions reduction plan

Initiatives	Description	Summary of expected outcome and co-benefits	Partnerships and interconnectivity with other initiatives	Timeframe and progress indicators	Stakeholder feedback
Objective 1: Reduce embodied carbon of buildings					
Reduce embodied carbon of construction materials					
Whole-of-life embodied carbon reduction regulatory requirements	Proposed Building Code change to introduce caps for embodied carbon in order to incentivise use of lower carbon materials. Optional and then mandatory reporting to be introduced first. This will inform initial caps, which will progressively tighten over time. Will also involve broader Building Code changes to support implementation of emissions reduction requirements.	Significant emission reductions in second budget period, with further increasing reductions in third budget period. Will result in with significant market shifts for construction industry.	Connected with transforming operational efficiency regulatory requirements. To be informed by partnerships with sector, including researchers and organisations who are already undertaking voluntary assessments.	Discussion paper on regulatory proposals to Cabinet in Q3 2022. Regulations could be in place by 2024 and in force by 2025.	• Eighty-seven per cent of submitters in 2020 BfCC consultation agreed to measures to reduce embodied carbon. • Submitters in 2021 ERP consultation broadly supported measuring and reducing embodied emissions in new and existing buildings, and in particular supported tools and clear approaches to do so. • Some respondents in 2021 ERP consultation specifically noted that regulation, alongside incentives and awareness-raising, would be required to change behaviours.
Require waste minimisation / management plans as part of building consent	Explore the potential to require a waste minimisation or management plan to be submitted as part of building consent applications. This could include having to demonstrate how the plan is or will be implemented in order to receive a Code Compliance Certificate.	Level of reduction will be reliant on settings and applicability, which are yet to be developed. Exemplar waste management plans reduce waste to landfill by 20 per cent but greater reductions may be possible.	Strongly connected with proposed waste sector initiatives, and to be explored in partnership with the Ministry for the Environment. Partnerships with councils that require site waste minimisation plans as part of a resource consent to be explored.	Proposed, will be further developed through legislative and regulatory programme. Enabling legislation could be introduced in 2022, with regulations to be developed. Confidential advice	• Submitters to 2020 BfCC consultation suggested that introducing waste management and minimisation requirements to the building consent process would provide opportunities to reduce waste. • Submitters to the 2021 ERP consultation broadly agreed that construction waste to landfill should be reduced, and that the regulatory system has a role to play. Multiple submitters, including those from local government, suggested this initiative.
Support Kāinga Ora waste minimisation programme	Existing Kāinga Ora programme aimed to reduce waste. Includes procurement processes for construction and demolition waste where 80-85% of materials must be recycled (or diverted from landfill). House relocation, deconstruction and construction site waste management practices are also being piloted.	Direct and indirect. Emissions related to construction waste with flow-on energy and industry emission reductions (from less material used), supports behaviour change across sector and shift to circular economy.	Links with a waste-related memorandum of understanding between the Ministry for the Environment and Kāinga Ora MOU, and cross-agency work on building-related waste	Ongoing.	• Supported be Kāinga Ora stakeholders and partners.

Initiatives	Description	Summary of expected outcome and co-benefits	Partnerships and interconnectivity with other initiatives	Timeframe and progress indicators	Stakeholder feedback
Environmental product declaration grants	Environmental product declarations (EPDs) are required to provide data that will be required to carry out embodied carbon assessments. However, there is a cost barrier to getting EPDs. Small businesses that require EPDs could be provided grants to address the prohibitive cost of getting an EPD, enabling the database to reflect all product types.	Indirect. Will contribute to realisation of benefits from operational efficiency and embodied carbon regulatory changes. Also supports evidence-based behaviour change programme.	Partnerships with research organisations and EPD providers to be explored.	Confidential advice Confidential advice	• Many submitters to 2020 BfCC consultation indicated that robust data is a vital first step to equip members of the industry with the information required to make effective decisions.
Independent specialist advice to consumers	Explore providing expert independent advice to consumers by expanding the Eco Design Advisor (EDA) service offered in partnership between Building Research Association of New Zealand (BRANZ) and some councils. This could include training EDAs in low-carbon outcomes; funding more EDAs around NZ and increasing access to them; establishing a fund to enable EDAs to assist consumers address low carbon cost barriers; and considering the benefits of contracting out the provision of advice and support to consumers and management of grants as a package.	Would contribute to 262Kt CO_2-e in emission reductions in the first emissions budget period, which is required for the energy and industry sector to meet its sub-target. Could contribute to a 35 per cent reduction in embodied emissions (from 76 tonnes to 49 tonnes) and five per cent reduction in whole-of-life operational emissions from each new building, were building owners to make different choices at construction based on independent advice.	Partnerships with BRANZ and existing EDAs (supported by councils) to be explored. Connected with existing information and education programmes, such as EECA Gen Less.	Confidential advice Confidential advice	• Most submitters who commented on this issue in 2021 ERP consultation agreed that consumers lack information and awareness to change their behaviour towards lower emissions construction. • Submitters also indicated that behaviour change activities should not increase inequities or housing costs.
Explore broader building and construction waste initiatives	Investigate waste reduction measures such as more targeted use of waste levy for building and construction, creation of end markets for reused building materials, and re-use, design, and landfill diversion targets for Crown entities.	Indirect. If specific waste reduction measures are implemented following this initial investigation period, there is the potential for more significant and direct emission reductions.	To be jointly explored between MBIE, Ministry for the Environment and Kāinga Ora.	Kāinga Ora has an extensive site clearance waste minimisation programme underway and is in early stages of planning a construction waste minimisation plan. Delegated ministers have been tasked with working together to bring options to reduce building and construction waste.	• Most submitters who commented on this issue in 2021 ERP consultation agreed with the proposed construction waste reduction measures. • Many suggested a variety of avenues for further investigation, such as providing financial incentives for recycling or deconstruction, increasing use of design processes or methodologies that reduce waste, and introducing schemes or requirements to reduce waste of specific products.

Initiatives	Description	Summary of expected outcome and co-benefits	Partnerships and interconnectivity with other initiatives	Timeframe and progress indicators	Stakeholder feedback
Explore building and construction transport initiatives	Explore inter-agency policies and initiatives, including using the National Freight and Supply Chain Strategy to reduce building-related emissions from the transport of building materials, products and workers, exploring how electric vehicles could meet the construction sector's needs, and supporting better project management and pre-fabrication to reduce road transport.	Indirect. If specific transport measures are implemented following this initial investigation period, there is the potential for more significant and direct emission reductions. Could contribute to health and environmental benefits from reduced fossil fuel based transport and reduced traffic congestion.	To be jointly explored between MBIE, Ministry of Transport and Waka Kotahi.	Further scoping work between agencies is required to progress this concept.	• A few submitters commented on this issue in 2021 ERP consultation, suggesting there could be benefit in looking into urban design and decarbonisation of freight transport used for building materials. One suggested the need for an overarching transport strategy. • This is considered in more depth in the ERP transport and planning sector chapters.
Explore circular economy initiatives and policies focused on the building and construction sector	Explore circular economy initiatives in conjunction with proposed waste reduction initiatives. These would be part of broader cross-Government circular economy measures, as identified in the emissions reduction plan more broadly.	Indirect. If specific circular economy measures are implemented following this initial investigation period, there is the potential for more significant and direct emission reductions. Also contributes to increased valuing of resources, environmental benefits (e.g. less resource extraction), and national economic benefits	Led by MBIE (Economic Strategy) and involving partners from across government. Links to building-related waste actions; behaviour change programme.	Further scoping work required to progress. Confidential advice	• Most submitters who commented on this issue in 2021 ERP consultation agreed with the proposed construction circular economy measures, suggested that a more circular economy that included greater reuse of products or materials and less disposal or waste would be a positive shift for the sector.
Identify barriers to reusing, repurposing, and recycling building materials	Undertake policy work to investigate and potentially remove regulatory and system barriers to repurposing and recycling building materials, adaptive reuse of buildings and the development of a market for reused building materials. May also be supported by behaviour change programme.	Indirect. Could support circular economy and waste reduction initiatives.	To be jointly explored between MBIE and Ministry for the Environment. Will require local government involvement.	Further scoping work required to progress, Confidential advice	• Most submitters who commented on this issue in 2021 ERP consultation agreed with the proposed construction waste reduction measures. • Many identified regulatory and system barriers to waste reduction, including Building Act 2004, Building Code, resource management system and financial barriers. They suggested these would need to be addressed to shift the construction waste status quo.

Initiatives	Description	Summary of expected outcome and co-benefits	Partnerships and interconnectivity with other initiatives	Timeframe and progress indicators	Stakeholder feedback
Establish a building and construction climate change launchpad to foster innovation	Progress work to support the development and scaling-up of low emission building materials, designs, and processes. This may include research and development grants, catapult or incentive programmes, local and international mentoring, procurement opportunities, and research testbeds.	Indirect. Supports growth in investment in lower emissions construction and enable identification of new business opportunities and models for the sector. Also supports workforce transition and circular economy initiatives.	To be jointly explored with MBIE (Research, Science and Innovation) and the Construction Sector Accord.	Further scoping work required to progress in partnership with MBIE Research, Science and Innovation. Confidential advice	• Most submitters who commented on this issue in 2021 ERP consultation agreed that greater support for innovation is required, especially if it balances longer-term thinking and shorter-term, more immediate solutions. • A few submissions suggested Government should encourage or enable greater use of off-site manufacturing, development of innovative products and designs, and research and development more generally.
Exploring a market shift to lower emissions building materials	Explore opportunities and barriers to developing the market for lower emission types of, or alternatives to, key building materials such as concrete, steel, timber or aluminium. Could include creating viable markets (scale and cost) and incentivising shift towards lower emission alternatives.	Indirect. Would support growth in investment in lower emissions construction. There is the potential for more significant and direct emission reductions if specific initiatives are implemented following this initial investigation period.	To be jointly explored with agencies such as MBIE (Energy and Resource Markets, Economic Development, Industry), Te Waihanga, Ministry for Primary Industries, Kāinga Ora, and the Construction Sector Accord.	Further scoping work required to progress, Confidential advice	• Most submitters who commented on this issue in 2021 ERP consultation agreed that greater support for innovation is required, especially if it balances longer-term thinking and shorter-term, more immediate solutions. • Some submitters suggested Government focus on specific materials such as timber, while others suggested a materially-biased approach would create confusion and complicate investment in the sector.
Accelerate the shift to low carbon building					
Incentives to support lower carbon alternatives for buildings	Government subsidies, and other incentives to encourage consumers to build lower emission buildings. Potential tax discounts/offsets. Funding to help meet potential cost difference of lower carbon housing.	Indirect. Will contribute to realisation of benefits from operational efficiency and embodied carbon regulatory changes, while mitigating distributional impacts.	Potential to conduct this work in partnership with Treasury.	Preliminary scoping work undertaken in 2021. Further scoping work to progress, Confidential advice	• A significant number of submitters to 2021 emissions reduction place (ERP) consultation supported use of financial incentives such as low-interest loans to encourage behaviour change, mitigate distributional impacts for workers and vulnerable communities, reduce waste and address financial barriers.

Initiatives	Description	Summary of expected outcome and co-benefits	Partnerships and interconnectivity with other initiatives	Timeframe and progress indicators	Stakeholder feedback
Support shift to medium density and modular design	Continue progressing programme of work to support housing densification, including reviewing and updating Building Code settings, implementing modular component manufacturer certification scheme to support growth in offsite manufacturing, and supporting the Urban Growth Agenda and National Policy Statement – Urban Development. This could also include exploring ways to increase support for travel by low emissions modes, and to consider potential social impacts.	Indirect. Will help to ensure building typologies required for planning and urban design initiatives are supported by building regulatory system. Supports market shift and viability; facilitates urban design options with social connection, health, wellbeing and other benefits.	To be conducted in partnership with other building regulatory system and resource management system actors, and with other agencies such as the Ministry of Housing and Urban Development.	Medium density work programme progressing as part of MBIE's Building Code Update programme. Enabling legislation for modular component manufacturer certification scheme passed in 2021. Regulations currently under development.	• The majority of respondents to 2019 consultation on the Building System Legislative Reform Programme supported the establishment of a regulatory framework for modular component manufacturing. Most respondents to 2021 consultation on the modular component manufacturer scheme regulations similarly agreed with the proposals.
Testing emissions reporting and caps for buildings	Test proposed reporting and caps. Opportunity to identify and work through implementation issues in practice with sector to guide full scale rollout.	Indirect. Will contribute to realisation of benefits from operational efficiency and embodied carbon regulatory changes by mitigating implementation risks (which also helps mitigate distributional risks). Promotes sector leadership.	To be conducted in partnership with Kāinga Ora, and with the sector through the Construction Sector Accord.	Concept only. To be explored with key stakeholders as part of developing operational efficiency and embodied carbon regulatory requirements.	• Submitters to 2021 ERP consultation indicated support for capping emissions from buildings, but also noted that this may have distributional impacts (eg if fossil gas use were capped but consumers had no other viable options).
Building consent system evaluation	In-depth look at the building consent system to improve system efficiency and effectiveness, and ensure the system enables innovation. This will include considerations for consenting low emissions buildings.	Indirect. Outcomes of evaluation will identify whether there are barriers for lower emissions products or designs, and further work would be required to address these barriers.	To be conducted in partnership with other building regulatory system actors.	Initial scoping work and targeted engagement complete. Further stakeholder engagement to take place throughout 2022.	• Many submitters to the 2020 Building for Climate Change (BfCC) and 2021 ERP consultations suggested that introducing additional requirements to the consent process might impact building consent authority workload and consenting timeframes. • One local government submitter to the 2021 ERP consultation indicated that there are consenting system barriers to the reuse or repurposing of construction materials. Other submitters suggested there are inconsistent consenting requirements around the installation of solid biofuel heaters.

Initiatives	Description	Summary of expected outcome and co-benefits	Partnerships and interconnectivity with other initiatives	Timeframe and progress indicators	Stakeholder feedback
Business change advice and support	Exploring delivery of independent business change advice and support for construction businesses to move to a low carbon emissions business model, and potentially grants to assist companies to implement the advice they have received.	Would contribute to 262Kt CO_2-e in emission reductions in the first emissions budget period, which is required for the energy and industry sector to meet its sub-target. Will mitigate distributional impacts for businesses while also reducing emissions if the focus is on large emitters such as group home builders.	Aligned with MBIE proposed Business and Worker Transitions Support programme, and with Energy Efficiency & Conservation Authority (EECA) programming.	Confidential advice	• Some submitters to the 2021 ERP consultation noted that support and incentives for businesses and industry would be required to manage the impacts of other proposals, for instance the phasing down use of fossil fuels, and to ensure businesses have the skills, knowledge, data and tools to participate in emissions reduction.
Government procurement rules and guidelines for buildings	Existing initiative. As part of the procurement process, requires and supports mandated agencies to procure low-emissions and low-waste goods, services and works, and encourages innovation to significantly reduce emissions and waste.	Direct but not yet quantified. Reduces emissions from Government procurement and begins market shift to lower emission construction as Government is a major procurer.	Led by MBIE New Zealand Government Procurement, and with input from other agencies including Kāinga Ora.	Government Procurement Rules including sustainability clause released in 2019, and low carbon building guidance released in 2021.	• Very few submitters to recent emissions reduction consultations mentioned this initiative. • A few submitters to 2021 ERP consultation suggested ways to further leverage procurement rules, for instance by requiring local government to apply them or creating new procurement rules to require greater use of offsite manufacturing.
Climate Change Government Infrastructure and Property Group	Existing initiative. The Climate Change Government Infrastructure and Property Group (GIPG) provides a formal mechanism for agencies to share advice in the management and delivery of building and construction climate change initiatives in terms of the Government's various property roles.	Indirect. Supports agencies to share good practice and increase compliance with Carbon Neutral Government Programme. May have more direct outcomes where agencies use the GIPG to adopt lower carbon practices earlier or to a higher degree.	Led by MBIE New Zealand Government Procurement.	The GIPG was established in 2021, and members are currently signing a Memorandum of Understanding to formalise the group's purpose and membership.	• No submitters to recent emissions reduction consultations mentioned this initiative. • Members of the GIPG have suggested it is a useful platform for information sharing between Government agencies.
Explore potential financial sector barriers and levers	Explore the extent to which finance factors are barriers to reducing building-related emissions and identify potential options to remove these barriers. May include looking at green bonds, favourable loans for energy efficiency measures/retrofits, or voluntary targeted rates, and considering barriers for different age cohorts.	Indirect. Could support growth in investment in lower emissions construction and help to mitigate distributional impacts form financial barriers.	Treasury to lead, with input from agencies including MBIE, Department of Internal Affairs, and the Ministry for the Environment. Will require involvement from local government and financial sector.	Confidential advice	• Many submitters to the 2021 ERP consultation called for financial incentives or low-interest loans to support increased private investment in emissions reduction. • Other submitters called for financial support for those disproportionately affected by the transition to low emissions energy. • A few local government submitters suggested that barriers in the Consumer Credit and Finance Act 2003 be addressed so voluntary targeted rate schemes could be re-established.

Initiatives	Description	Summary of expected outcome and co-benefits	Partnerships and interconnectivity with other initiatives	Timeframe and progress indicators	Stakeholder feedback
Showcase and recognise lower carbon buildings	Explore effectiveness of promoting low emissions building and designs through competitions, recognition, or rewards schemes for lower carbon buildings.	Indirect. Could support growth in investment in lower emissions construction.	Jointly led by MBIE and Construction Sector Accord.	Further scoping work required to progress, Confidential advice Potential to leverage Construction Sector Accord Beacon case studies.	• Several submitters to the 2021 ERP consultation noted the importance of using examplars to show how low emission construction and design could be done. Some suggested Government lead by example.
Objective 2: Reduce the operational emissions of buildings					
Improve building energy efficiency					
Transforming operational efficiency regulatory requirements	Proposed Building Code change to introduce of caps for operational emissions and fossil fuel use for new buildings. Mandatory reporting may be introduced first to inform initial caps, which would tighten over time. Will also involve broader Building Code changes to support implementation of emissions reduction requirements.	Significant emission reductions in second budget period, with further increasing reductions in third budget period. Will result in with significant market shifts for construction industry and health and wellbeing benefits for building users.	Connected with NZ Building Code Clause H1 (energy efficiency) compliance method changes, and whole-of-life embodied carbon reduction regulatory requirements.	Discussion paper on regulatory proposals brought to Cabinet in Q3 2022. Regulations could be in place by 2024 and in force by 2025.	• Ninety-five per cent of submitters in 2020 BfCC consultation agreed to measures to improve operational efficiency. • Many submitters to the 2021 Building Code update consultation supported the introduction of performance-based energy efficiency settings that take a whole building into account. • Submitters in 2021 ERP consultation broadly supported operational efficiency framework, noting its outcomes-focused requirements could help to move consumers away from fossil gas. • Some respondents in 2021 ERP consultation specifically noted that regulation, alongside incentives and awareness-raising, would be required to change behaviours.
Introduce mandatory Energy Performance Certificates for certain building types	Progress work to introduce mandatory Energy Performance Certificates for public and commercial buildings. Options for energy performance programming include NABERSNZ, Green Star Performance, or developing something new. Work needs to progress on scope of application, and whether to tie certificates to a retrofit / upgrade programme. Potential for the system to be able to be extended to residential buildings in future.	Emission reductions begin in second budget period, with further increasing reductions in third budget period. Level of reduction will be reliant on scheme settings and applicability, which are yet to be developed. Co-benefits include providing better information on building performance to government, supporting market shift, and reduced energy bills for building owners or tenants.	To be conducted in partnership with EECA. Strongly connected with energy and industry sector actions, in particular proposed Energy and Emissions Reporting Scheme for large energy users	Proposed, will be further developed through legislative and regulatory programme. Enabling legislation could be introduced in 2022, with supporting regulations to be developed. Other non-legislative options are also being explored. Confidential advice	• Most submitters who commented on this issue in 2021 ERP consultation supported existing commercial and public buildings' mandatory participation in energy performance programmes. Many supported a phased transition for any new requirements. Several submitters suggested specific tools or requirements for energy performance programming.

Initiatives	Description	Summary of expected outcome and co-benefits	Partnerships and interconnectivity with other initiatives	Timeframe and progress indicators	Stakeholder feedback
Confidential advice					
NZ Building Code Clause H1 (energy efficiency) compliance method changes	Existing initiative. Changes to the Building Code's energy efficiency requirements to lift minimum levels of insulation for buildings and provide clearer requirements for the energy efficiency of heating, ventilation, and air-conditioning systems in commercial buildings. They will also make new homes and buildings easier to heat and cool, healthier, and more comfortable.	Modest emissions reductions within first emissions budget period, with ongoing reductions. Will result in market shifts for construction industry, which will be required to implement future emissions reduction regulatory change, and health and wellbeing benefits for building users.	Has been conducted in partnership with other building regulatory system actors.	Being implemented. The updated Building Code requirements for new buildings were published on 29 November 2021 and come into force on 3 November 2022.	• Submitters to the 2021 Building Code update overwhelmingly supported proposals to increase the minimum insulation levels for roofs, windows and floors for new housing and small buildings. MBIE proceeded with the changes, with some minor amendments based on sector feedback.
Explore options to expand Warmer Kiwi Homes programme	Explore possible options to expand the existing Warmer Kiwi Homes programme to different types of retrofits. This could include a focus on: basic weathertightness (required in some instances for insulation and heat pumps to be fitted); low-cost energy efficiency measures (such as lighting, hot water and draught stopping); or a 'deeper' level of retrofit which could include wall insulation and double glazing.	Indirect. Depending on whether or how option/s are progressed this initiative may reduce emissions. However, its primary benefit is likely to be improving health and wellbeing for building users. Improved health and wellbeing for building occupants; mitigates / addresses economic hardship by improving energy efficiency.	Exploratory work led by EECA and MBIE (Energy and Resource Markets).	Further scoping work is being progressed, in addition to pilots focusing on weathertightness and low-cost energy efficiency measures. Confidential advice Confidential advice	• Several submitters to 2021 ERP consultation raised Warmer Kiwi Homes as a key programme to support retrofits, improve building quality and mitigate distributional impacts from other policy changes. • Suggestions included expanding Warmer Kiwi Homes to meet the Healthy Homes Standards or to support vulnerable populations if introducing potential retrofit requirements.

Initiatives	Description	Summary of expected outcome and co-benefits	Partnerships and interconnectivity with other initiatives	Timeframe and progress indicators	Stakeholder feedback
Explore financial barriers to more major building retrofits	Explore barriers and enablers for building owners to undertake major energy efficiency retrofits, refits or recommissioning which could significantly reduce building emissions.	Indirect. There is the potential for more significant and direct emission reductions if specific initiatives are implemented following this initial investigation period.	Exploratory work to be conducted with EECA and MBIE (Energy and Resource Markets and building regulatory system), and with New Zealand Green Building Council.	Further scoping work required to progress. EECA and New Zealand Green Building Council have already begun investigation. To be considered in conjunction with building resilience requirements (earthquake-prone buildings, climate change adaptation, accessibility).	• Several submitters who commented on proposals regarding existing buildings in 2021 ERP consultation suggested there were financial barriers that needed to be addressed. They called for long-term cross-party support, a phased transition and Government financial support to mitigate these.
Building-related measures within the Carbon Neutral Government Programme	Existing initiative. Aims to make specific organisations within the public sector carbon neutral by 2025. It includes a range of requirements, including measuring and reporting greenhouse gas emissions and for some agencies' larger Government buildings to meet third party energy efficiency requirements.	Direct but unquantified as this is a new initiative. Further quantification will be enabled once mandatory reporting requirements are in place for more organisations.	Led by MBIE New Zealand Government Property and Procurement. Involvement from MBIE and EECA if additional initiatives are to be developed.	Carbon Neutral Government Programme introduced in December 2020. Third party energy efficiency requirements introduced from 1 January 2021, with further work underway to implement the requirements. Mandatory reporting in place from 21/22 for some organisations, with others coming online in 22/23.	• No submitters in the 2021 ERP consultation directly commented on this existing initiative. • Several submitters who commented on mandatory participation in energy performance programming suggested that the same third party energy efficiency requirements currently used as part of the Carbon Neutral Government Programme should also be used for commercial buildings.
Explore supporting energy performance certificates for residential buildings	Explore whether voluntary energy efficiency ratings schemes could reduce emissions, and whether subsidies or incentives may support residential building owners to undertake these ratings. Could be an interim measure while system of energy performance certificates is further developed.	Indirect. There is the potential for more significant and direct emission reductions if specific initiatives are implemented following this initial investigation period.	Exploratory work to be conducted with EECA and MBIE (Energy and Resource Markets)	Further scoping work required to progress, Confidential advice	• Several submitters who commented on proposals regarding existing buildings in 2021 ERP consultation suggested there were financial barriers that needed to be addressed, particularly for low-income households.

Initiatives	Description	Summary of expected outcome and co-benefits	Partnerships and interconnectivity with other initiatives	Timeframe and progress indicators	Stakeholder feedback
Education and incentives to encourage less energy and water use	Explore provision of information, awareness and incentives to encourage less energy use. This could include technologies such as smart meters, energy efficient appliance subsidies for low income households, shower timers, and would complement the proposed behaviour change programme.	Direct. The use of smart meters, water metering, and other technology can see changes in occupant behaviour leading to reductions in energy and water usage of 15-40 per cent. Household economic benefits from lower energy and water usage; helps manage adaptation (e.g. water shortage) risks	Connected with existing information and education programmes, such as EECA Gen Less. Also connected with proposed work in the ERP Behaviour Change chapter.	Proposed, will be further developed through collaborative work with EECA and other agencies. Confidential advice	• Most submitters who commented on this issue in 2021 ERP consultation agreed that consumers lack information and awareness to change their behaviour towards lower emissions construction. • Submitters also indicated that behaviour change activities should not increase inequities or housing costs.
Shift energy use from fossil fuels					
Addressing barriers and disincentives to installing non-fossil heating in buildings	Review resource and building consent requirements for installation of solid biofuel heating in buildings (eg wood pellet heaters and boilers) to identify potential barriers to installing non-fossil fuel alternatives.	Direct. Shift from fossil fuel to lower emission alternatives (e.g. electricity) will directly lower emissions. Quantity will depend on extent to which barriers are preventing/deterring the shift. Will contribute to improved health outcomes for occupants; reduced regulatory burden or complexity.	MBIE (Energy and Resource Markets)	Further scoping work required to progress, Confidential advice	• Some submitters to the 2021 ERP consultation indicated that there may be barriers to replacing fossil fuel heating at the end of its life with renewable energy heating. • Submitters who did not support elimination of fossil fuel use in buildings noted that doing so may have complex distributional impacts, for instance of those who did not have other options.

Initiatives	Description	Summary of expected outcome and co-benefits	Partnerships and interconnectivity with other initiatives	Timeframe and progress indicators	Stakeholder feedback
Introduce Gas Transition Plan to reduce natural gas use in buildings	Existing initiative. The draft Gas Transition Plan will outline a transition pathway from fossil gas, and build understanding of the opportunities and strategic opportunities to repurpose fossil infrastructure. Progressing this involves considering impacts on gas supply and demand, including use in buildings, and exploring lower emission gas alternatives (eg biogas, biomethane, green hydrogen).	Largely indirect, but not yet quantified. As specific options are progressed further modelling or quantification will take place. Reduction in fossil gas use could contribute to improved health outcomes for occupants and potential economic benefits (depending on options).	Led by MBIE (Energy and Resource Markets).	Agreement to develop a Gas Transition Plan was submitted to Cabinet in December 2021. Agreement to a Terms of Reference for the Plan will occur before the ERP is published.	• Many submitters to the 2021 ERP consultation supported the phase-down in use of fossil fuels and fossil gas connections quickly to realise emission reductions. • Some, particularly from the gas industry, noted that there are complexities in the reduction of fossil fuel use, such as impacts on energy network resilience, stranded infrastructure, missed opportunities with emerging technologies like biogas or hydrogen, and equity concerns for low-income households. They suggested these complexities should be fully worked through with industry. • Feedback from ERP consultation will inform Terms of Reference for this work.
Leverage national policy direction instruments under the Resource Management Act 1991 to reduce emissions from fossil fuel boilers used in commercial buildings	Initiative under development. Cabinet has agreed to a National Environmental Standard and National Policy Statement on industrial greenhouse gas emissions. Work is underway to explore whether fossil fuel boilers used for commercial space and water heating above an emissions threshold should in included in the scope.	Direct but not yet quantified. As specific options are progressed further modelling or quantification will take place.	Led by Ministry for the Environment	Ministry for the Environment is leading development of specific options and emissions thresholds for fossil fuel boilers used for space and water heating in commercial buildings. Ministerial or Cabinet approval will be sought in 2022 as required.	• Feedback from ERP consultation and the draft exposure draft will guide the proposed policy direction and next steps.
Understand distributional impacts and explore supports to help building occupants shift from natural gas use	Understand the complex distributional impacts that may be created by affecting the supply of and demand for fossil gas through other emissions reduction initiatives. Following this, we will explore potential supports or incentives to manage these impacts, potentially by funding shifts from fossil gas connections or appliances.	Indirect but required to manage distributional impacts of fossil gas reduction initiatives.	Exploratory work to be conducted with MBIE (Energy and Resource Markets and Economic Strategy), Ministry of Social Development, and Treasury.	Further scoping work required to progress, Confidential advice	• ERP submission suggestions included financial incentives (including low-interest loans) to help the gas sector (and related trades) transition, along with incentives to help consumers replace gas appliances and remove connections

Initiatives	Description	Summary of expected outcome and co-benefits	Partnerships and interconnectivity with other initiatives	Timeframe and progress indicators	Stakeholder feedback
Establish the foundations for future emissions reduction					
Data, research and online tools	Development of an assessment methodology, national carbon database and data, carbon calculation tools and repository, and benchmarking and baseline research to support the sector to implement operational efficiency and embodied carbon requirements. Critical dependency for implementing operational and embodied emissions mandatory reporting and caps.	Reporting carbon information and being able to compare it with others can change behaviour and reduce emissions from individual buildings by between 10 and 20 per cent. Will be foundational to realise benefits from operational efficiency and embodied carbon regulatory changes.	Partnerships with experts such as BRANZ to be explored. Connected with existing Kāinga Ora initiatives to model embodied and operational carbon, and to proposed work in the planning sector to develop evidence and tools.	Confidential advice	• Eighty per cent of submitters to the 2020 BfCC consultation supported establishing a data repository of embodied carbon from buildings. • All building consent authority submitters agreed that they needed consistent tools for carbon calculations backed by central government. • Many submitters to the 2021 ERP consultation agreed that free online tools, data and resources that provided information to industry would be useful to drive behaviour change.
Behaviour change programme	Programme to shift New Zealanders' behaviour to reduce emissions in the building and construction sector. This initiative will deliver a behaviour change programme targeted at consumers, producers (building sector and building product producers), and building consent authorities. It will support uptake of lower emission products and more adaptive building practices and drive regulatory compliance. Targeting could specify messaging and supports for different audiences, eg Māori, rural communities, seniors.	Both direct and indirect. Would contribute to 262Kt CO_2-e in emission reductions in the first emissions budget period, which is required for the energy and industry sector to meet its sub-target If one in five new builds adopts low-carbon building practices, modelling indicates the result would be an approximately 0.7 Mt reduction in embodied carbon in the first budget period.	Connected with existing information and education programmes, such as EECA Gen Less, and sector-facing support such as that offered through the Construction Sector Accord. Also connected with proposed work in the ERP behaviour change chapter. Partnership with building consent authorities to be explored.	Confidential advice	• Most submitters who commented on this issue in 2021 ERP consultation agreed that behaviour change activities were needed for both consumers and industry, including building consent authorities. They suggested that tools, education, training, financial incentives and Government leading by example would all need to be key parts of this approach.
Introduce climate change into the Building Act 2004	Amending the Building Act to clearly introduce climate change and emissions reductions to the Act's purposes and principles. This would act as a clear statement of intent for system change. Current vague purpose in the Act around 'sustainable development' may result in confusion or challenges in future, distracting from action to reduce emissions.	Indirect. Sets legislative foundation for current and future climate change initiatives within building regulatory system. Would also set clear direction and expectations of sector, and support market shift and viability of lower emission alternatives.	To be conducted in partnership with other building regulatory system actors.	Enabling legislation could be introduced in 2022.	• No stakeholder feedback has been received on this specific and technical topic.

Initiatives	Description	Summary of expected outcome and co-benefits	Partnerships and interconnectivity with other initiatives	Timeframe and progress indicators	Stakeholder feedback
Work with Māori to inform climate transition	Develop a coordinated approach to engage with Māori to inform and develop building and construction initiatives. This will help ensure the emissions reduction approach supports Māori aspirations and fulfils our responsibilities under Te Tiriti o Waitangi.	Indirect. Could help to realise opportunities for health and wellbeing co-benefits, and to understand and mitigate distributional impacts for Māori.	Partnerships with key building sector partners such as Ministry of Housing and Urban Development and Kāinga Ora to be explored, to minimise 'engagement overload'. Connected with broader work across all sectors to include Māori in the climate transition.	Engagement approach to be established in early 2022, in partnership with Māori and other agencies. Approach to be aligned with engagement to inform the National Adaptation Plan.	• Many submitters who commented on this issue in 2021 ERP consultation called for greater partnership between the Crown and Māori to progress the emissions reduction plan proposals and suggested that mātauranga Māori expertise and capability be reflected in building and construction sector initiatives.
Workforce transition supports	Contribution to a broader construction sector workforce transformation package developed with industry through the Construction Sector Accord. Potential exploratory work may include workforce coordination, exploration of targeted funding to train or retrain building professionals, education and potentially funding to encourage changed practice among key worker groups, and a support for on-the-job mentoring. The needs of different groups, such as older workers or those shifting industries, would be considered.	Indirect but required to manage distributional impacts of other initiatives. Could also contribute to economic benefits (new business and job opportunities, upskilling/reskilling) and helps mitigate sector and workforce distributional impacts from transition	Exploratory work to be conducted with Construction Sector Accord, Ministry of Social Development, Ministry of Education, and Tertiary Education Commission. Will involve connection with Workforce Development Councils and industry bodies.	Confidential advice	• Many submitters to the 2021 ERP consultation noted the need to grow workforce capability, and to mitigate distributional impacts for workers in industries affected by the proposed changes (eg gasfitters). • Suggested ways to grow workforce capacity include investing in retraining programmes, updating building and construction training programmes, providing signals in the Building Code, and undertaking immediate work to fill the short-term skills and capability shortfall.
Energy and Emissions Reporting Scheme	Existing initiative that is under development and subject to separate decision-making processes. Scheme will require large emitters across the industrial, commercial and transport sectors to measure and report emissions. This will underpin and improve the effectiveness of existing and future efforts to reduce energy emissions from these sectors and improve the quality and transparency of data available to government, the public and investors.	Indirect. May lead to emission reductions from large emitters.	Work led by MBIE (Energy and Resource Markets).	Final policy decision to be agreed by Cabinet on 16 March 2021 as part of the energy and industry ERP Cabinet paper. Discussion document on regulations to be released later in 2022. Scheme is scheduled to come into force 2023/2024.	• No submitters in the 2021 ERP consultation who commented on building and construction initiatives directly commented on this existing proposal. • However, submitters generally commented on the need for data, tools and measurement to understand emission from the sector.

Appendix Two: Response to Climate Change Commission recommendations

The below table outlines how the proposed policies and initiatives for the building and construction emissions reduction plan chapter address the Climate Change Commission's recommendations relevant to the building and construction sector. This will be included in the final emissions reduction plan as part of the government responses to the Climate Change Commission final recommendations.

Climate Change Commission advice				Government response in emissions reduction plan		
Recommendation	Sub-recommendation	Final recommendation overview	Final recommendation	Government decision	Government response	Timeframe
R20	R20.8	We recommend that, in the first emissions reduction plan, the Government commits to: Delivering a strategy to decarbonise the energy system and ensure the electricity sector is ready to meet future needs. This should include:	Determining how to eliminate fossil gas use in residential, commercial and public buildings. Actions should include:	Agree in principle	Government agrees with the intent of the recommendation to shift from higher-emissions fuels to lower emission alternatives. Reducing fossil fuel use is one way to do so. Strategies, policies and measures aimed at reducing fossil gas and other fossil fuel use are being developed, taking into account the inter-dependences between demand and supply. Further details are in R20.8a below.	Budget 1
R20	R20.8a		Setting a date to end the expansion of pipeline connections in order to safeguard consumers from the costs of locking in new fossil gas infrastructure.	Agree in principle	Government agrees with the intent of the recommendation to clearly communicate the direction of travel for fossil gas, but notes that further investigation is required to avoid unintended consequences and mitigate potential distributional impacts before decisions are made on ending expansion. While many submitters to the 2021 emission reduction plan consultation supported the quick phase-down in use of fossil fuels and fossil gas connections, others suggested complexities and potential missed opportunities in the reduction of fossil fuel use that would need to be considered. These included impacts on energy network resilience, stranded infrastructure, uncertainty around the viability of potential emerging technologies being explored like biogas/biomethane or green hydrogen. Security of supply and affordability concerns for those currently reliant on fossil gas, including equity concerns for low-income households, were raised. The Gas Transition Plan will outline a transition pathway away from fossil gas and build understanding of strategic opportunities to repurpose fossil infrastructure and potential distributional impacts of transitioning away from fossil gas. Development of this work involves considering impacts on gas supply and demand, including use in buildings and exploring lower emission gas alternatives. Decisions regarding ending the expansion of pipeline connections will be informed by this work. The transforming operational efficiency regulatory requirements proposes to introduce a cap for new buildings' operational emissions, including fossil fuel use. These requirements will encourage a transition away from fossil gas.	Budget 1
R22	R22	Upgrading existing buildings and constructing new buildings that are low emissions		Agree in principle	Government agrees with the intent of the recommendation to upgrade existing buildings and construct new buildings to be low emissions. The details of how this will be implemented may differ from the Commission's pathway, in order to better understand and manage the risk of unintended consequences and enable an equitable transition. Submitters to the 2021 emission reduction plan consultation indicated that reducing building related emissions will increase the workload of building consent authorities and vulnerable groups and iwi/Māori may be at risk of being disadvantaged form the transition. These impacts will need to be understood and strategies will need to be developed to mitigate them. Work is currently underway to support emission reduction from new buildings. For instance, the 2021 Building Code update introduced changes to Building Code Clause H1 (energy efficiency) compliance documents, which will increase insulation requirements for new buildings' roofs, floors, and windows. Further work is required to develop approaches to upgrade existing buildings. Government are continuing to progress and explore a number of other regulatory and non-regulatory building and construction actions in the first emission reduction plan to achieve this outcome while managing potential distributional impacts. These include: • Progressing regulatory change to require new buildings to meet whole-of-life embodied carbon reduction and operational efficiency requirements	Ongoing through Budgets 1 – 3

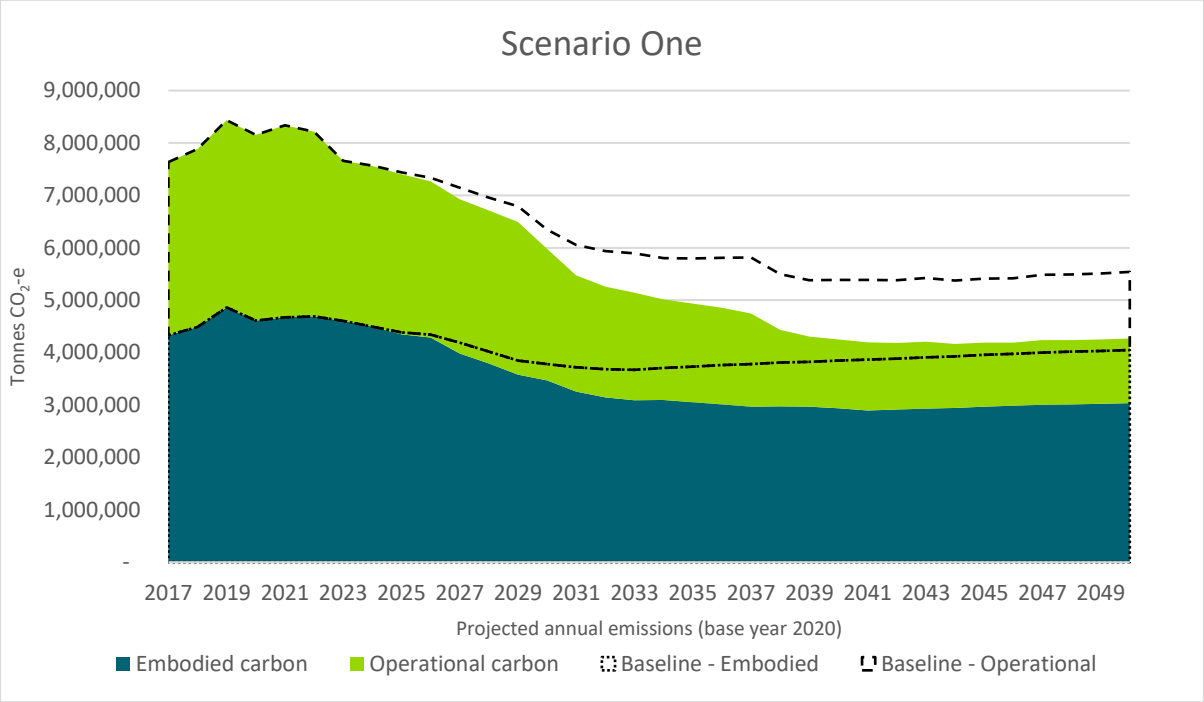
					• Work aimed at introducing mandatory Energy Performance Certificates for certain building types and exploring the development of a connected retrofit programme • Developing options to expand the existing Warmer Kiwi Homes programme • Developing and delivering a behaviour change programme, which will support consumers and the sector to make lower-emission decisions when building or renovating buildings	
R22	R22.1	We recommend that, in the first emissions reduction plan, the Government commit to: Developing a plan to transform buildings to be low emissions and climate resilient. This should include Government:	Acting in partnership. To be enduring the policy approach must be created in partnership with Iwi/Māori, give effect to the principles of Te Tiriti o Waitangi/The Treaty of Waitangi, and align with the He Ara Waiora framework.	Agree	Government agrees that the policy approach to reduce building-related emissions must be developed in partnership Iwi/ Māori to deliver the actions in the first emissions reduction plan. Many submitters to the 2021 emissions reduction plan consultation supported this. Submitters suggested including mātauranga Māori expertise and capability within the Building for Climate Change programme and including Māori in decisions outside of standard consultation processes. Government will work with Māori to inform the building and construction sector's climate transition. This will be foundational for future emission reductions, and will include engagement and exploring cross-government Māori and iwi partnership, where appropriate and of interest.	Ongoing through Budgets 1 – 3
R22	R22.2		Developing the policy approach in collaboration with the building and construction sector.	Agree	Government agrees with the importance of acting in partnership with building and construction sector to deliver the actions in the first emissions reduction plan. Submitters to the 2021 emissions reduction plan consultation supported Government collaboration with the sector. A number of regulatory and non-regulatory building and construction actions in the first emission reduction plan will be progressed with the sector and in partnership with the Construction Sector Accord. These include: • Exploring workforce transition supports • Establishing supports to foster innovation and explore a market shift to lower emissions building materials • Developing and delivering a behaviour change programme, which will support consumers and the sector to make lower-emission decisions when building or renovating buildings	Ongoing through Budgets 1 – 3
R22	R22.3		Upgrading existing buildings and constructing new buildings that are low emissions, healthier and climate resilient. Measures should include:	Agree	Government agrees that upgrading existing buildings and constructing new buildings to be low emissions, healthier and climate resilient is an opportunity to reduce building-related emissions. Work is currently underway to support emission reduction from new buildings. For instance, the 2021 Building Code update introduced changes to Building Code Clause H1 (energy efficiency) compliance documents, which will increase insulation requirements for new buildings' roofs, floors, and windows. Further work is required to develop approaches to upgrade existing buildings. A number of other regulatory and non-regulatory building and construction actions in the first emission reduction plan seek to achieve these outcomes while managing potential distributional impacts and releasing health and wellbeing co-benefits for building users. These include: • Progressing regulatory change to require new buildings to meet whole-of-life embodied carbon reduction and operational efficiency requirements • Introducing mandatory Energy Performance Certificates for certain building types (see also response to R22.P1) Confidential advice • Developing options to expand the existing Warmer Kiwi Homes programme • Developing and delivering a behaviour change programme, which will support consumers and the sector to make lower-emission decisions when building or renovating buildings Further actions to improve climate resilience will be included in the first National Adaptation Plan.	Budgets 1 – 3
R22	R22.3a		Continuous improvements to minimum Building Code requirements such as energy efficiency standards.	Agree	Government agrees that making continuous improvements to minimum Building Code requirements is an opportunity to reduce building-related emissions and ensure new buildings are warmer, drier, and healthier. MBIE's annual Building Code update is a maintenance programme created to ensure effective management of the Building Code and its documents. The 2021 Building Code update included changes to compliance documents which will lift minimum insulation requirements for new buildings – meaning people will need to use less energy to keep their homes warm and dry. Further Building Code updates will be progressed on an annual basis, for instance to prepare the sector for the introduction of operational efficiency and whole-of-life embodied carbon requirements.	Budgets 1 – 3
R22	R22.3b		Encouraging construction based on low-emissions	Agree	Government agrees that encouraging construction based on low-emissions designs and practices is an opportunity to reduce building-related emissions.	Budgets 1 – 3

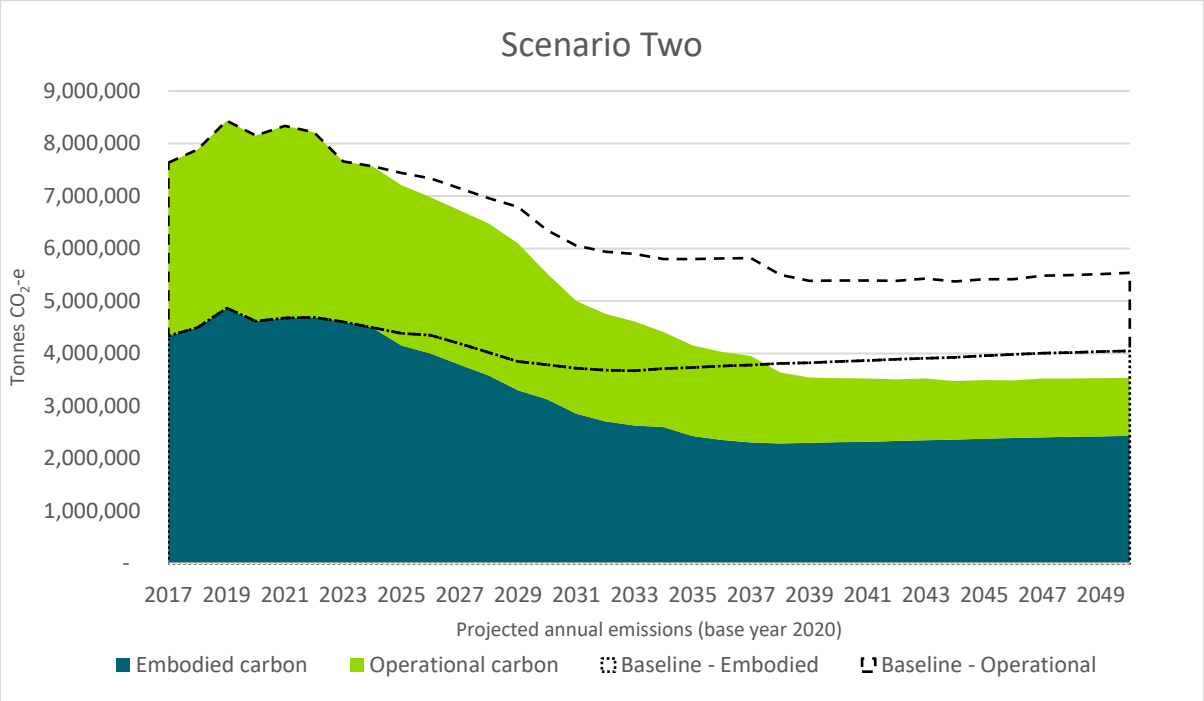
			designs and practices to reduce building energy use and embodied emissions.		A number of regulatory and non-regulatory building and construction actions in the first emission reduction plan seek to achieve these outcomes while managing potential distributional impacts. These include: • Developing and delivering a behaviour change programme, which will encourage and support consumers and the sector to make lower-emission decisions when building or renovating buildings • Progressing regulatory change to require new buildings to meet whole-of-life embodied carbon reduction and operational efficiency requirements • Progressing a programme of work to support medium density housing and modular design and manufacturing processes • Investigating new regulatory requirements for construction waste minimisation and management • Establishing supports such as a building and construction climate change launchpad to foster innovative building designs, products, and materials.	
R22	R22.3c		Scaling up energy efficiency assistance to low-income households to enable them to benefit from lower emissions, lower energy costs and healthier buildings.	Agree in principle	Government agrees with the importance of understanding and mitigating distributional impacts of the transition to a lower emissions building and construction sector but will first need to better understand the distributional impacts. Submitters to the 2021 emission reduction plan consultation indicated that a range of people in addition to low income households could experience distributional impacts for the transition, including Māori and Pasifika, older residents, community groups, renters, people living in poorer quality buildings, and the building and construction workforce. A number of regulatory and non-regulatory building and construction actions in the first emission reduction plan seek to manage potential distributional impacts for different groups. These include: • Exploring and analysing options to expand the Warmer Kiwi Homes programme, which offers insulation and heater grants to low-income homeowners • Continued implementation of the *Healthy Homes Standards*, which require rental properties to fitted with underfloor and ceiling insulation and an acceptable heating device. • Kāinga Ora's work to cost-effectively retrofit and improve the operational efficiency of social housing while also realising other benefits such as healthier homes and communities • Work to grow and mainstream the low emission building market, thereby driving down the cost of low emissions building. Refer also to response to R22.P2 for more information.	Budgets 1 – 3
R22	R22.3d		Mandating participation in energy performance programmes for existing commercial and public buildings.	Agree	Government agrees that measuring and improving the energy performance of existing commercial and public buildings is an opportunity to reduce building-related emissions. Many submitters to the 2021 emission reduction plan consultation supported this, with some suggesting residential buildings also be included. A number of regulatory and non-regulatory building and construction actions in the first emission reduction plan seek to progress this recommendation and explore other requirements regarding existing buildings. There may be significant distributional impacts and complexities in doing so, so this work will be progressed carefully and in partnership with the sector. These include: • Supporting the Carbon Neutral Government Programme, which currently requires some agencies' larger office buildings to meet third party energy efficiency requirements • Introducing mandatory Energy Performance Certificates for certain building types, starting with commercial and public buildings • Confidential advice • Developing and delivering a behaviour change programme, which will support consumers and the sector to make lower-emission decisions when building or renovating buildings.	Budgets 1 – 3
R22	R22.P1	Provisional progress indicators	Government to have, by 31 December 2022, implemented measures to improve the energy performance of existing buildings, such as mandating	Agree in principle	Government agrees that it is important to move quickly to measure and improve the energy performance of existing commercial and public buildings. We support the intent of this recommendation but will adopt a different implementation timeframe than that recommended by the Commission, as there are complex distributional impacts that must be considered when designing mandatory requirements. Implementing them will also require legislative amendment, which will have longer timeframes and consultation requirements.	Budgets 1 – 3

			participation in energy performance programmes		A discussion document proposed for released in late 2022 will seek public feedback on options and potential timeframes to introduce measures that will improve the energy performance of existing buildings. We also note that measures are already in place for some public buildings through the Carbon Neutral Government Programme.	
R22	R22.P2		Government to have, by 30 June 2022, scaled up energy efficiency assistance to low-income households	Agree in principle	Government agrees with the importance of moving quickly to mitigate distributional impacts of the transition to a lower emission building and construction sector. We support the intent of the recommendation but will adopt a different implementation timeframe as more development is required. We also note that some energy efficiency assistance for low-income households is already in place. To inform further action, EECA is continuing to evaluate and collect data on the Warmer Kiwi Homes programme. It is also progressing pilots focusing on weathertightness and low-cost energy efficiency measures. Data from Healthy Homes Standard implementation and Kāinga Ora's carbon reduction programme will provide further input. This data and evidence will inform further actions within the emission reduction plan to manage the potential distributional impacts of the sector's transition.	Budgets 1 – 3
R22	P22.P3		Government to report annually, from 31 December 2022, on a suite of indicators, including residential and commercial energy intensity	Agree in principle	Government agrees with the importance of measuring and reporting on the transition to a lower emissions building and construction sector. Advice on a suite of indicators will be provided to Cabinet in 2022, taking into account factors such as costs, data validity, and potential reporting burden for commercial and residential building owners and/or tenants.	Budgets 1 – 3

Appendix Three: Two scenarios to illustrate building and construction emission reductions

The below graphs illustrate two potential scenarios for emission reduction in the building and construction sector, if the initiatives proposed for the first emission reduction plan were implemented. Each scenario illustrates the impact of different Cabinet decisions about proposed initiatives' timing and intensity.





Further technical detail is overleaf.

Key drivers of baseline emissions

- There are two key drivers for the profile of the building and construction sector's projected annual emissions:
  - **the number of buildings that are built**. In the last year, building consents for new buildings have been at record levels. Used as a proxy for new buildings, this means a significant number of new buildings will be constructed in the first emission budget period. The pace of new construction is expected to slow over the longer term as population growth slows.
  - **the proportion of electricity generated from low-emissions sources**. In 2018, 84 per cent of electricity generated in New Zealand was from renewable energy sources. This proportion is forecast to increase, in part due to proposed emissions reduction plan initiatives. A significant proportion of buildings' emissions are caused by electricity use, so the decarbonisation of electricity generation will impact the baseline level of buildings' emissions.
- Government decisions about new buildings' performance requirements and energy use will have a significant and additional impact on baseline emissions.

Key drivers of scenario models

- The scenarios for additional emission reductions above baselines incorporate all interventions from the first emissions reduction plan which will impact building and construction emissions.
- The bulk of projected reductions are from proposed regulatory changes which restrict the amount of operational and embodied emissions from new buildings. The scenarios provide two different sets of assumptions:
  - **Scenario One** assumes embodied carbon and operational efficiency regulatory settings will come online more slowly and feature less restrictive emissions caps, which would give the sector more time to adjust and result in less potential economic disruption
  - **Scenario Two** assumes embodied carbon and operational efficiency regulatory settings will come online more quickly and feature more restrictive emissions caps, which would achieve greater emissions reductions but have a greater potential risk of economic disruption.
- The model only incorporates known interventions. Future and emerging technologies and innovations are not considered.

Intervention sensitivity

- An intervention's timing and intensity (how great the restrictions are) are the key drivers of its impact on emissions reduction. Two scenarios are therefore provided to illustrate the impact of different timing and intensity.
- Due to the long life of buildings, an intervention taking place earlier can have a greater cumulative impact on emissions:
  - once a building is constructed, its level of embodied carbon is effectively locked in for its entire lifecycle. Requirements to reduce embodied earlier in a building's lifecycle therefore provide greater opportunities for emissions reduction.
  - Operational emissions take place across a building's life, so each year that a building runs more efficiently its emissions are reduced compared to the counterfactual. In addition, many of the factors affecting buildings' operational efficiency are decided at a building's design stage, meaning improvements are complex and costly once a building is already constructed.