Budget 2023 Submission for Invited New Spending Priorities and CERF Initiatives

Section 1: Overview

Section 1A: Basic initiative information

Initiative title (max 120 characters)	Warmer Kiwi Homes Programme – Extension and Expansion					
Lead Minister	Energy and Resources		Agency	Ministry of Business, Innovation and Employment		
Initiative description (max 800 characters)	This initiative funds the extension and expansion of the government's Warmer Kiwi Homes insulation and heating retrofit programme. The initiative would extend the programme beyond June 2024, and expand the programme through the addition of three components: 1) low-cost energy efficiency measures, 2) a community-focused outreach approach to target hard-to-reach households, and 3) basic home repairs. This initiative will reduce household electricity consumption, particularly at times of peak demand, thereby reducing emissions and helping with the cost of living through lower energy bills. It will also improve health outcomes, educational opportunities, and productivity by reducing illness; improve the housing stock by making it warmer and drier; and support jobs in the energy service sector.					
Priority area	New Spending – Invited operating initiatives	☐	New Spending – Invited capital initiatives (outside the Investment Panel process)	☐	Climate Emergency Response Fund (CERF)	☒
Is this a cross-Vote initiative?	*No*	-				
Department contact	Name: Daniel Brown Phone: [redacted] Email: daniel.brown@mbie.govt.nz		Treasury contact (Vote Analyst)	Name: Taylor Farr Phone: [redacted] Email: taylor.farr@treasury.govt.nz		

Section 1B: Summary of funding profile

Operating funding sought through Budget 2023 ($m)					
2022/23	2023/24	2024/25	2025/26	2026/27	Total
0.000	13.920	97.179	103.459	103.459	318.017

Capital funding sought through Budget 2023 ($m)										
22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32*	Total
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Section 2: Alignment

Section 2A: Problem definition

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What is the problem that this initiative is trying to solve and why does it need to be solved now?	Many low-income homes in New Zealand lack adequate insulation and efficient heating in the home. This causes coldness and dampness, leading to poorer health outcomes, and missed opportunities for efficient energy use and related energy cost and emissions reductions. The government's Warmer Kiwi Homes programme currently delivers insulation (underfloor and ceiling) and efficient heating retrofits to around 26,000 low-income homeowners annually, however, the programme is not funded beyond June 2024. In June 2024, there will still be a significant number of eligible households (over 100,000) that qualify for an insulation or heating retrofit, alongside other low-income households that are not captured by the current eligibility criteria. Furthermore, based on insights and data from the existing programme, we consider that three additional components could be added to the programme:

- Low-cost energy efficiency measures such as LED lights, hot water cylinder wraps, and energy education.
- A *community-focused* approach that would target high-need and hard-to-reach households. These homes are eligible for Warmer Kiwi Homes subsidies, but would not participate in the current *volume-based* programme due to barriers such as the cost of retrofit, refusal to allow service providers to enter their homes, or distrust of government intervention. EECA estimate there are up to 20,000 of these homes as of November 2022.
- A basic repairs programme, which would target homes that cannot currently receive insulation due to weathertightness issues.

If the Warmer Kiwi Homes programme is not supported to extend and expand to meet these problems, the issues will remain unaddressed. Addressing these problems now provides an opportunity to improve the wellbeing of qualifying homeowners who disproportionately suffer health-related conditions due to their living conditions, and improve costs of living. Environmental outcomes will also benefit from increased household energy efficiency and reduced electricity consumption at times of peak demand, leading to emissions reductions. This extension also provides an opportunity to support jobs in the energy service sector, improve educational opportunities and productivity by reducing illness, and improve the housing stock by making it warmer and drier.

The existing Warmer Kiwi Homes Programme provides grants to low-income households for insulation and heating retrofits and has been running since July 2018. The existing eligibility criteria requires the applicant to be an owner-occupier of a home built before 2008, and hold a Community Services Card or live in an area identified as low-income. As of 21 November 2022, the programme has supported the installation of over 105,000 insulation and heating retrofits. The current programme is *volume-based*, with external service providers following up leads under a commercial framework.

Funding for the Warmer Kiwi Homes programme (around $73 million annually until June 2024) delivers approximately 26,000 insulation and heating retrofits each year. This initiative provides funding for the Warmer Kiwi Homes programme to address the issues outlined in the section above through an extension component and three expansion components:

- Component A: Funding to extend the success of the current programme beyond its scheduled end date of June 2024 into outyears (with appropriate adjustments to eligibility criteria and product offerings in outyears to continue the impact of the programme as the existing eligibility pool decreases)
- Component B: Funding to expand the programme to provide a targeted series of simple, low-cost energy efficient measures to identified high-need households or households receiving insulation or heating retrofits under the programme.
- Component C: Funding to introduce a *community-focused* outreach approach to better target eligible high-need and hard-to-reach households.
- Component D: Funding to deliver a regional scheme to provide basic home repairs that will allow for the subsequent installation of Warmer Kiwi Homes insulation and heating retrofits.

Note:

- Component B would be delivered most efficiently alongside component A
- Component C cannot be implemented without component A.
- Component D can be delivered independently.

This initiative has not been specifically discussed outside of government to this point. However, the existing Warmer Kiwi Homes programme works closely with insulation and heating service providers, third-party funding providers such as Trusts and Community Groups, and other housing-related services like the Healthy Homes Initiative.

An impact evaluation of the programme has been undertaken, working with a sample of households who have had an insulation or heating retrofit installed, and this will be published in December 2022. In addition, EECA has delivery oversight of two Infrastructure Reference Group (IRG) Housing Energy Retrofit Pilots in Otago and Northland, working on the ground to complete basic repairs in low-income households within the regions. Insights gained from these relationships, projects, and preliminary evaluation findings has been built into the understanding of the problems and the development of the proposed initiative, particularly around the needs and barriers for low-income households.

The initiative has also been developed using insights from several government agencies working in the energy and housing spaces, including the Ministry of Innovation, Business and Employment (MBIE), the Ministry of Housing and Urban Development (MHUD), Kainga Ora, and Te Puni Kōkiri (TPK).

	The initiative has been developed by EECA (who administers the Warmer Kiwi Homes programme) and MBIE, with input from MHUD and Kainga Ora. The initiative will complement MBIE's initiative to expand its Support for Energy Education in Communities (SEEC) programme, which would enable new and existing providers to deliver more free energy education, energy efficient light emitting diodes (LEDs), and other low-cost equipment to help low-income households reduce their energy costs and emissions. Referrals to the existing Warmer Kiwi Homes Programme are already made through SEEC Programme projects, and this could be extended to complement the community outreach proposed as part of this initiative. Scaled up SEEC projects could provide a low-cost way to reach low-income owner-occupied homes that need insulation but that are difficult to reach.
What needs to improve and/or change to address the problem?	Component A requests additional funding from July 2024 to continue the successful Warmer Kiwi Homes programme. This will continue the successful *volume-based* insulation and heating retrofit delivery to complete approximately 26,500 retrofits annually. Extending the funding would allow what is a highly effective programme to continue to deliver its health, social, environmental, and economic benefits into outyears. It will reduce spending on health, lost time at work and productivity, and lost school attendance and education opportunities. Lower energy bills will increase the household's disposable income, and the initiative will provide continued support for the growing energy service providers market and provide job stability for providers. The current pool of eligible households will eventually diminish (in approximately 2026), beyond which eligibility criteria and product offerings will be reviewed to ensure that the programme continues to deliver the related benefits. 9(2)(g)(i) [redacted] Component B requests funding to expand the programme to deliver simple, low-cost energy efficiency measures to identified high need households, or households receiving insulation or heating retrofits under the programme. A targeted suite of low-cost measures appropriate to the household – such as LEDs, hot water cylinder wraps, and energy education – will increase the energy efficiency of the home and unlock related emissions reductions from reduced electricity consumption at times of peak demand. Measures will be provided to approximately 17,500 households annually free of cost to encourage uptake, capped at $400 per household. Delivery will be complementary to MBIE's *Support for Energy Education in Communities - expansion of existing programme (SEEC)* initiative and based on some of its successful pilots (for example, Ecobulb's energy hardship reducing pilot programme in King Country). Component C requests funding to add a *community-focused* outreach component to Warmer Kiwi Homes (alongside the existing New Zealand-wide *volume-based* approach). This will allow EECA to offer Warmer Kiwi Homes grants and the related benefits to hard-to-reach households that the current programme will not serve for reasons including homeowners' distrust of government intervention or refusal to allow service providers to enter their homes. This outreach would involve engagement and co-design with locally relevant and already connected organisations, such as rūnanga trusts, marae, Royal New Zealand Returned and Services Associations (RSA), churches and Pasifika healthcare providers. The organisations are intended to act as trusted intermediaries to share the Warmer Kiwi Homes offers with hard-to-reach communities, as well as ensuring that the offer is culturally appropriate and framed in a culturally relevant way. This will involve geographical targeting of areas and communities known to contain hard-to-reach homes. It would have a higher per house cost relative to the current programme due to the provision of 100% grant funding, and the additional resource required on the ground generating leads. As with Component B, there are synergies with the SEEC programme. Component D requests funding to add a basic home repairs component to Warmer Kiwi Homes. This would allow EECA to continue the work currently being piloted through two Covid Response and Recovery Fund projects in Otago and Northland. These projects fund basic weathertightness repairs to homes, allowing for the subsequent installation of insulation and heating. Learnings emerging from these projects have informed the costings for this component, particularly the per-house cost estimate. This component in particular will be coordinated with other repairs programmes being run by Kainga Ora and Te Puni Kokiri.

Section 2B: Alignment

Alignment to the Wellbeing Objectives and the economic plan	The relevant CERF criteria this initiative meets are: • It is included in the first Emissions Reduction Plan • It addresses the distributional impacts of climate change or the climate policy response. The Building and construction chapter of the first Emissions Reduction Plan includes an action to encourage and enable emissions reduction from existing buildings. One of the key initiatives under this

	action is to explore options to expand the Warmer Kiwi Homes programme, such as eligibility criteria, to better achieve equitable outcomes. One of the distributional impacts of the transition to a low-emissions economy is the potential for increased energy costs, which would disproportionately impact on low-income households that may already struggle to have a warm home and pay bills. The initiative aligns well with the Wellbeing Objectives (primarily Physical and Mental Wellbeing) by protecting against the negative physical and mental impacts of cold, damp homes by providing low-income home owners with insulation, energy education and low-cost energy-saving equipment. It aligns with the economic plan by supporting economic security as the programme has been a success for service providers delivering retrofits in a challenging economic environment.
Specific implications **regarding the Crown's** obligations under the Treaty of Waitangi	The community-focused outreach and basic homes repairs components will include engagement and co-design, allowing for whakawhanaungatanga with locally relevant organisations, including Māori community organisations such as rūnanga trusts and marae. These organisations are intended to act as trusted intermediaries to share the Warmer Kiwi Homes offer with Māori communities, as well as ensuring that the offer is culturally appropriate and framed in a culturally relevant way, according to tikanga values. This would assist EECA to offer grants to hard-to-reach households including those that are distrusting of traditional government intervention, which is more common among remote Māori communities that prefer to engage with iwi and other community organisations. The tikanga value of Manaakitanga is upheld through improved wellbeing and enhanced mana for iwi and Māori, and through demonstrating an ethic of care and mutual respect. Lower income Māori households tend to face greater barriers to adopting energy efficient appliances. Māori are also over-represented among households experiencing energy hardship (households that cannot afford to meet their household's energy needs). Energy hardship and poor housing negatively affects the health and wellbeing of occupants, as well as their ability to participate actively in their community. Without adequate support, Māori are at greater risk of having insufficient heating and deficits in comfort and home quality 'locked in'. The successful and proactive targeting of Māori communities, and the associated positive impacts on health and wellbeing, will be key to the design of the community-focused outreach in particular.

Section 3: Value

Section 3A: Benefits and outcomes

Benefit 1 of 2: Reduced energy consumption and related emissions	There are two main benefits outlined in the following sections: 1) reduced energy consumption and related emissions; and 2) warm, dry homes leading to improved health and wellbeing outcomes. 1. Reduced energy consumption and related emissions Insulation, heating, and simple low-cost energy efficiency measures in low-income households results in: • Increased energy efficiency • Reduced energy consumption (especially at peak times e.g. cold winter evenings) • Reduced carbon emissions • Reduced energy costs • Increased disposable income. These benefits will affect individuals and families who are occupants of treated dwellings; other business sectors where income is redistributed; and government. Continued funding for the installation of heating and insulation retrofits beyond June 2024 and the addition of simple, low-cost energy efficiency measures will result in improved energy efficiency of low-income homes. Electricity savings at the household level translate into reduced demand on the electricity grid. Because peak demand is driven primarily by heating, reduced demand will also reduce peaks. Energy savings will deliver some environmental benefits by way of reduced resource use, carbon emissions and particulate emissions, especially in the case of other fuels than electricity. This relates directly to the environment wellbeing domain in the Living Standards Framework (the natural and physical environment and how it impacts people today). Energy savings through improved energy efficiency of $11M are expected (primarily electricity). Energy bill savings from improved heating and lighting are lower than savings in the health area. This is due to the fact that many households are under-heating their homes prior to interventions, and choose improved service (maintaining a warm home) over energy savings. Indeed, it is likely that the health benefits would not be realised without some 'takeback' of the energy savings. Note that the primary reference for the cost-benefit analysis in this budget bid is the 'Phase 1' evaluation published in August 2020. This provided a review of the evidence base for home energy efficiency retrofit programmes and provided an updated Benefit: Cost Ratio (BCR) for the current programme of 4.7:1. The

<table>
<tr><td></td><td colspan="6">finding that benefits materially exceed costs for the programme is robust to adjustment of all assumptions, including household demographics, halving of the lifespan of insulation, and a much-reduced value attributed to reduced mortality. Further to this, EECA are currently finalising a further evaluation which provides fresh evidence on the heat pump component of the programme, to be published in December 2022.</td></tr>
<tr><td></td><td colspan="6">As detailed below, there is a very strong evidence base for the benefits achieved from the programme, with a comprehensive impact evaluation to be published in December 2022. If the programme is expanded through the inclusion of components B and C, these will be evaluated in future years in a similar manner to the evaluation of the volume-based programme.</td></tr>
<tr><td rowspan="2">Distributional/system impacts</td><td colspan="6"></td></tr>
<tr><td>☒ Māori</td><td>☒ Pacific Peoples</td><td>☒ Child Poverty</td><td>☐ Women and Girls</td><td>☒ Environment</td><td>☐ Regulatory Systems</td></tr>
<tr><td>Timeframes</td><td colspan="6">Short-term (within 5 years) – with long term, intergenerational impacts such as climate impacts and an improved housing stock.</td></tr>
<tr><td>Evidence and assumptions</td><td colspan="6">Reduced energy use and improved health outcomes:
Fyfe et al (2022) Evaluation of the Warmer Kiwi Homes programme: Summary report including cost benefit analysis. (To be published December 2022)
Fyfe et al (2022) Warmer Kiwis Study: Interim Report An impact evaluation of the Warmer Kiwi Homes programme: https://www.eeca.govt.nz/assets/EECA-Resources/Research-papers-guides/Warmer-Kiwis-Study-Interim-Report-2021.pdf
Grimes A. and Preval N. (2020) Warmer Kiwi Homes Evaluation 2020: Phase 1 https://www.eeca.govt.nz/assets/EECA-Resources/Research-papers-guides/warmer-kiwi-homes-evaluation-phase-1-motu.pdf
Grimes A. et al. (2012): Cost Benefit Analysis of the Warm Up New Zealand: Heat Smart Programme: https://www.eeca.govt.nz/assets/EECA-Resources/Research-papers-guides/Cost-Benefit-Analysis-of-the-Warm-Up-New-Zealand-Heat-Smart-Programme.pdf
Reduced energy use:
Vector (2022) Energy Efficiency – Insulation and Heat Pump Retrofits https://www.eeca.govt.nz/assets/EECA-Resources/Research-papers-guides/Vector-Energy-Efficiency-Insulation-and-Heat-Pump-Retrofits-Jan-2022.pdf
Grimes et al. (2016). Does retrofitted insulation reduce household energy use? Theory and practice, The Energy Journal, 37(4)
Young et al. (2012) Warming Up New Zealand: Impacts of the New Zealand Insulation Fund on Metered Household Energy Use https://www.motu.nz/our-research/urban-and-regional/housing/warming-up-new-zealand-impacts-of-the-new-zealand-insulation-fund-on-metered-household-energy-use/
Concept Consulting What is the case for electricity efficiency initiatives? https://www.eeca.govt.nz/assets/EECA-Resources/Research-papers-guides/Concept-electricity-efficiency-report.pdf
Gaps in evidence:
The majority of New Zealand evidence for the benefit of space heaters relates to heat pumps and there is an absence of New Zealand evidence that specifically values the benefits of wood and pellet burners. Given that the majority (approximately 95%) of installs are heat pumps, this evidence gap is not significant to an understanding of the programme as a whole.
Assumptions:
In the absence of better evidence, we assume that all of the benefits which accrue to households with heat pumps also accrue to households with wood and pellet burners. This assumption is of minor importance given the relatively low uptake of wood and pellet burners under Warmer Kiwi Homes.
Given the availability of heat pumps (and subsidy schemes) over the past 15 years, low-middle income New Zealand households who have not yet purchased a heat pump may be less likely to do so in the future in the absence of a subsidy programme. The studies we rely upon use an additionality estimate of 75% when evaluating a volume-based programme. We would seek higher additionality (approximately 95%) in the community-focused component.</td></tr>
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<tr><td rowspan="2">Benefit 2 of 2: Warm, dry homes leading to improved health and wellbeing outcomes</td><td>2. Warm, dry homes leading to improved health and wellbeing outcomes
Insulation and heating results in improved indoor temperature, reduced damp and mould, improved air quality and increased useable living space. Individuals and families who are occupants of treated dwellings will be impacted. The lowest quality houses/heating systems will see the greatest marginal improvements in these domains. These benefits will be realised immediately and endure for the lifetime of the measures: between 10 (heating) and 30 years (insulation). The connection between adequate insulation, clean heating and these housing outcomes is very well-established, measurable, and immediate.

A key flow-on impact of warmer, drier homes and improved air quality is an improvement in a range of health and wellbeing outcomes, including:

• reduced mortality
• reduced hospitalisation
• fewer GP visits
• lower pharmaceutical costs
• improved mental health
• improved school attendance and learning
• avoided lost work and productivity
• improved comfort in the home
• increased sense of control
• support for positive social connections.

This initiative will improve the health and wellbeing of occupants of treated dwellings, with benefits accruing to government through reduced health spending. Greater health benefits accrue to vulnerable populations, specifically the elderly (particularly mortality), children (particularly respiratory illness), those with pre-existing conditions and those with disabilities who have higher occupation rates in the home. This relates directly to the housing wellbeing domain in the Living Standards Framework (the quality, suitability, and affordability of the homes we live in). Improving New Zealand's housing stock is also aligned with the He Ara Waiora principle of manaakitanga as improved housing improves the wellbeing of New Zealanders and addresses the inequity of Māori being over-represented among households experiencing energy hardship (households that cannot afford their energy needs). The successful targeting of Māori communities will be key to the design of the *community-focused* outreach, if the initiative is fully funded.

The funding sought through this initiative is expected to generate an estimated $270M in benefits through reduced mortality and a further $46M through other health benefits, for each year of delivery of component A. Health benefits represent approximately 95% of the total benefits of the Warmer Kiwi Homes programme, with reduced mortality accounting for 85% of this. The dominant benefits (gross and net) of the programme are attributable to the insulation component of the scheme. The main drivers of these benefits are reduced deaths from cold and hot spells (particularly among the elderly), cardiovascular disease, and injuries, and reduced symptoms of respiratory disease, arthritis and rheumatism. Improved mental health accounts for up to 50% of health benefits in some studies. Inefficient housing and fuel poverty have been shown to affect mental health by way of chronic thermal discomfort, negative wellbeing impacts of condensation, damp and mould, and financial stress related to high energy bills and the experience or fear of falling into debt. Improved mental health is also linked to improved physical health.

Even in cases where health savings are not realised, there is potential for other wellbeing benefits as a result of improved indoor comfort improvement. These can include increased confidence, optimism, happiness, clear thinking, improved family cohesion, as well as addressing issues of social isolation caused by a reluctance to invite people into an unhealthy home. Less disruption of schooling and increased attendance due to illness leads to increased educational success and increased productivity in the long term for the economy. Care arrangements will vary, but often one parent will need to be at home with an ill child for 1-2 weeks per year. Increased attendance at work leads to increased productivity in the long term for the economy. Improved productivity while at work (when personal health and wellbeing are improved) is an impact in the short term.</td></tr>
<tr><td>As per benefit 1 above.</td></tr>
<tr><td>Distributional/system impacts</td><td>☒ *Māori*
☒ *Pacific Peoples*
☒ *Child Poverty*
☐ *Women and Girls*
☒ *Environment*
☐ *Regulatory Systems*</td></tr>
<tr><td>Timeframes</td><td>Short-term (within 5 years) – with long term, intergenerational impacts such as climate impacts and an improved housing stock.</td></tr>
<tr><td>Evidence and assumptions</td><td>The evidence base is very strong and is reviewed in the 2020 and 2022 evaluations of the Warmer Kiwi Homes programme referenced above. In additional to this, a number of other publications specifically examine the health impacts:</td></tr>
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- Preval, Chapman, Pierse, & Howden-Chapman, (2010). Evaluating energy, health and carbon co-benefits from improved domestic space heating: A randomised community trial: https://www.sciencedirect.com/science/article/abs/pii/S0301421510001837
- Howden-Chapman et al. (2007) Effect of insulating existing houses on health inequality: cluster randomised study in the community

This has been replicated in multiple other jurisdictions:

- WHO (2018) Housing and Health Guidelines. Geneva: World Health Organization. Evidence for reduced public spending on health:
- Thomson, H. et al. (2013): Housing improvements for health and associated socioeconomic outcomes (Review) https://researchonline.lshtm.ac.uk/856558/1/CD008657.pdf
- Gilbertson, J., M. Grimsley and G. Green (2012): www.sciencedirect.com/science/article/pii/S0301421512000791
- Copenhagen Economics (2012): www.renovate-europe.eu/uploads/Multiple%20benefits%20of%20EE%20renovations%20in%20buildings%20-20Full%20report%20and%20appendix.pdf

The evidence base for mental health impacts is growing, on the basis of several robust studies conducted in the United Kingdom and Ireland (countries with similar housing stock, climate and social dynamics to NZ).

- Liddell, C., & Guiney, C. (2014). Improving Domestic Energy Efficiency: Frameworks for Understanding the Impacts on Mental Health. University of Ulster: https://pure.ulster.ac.uk/ws/portalfiles/portal/11471481/mental_health_framework_paper.pdf
- Tod A.M. et al. (2012): http://bmjopen.bmj.com/content/2/4/e000922.full.pdf+html

There is some evidence in the space of improved school attendance and learning:

- Slotsholm, (2012): https://www.velux.com/ar-DZ/Daylight/ventilation/facts_ventilation/did_you_know/Documents/socio-economic-consequences-og-better-air-quality-in-primary-schools_slotsholm_uk.pdf

Evidence for avoided lost work and productivity:

- These benefits were identified as delivered of the WUNZ programme, but not monetised.
- Preval et al. (2010): https://www.cabdirect.org/cabdirect/abstract/20103218230
- Chapman et al. (2009): https://jech.bmj.com/content/63/4/271

There is a strong and growing body of evidence related to improved comfort in the home and increased sense of control:

- Bennett et al (2016): https://www4.shu.ac.uk/research/cresr/sites/shu.ac.uk/files/warm-safe-well-eval-warm-home-programme-summary_1.pdf
- UK Health Forum (2014): http://ukhealthforum.org.uk/wp-content/uploads/2018/11/UKHF-HP_fuel-poverty_report.pdf
- Bartom, Basham and Shaw (2004): http://www.energybc.ca/cache/globalconsumereconomy/www.carillionenergy.com/downloads/pdf/central_heating.pdf

There is some limited evidence related to support for positive social connections:

- Bennett et al (2016): https://www4.shu.ac.uk/research/cresr/sites/shu.ac.uk/files/warm-safe-well-eval-warm-home-programme-summary_1.pdf
- Bartom, Basham and Shaw (2004): http://www.energybc.ca/cache/globalconsumereconomy/www.carillionenergy.com/downloads/pdf/central_heating.pdf

Gaps in evidence:

- While the health impacts and their public savings implications are very well evidenced, the commonly observed wider wellbeing benefits are rarely directly measured or monetised. As such, these are not included in the cost-benefit analysis, thereby forming a one-sided uncertainty.

Assumptions

- In quantifying the benefits of the programme, we assume that insulation retrofits have a functional lifespan of 30 years and heaters 10 years.

	• Our estimation of the size of the eligible and accessible market remaining vs the untreatable part of the remaining market are based on the limited data available on housing stock condition, paired with EECA estimates based on experience delivering retrofit programmes over 12 years. • We assume our delivery model for reaching the hard-to-reach eligible households will be fit for purpose, being based on published principles of community engagement, tikanga Māori, and precedent set by other community-focused outreach programmes.

Section 3B: Expenditure profile and cost breakdown

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Formula and assumptions underlying costings	Component A: Funding to extend the programme • The current *volume-based* programme is scheduled to run through to June 2024. However, additional grant funding is sought in 2023/24 to meet increases in the cost of retrofits. • At 80% grant funding, the average cost of an insulation retrofit per house is about $3,054 (GST exclusive), and the average cost of installing an affordable, effective heater is about $2,389 (GST exclusive). The average cost of an insulation and heating retrofit combined is approximately $5,443 (GST exclusive). Estimates relate to the 2023/24 year. • Seven per cent of the total requested funding for each year covers operational expenditure for implementation, including staff, auditing the quality of retrofits, programme monitoring, marketing, and promotion (note this is approximately 7.5% of grant funding.) Component B: Funding to add low-cost energy efficiency measures • Supplementary low-cost energy efficiency measures would be introduced in 2023/24 so grant funding and implementation cost are sought from 2023/24 to cover this. • Fewer households have been assumed in 2023/24 to establish the low-cost energy efficiency measures component, which is then increased in 2024/25 and subsequent years to match the expected number of insulation retrofits. • 9(2)(g)(i) [redacted] • Seven per cent of the total requested funding for each year covers operational expenditure for implementation (except for the first year which equates to 14% due to the assumed fewer number of households), including staff, auditing, programme monitoring, marketing, and promotion. This would cover 1.6 FTE. Component C: Funding to add community-focused outreach • Community-focused outreach would begin from 2023/24, so grant funding (phased) and implementation cost are sought from 2023/24 to cover this. • Supplementary grant funding is requested to cover two aspects of delivering to hard-to-reach households: o 9(2)(g)(i) [redacted] o A further 10% of the current full cost of insulation and heating installs to support community-focused organisations to deliver to hard-to-reach households. This estimate is based on EECA's experience delivering a programme for the Rātana community in 2011-2013. • Note that the costings for Component C do not allow for additional retrofits, but rather the additional cost to target hard-to-reach households. In a situation where Component A is funded but Component C is not, it is likely that the eligibility criteria for Warmer Kiwi Homes would be expanded slightly sooner. • The following specific FTE have been identified as being required to deliver this component: o 1 FTE for project management of the community-focused outreach programme component o 1 FTE for administration relating to the community-focused outreach programme component Component D: Funding for basic home repairs • 9(2)(g)(i) [redacted]

- The following specific FTE have been identified as being required to deliver this component:
  - 1 FTE for project management of the repairs component
  - 1 FTE for administration relating to the repairs component
- FTE is costed at 50% in 2023/24 to reflect project initiation and managing tenders (1 FTE total).

Multi-year appropriation

- Funding is sought as a multi-year appropriation from 2023/24 to 2026/27 for all components of the bid.
- This would allow EECA to optimally manage demand for the programme.

Operating expenses ($m)						
Operating expense category	2022/23	2023/24	2024/25	2025/26	2026/27	Total
Insulation and heating - Grant funding	-	7.058	75.058	75.058	75.058	232.232
Insulation and heating - Implementation cost	-	0.531	5.650	5.650	5.650	17.481
Low-cost energy efficiency measures - Grant funding	-	3.533	7.066	7.066	7.066	24.731
Low-cost energy efficiency measures - Implementation ex. FTE & overhead	-	0.147	0.147	0.147	0.147	0.588
Community-focused - Grant funding	-	1.280	2.559	3.839	3.839	11.517
Community-focused - Implementation ex. FTE & overhead	-	0.200	0.200	0.200	0.200	0.800
Repairs - Grant funding	-	-	5.000	10.000	10.000	25.000
Repairs - Implementation ex. FTE & overhead	-	0.100	0.200	0.200	0.200	0.700
New FTE wage funding	-	1.071	1.299	1.299	1.299	4.968
New contractor wage funding	-	-	-	-	-	-
New FTE/contractor overhead funding	-	-	-	-	-	-
Total	-	13.920	97.179	103.459	103.459	318.017

# of new FTEs (incl. contractors) over the forecast period	2022/23	2023/24	2024/25	2025/26	2026/27	Total
	-	5.1	5.6	5.6	5.6	5.6

Capital expenses ($m)											
Capital expense category	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32*	Total
[Name of capital expense category]	-	-	-	-	-	-	-	-	-	-	-
[Name of capital expense category]	-	-	-	-	-	-	-	-	-	-	-
[Name/type of contingency]	-	-	-	-	-	-	-	-	-	-	-
Total ($m)	-	-	-	-	-	-	-	-	-	-	-

Section 3C: Options analysis

What were the range of options considered?	The list of options was limited to the fully funded option and the scaled option, which are outlined in the sections above.
What was the process used to select the preferred option?	As per Section 3A, EECA has conducted CBAs, which can be applied to all components and options.
	The costs and related environmental and health benefits for this initiative are outlined in previous sections. These were quantified through impact analysis work done as part of the programme's impact evaluation and internal EECA analysis.
	Stakeholders were not specifically consulted in the quantification of costs and benefits for this initiative, however, insights from a number of stakeholders involved in the programme have informed the process, including: • the programme impact evaluation • insulation and heating service provider • third-party funding providers such as Trusts and Community Groups • other government agencies and government initiatives in the housing space • two Infrastructure Reference Group (IRG) Housing Energy Retrofit Pilots in Otago and Northland.
	The preferred option has the most robust impact analysis, therefore giving the highest confidence on expected benefits.
	Sensitivity analysis was conducted as part of the programme impact evaluation and CBA.
Counter-factual question	Should no further funding be approved, the Warmer Kiwi Homes programme will be run down from December 2023 and come to an end by June 2024. The programme's withdrawal from the market will result in missed opportunities for energy efficiency and related emissions reductions, job losses throughout the industry (manufacturing and installation), and unaddressed poor health outcomes that result in ongoing public and private cost.

Section 3D: Scaled option

The answer to each question must not exceed 1-2 paragraphs.

Scaling option overview	The scaled down option would only include Component A of the initiative (funding from July 2024 to continue the successful existing Warmer Kiwi Homes programme). This would continue the volume-based insulation and heating retrofit delivery to complete approximately 26,500 retrofits annually. Extending the funding would allow what is a highly effective programme to continue to deliver its health, environmental and economic benefits into outyears. It will reduce spending on health, lost time at work and productivity, and lost school attendance and education opportunities. Lower energy bills will increase the household's disposable income, and the initiative will provide continued support for the growing energy service providers market and provide job stability for providers. The current pool of eligible households will eventually diminish (approximately 2026), beyond which eligibility criteria and product offerings can be expanded to continue the related benefits (e.g. expanding the Deprivation Index eligibility criteria or including other products such as electric hot water heat pumps). The scaled option does not include Component B (the expansion of the programme to include low-cost energy efficiency measures), Component C (a community-focused outreach component to target hard-to-reach households), or component D (basic repairs), however A + B, A + C, or A + B + C would all represent appropriate scaling options.

	The exclusion of Components B, C, and D would have the following distinct impacts. • The exclusion of Component B would lead to unrealised low-cost energy efficiency benefits. This would mean relatively higher energy bills for households, and relatively higher energy-related emissions. • The exclusion of Component C and/or D would mean that hard-to-reach households are not reached. In many cases these are the households where the greatest health benefits can be achieved, hence the exclusion of this component would result in unrealised health and economic benefits.
	The scaled option would enable the existing programme to continue to deliver the related health, environmental and economic benefits. However, as above, opportunities to increase the delivered benefits through the full funding initiative would not be realised.
	N/A – the assumptions are the same as the preferred option.

Provide a breakdown of what the scaled down option would purchase. Add additional rows to the table as needed by selecting a row and clicking the + button that appears at the bottom right.

Operating expenses ($m)						
Operating expense category	2022/23	2023/24	2024/25	2025/26	2026/27	Total
Insulation and heating - Grant funding	-	7.058	75.058	75.058	75.058	232.232
Insulation and heating - Implementation cost	-	0.531	5.650	5.650	5.650	17.481
Depreciation and/or capital charge (if relevant)	-	-	-	-	-	-
New FTE wage funding	-	-	-	-	-	-
New contractor wage funding	-	-	-	-	-	-
New FTE/contractor overhead funding	-	-	-	-	-	-
[Name/type of contingency]	-	-	-	-	-	-
Total ($m)	0.000	7.589	80.708	80.708	80.708	249.713

# of new FTEs (incl. contractors) over the forecast period	2022/23	2023/24	2024/25	2025/26	2026/27	Total
	-	-	-	-	-	0

Capital expenses ($m)											
Capital expense category	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32*	Total
[Name of capital expense category]	-	-	-	-	-	-	-	-	-	-	-
[Name/type of contingency]	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-

Section 4: Delivery

Section 4A: Procurement and workforce requirements	
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What is the initiative purchasing/funding?	Key resources required to extend and expand Warmer Kiwi Homes include: • grant funding and implementation funding to continue to deliver insulation and heating retrofits (including heating and insulation products, service providers, auditors, and programme staff) • grant funding and implementation funding to deliver low-cost energy efficiency measures through the existing programme (including suppliers and 1.6 FTE) • grant funding and implementation funding to target hard-to-reach households (including 2 FTE) • grant funding and implementation funding to deliver basic repairs (including 2 FTE)
Is there a market that can meet these needs?	The existing insulation and heating arrangements for the programme will continue, including with suppliers, service providers, auditors, and programme delivery staff. The market is secure as the arrangements are already in place, with the programme running successfully under the current model since July 2018. For low-cost energy efficiency measures, previous trials (such as those under the SEEC programme) have successfully tested the market. Preliminary insights from the Otago and Northland Shovel-Ready projects are that using relevant community groups, of which there are many, is an effective way to engage with low-income households.
	The market is mature and is expected to provide the required resources per the testing outlined above.
	The following new roles would be required to deliver on this initiative: • 1 x FTE, likely a Contract Manager, to oversee the implementation of low-cost energy efficiency measures – requires commercial understanding, business development skills, and strong relationship management abilities. • 0.6 x FTE, likely an administrator, to support the role above. • 1 x FTE, likely a Community Partnerships Manager, to lead the community-focused approach – requires strong relationship management skills, community-level experience, existing network connections, Te Ao Maori experience, and cultural competence. • 1 x FTE, likely a Community Partnerships Advisor to support the role above – also requires cultural competence. • 1 x FTE, likely a Partnerships and Contracts Manager, to lead the basic repairs component – requires skills of Community Partnerships Manager listed above with the addition of construction sector knowledge. • 1 x FTE, likely an administrator, to support the role above. EECA has taken a conservative approach in costing these new roles given the current labour market.
	Existing insulation and heating suppliers and service providers are willing and capable to continue the programme at the current rate, as proposed in Component A of this initiative. The addition of low-cost energy efficiency measures to the programme through Component B will not require any significant additional capability from service providers, due to the simple nature of the interventions. A supplier for the interventions will be determined as part of the implementation design if funded. The types of organisations intended to be involved in the community-level outreach in Component C are already well-connected in the community and expected to be capable of meeting the needs of the initiative. Potential suppliers for Component D have been identified through the two Shovel-Ready pilot projects.
	Kainga Ora delivers insulation and heating retrofits to help its homes meet the healthy homes standards. EECA works closely with its Warmer Kiwi Homes suppliers and service providers to plan ahead to meet the expected demand and minimise any competition for resources between the two programmes. The initiative will also complement MBIE's initiative to expand its Support for Energy Education in Communities (SEEC) programme, which would enable new and existing providers to deliver more free energy education, energy efficient light emitting diodes (LEDs), and other low-cost equipment to help low-income households reduce their energy costs and emissions. Alignment of component D with MHUD and TPK housing programmes will be considered.
Government Procurement Rules	This initiative aligns with Government Procurement Rules.

Section 4B: Risks, constraints, and dependencies

The answer to each question must not exceed 1-2 paragraphs

What are the main risks?	There are three main risks associated with the initiative: • The programme relies on the secure supply of products. This is particularly relevant for heating retrofits, which are reliant on overseas suppliers. Pressure on the supply market, particularly for insulation, has diminished and this is likely to continue. EECA regularly monitors the market and communicates with suppliers to inform them of expected demand and secure this. The programme also has several different suppliers to avoid the risk of reliance on a single supplier. • The programme relies on secure labour supply for installers. EECA works closely with its service providers to plan for expected demand and communicate about any expected labour shortages. • Low-income homeowners may struggle to meet the 20% contribution required through the *volume-based* approach due to the rising cost of living. EECA continues to grow its third-party funding network to support households to receive a retrofit. • Basic repairs (component D) are more expensive than budgeted. EECA would work closely with delivery partners to ensure that repair work is appropriately costed before work begins.
What are the key constraints?	N/A
What are the key dependencies?	N/A

Section 4C: Governance and timeframes

What are the governance arrangements for this initiative?	The Warmer Kiwi Homes programme is overseen by a Steering Group that receives monthly updates on risks, concerns, changes, or decisions to be made. This is made up of key senior EECA staff involved in the programme. The CEO, Board and Minister are responsible for making significant decisions. The governance structure allows for insights from programme staff who are involved in existing networks and relationships with stakeholders.
Timeframes and monitoring	The key milestones for this initiative will be: • Delivery of insulation retrofits (quarterly and annual household number targets) • Delivery of heating retrofits (quarterly and annual household number targets) • Implementation plan for low-cost energy efficiency measures (completed early-mid 2023/24) • Delivery of low-cost energy efficiency measures (quarterly and annual household number targets) • Implementation design and plan for community-focused outreach (completed early-mid 2023/24) • Delivery of retrofits in hard-to-reach homes (quarterly and annual household number targets) • Implementation plan for basic repairs (completed early 2024) • Delivery of basic repairs (quarterly and annual household number targets) The Minister will receive regular information on the implementation and delivery of this initiative, including through Quarterly Reports, as well as through Fortnightly Reports and briefings as required.

Section 4D: Demonstrating performance

Alignment with existing strategy / work programme:

This initiative extends and expands the existing Warmer Kiwi Homes programme. The Warmer Kiwi Homes programme is included in the Emissions Reduction Plan (Action 11.1.1: Improve business and household energy efficiency) and reduces emissions.

Evaluations planned:

The volume-based programme has had an Impact Evaluation undertaken, which had interim results released in January 2022 and will have the final results released in mid-December 2022. If the programme is expanded through the inclusion of components B, C and D, and these will be evaluated in future years in a similar manner to the evaluation of the volume-based programme. This would be covered by the requested implementation costs.

Performance information to be included in Estimates:

The performance information in the Estimates would likely expand to include the number of homes that receive low-cost energy efficiency measures and repairs and the number of hard-to-reach homes reached (in addition to the existing Estimates performance information).

Section 5: Initiatives with Distributional/System Impacts

Section 5A: Māori initiatives

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What kind of impact would the initiative have on **Māori?**	A	Direct impact	☒	Ensuring warmer drier homes for low-income households improves the wellbeing of New Zealanders, and also addresses the inequity of Māori being over-represented among households experiencing energy hardship (households that cannot afford their energy needs).
		Indirect impact	☐	
	B	Targeted and tailored impact	☒	The successful partnership and engagement with Māori communities will be key to the design of the community-focused outreach, if the initiative is fully funded. Other components of the programme will have a disproportionate positive impact for Māori/iwi/hapū/whanau.
		Disproportionate positive impact	☒	
		Other	☐	
	C	We assume our delivery model for hard-to-reach eligible households will be fit for purpose, being based on published principles of community engagement, tikanga Māori, and precedent set by other community-level outreach programmes. Assumptions relating to the success of the community outreach model will be addressed through careful programme design and co-design with Māori communities and iwi.		

How does the initiative align with any of the means of He Ara Waiora?	Kotahitanga ☒	Tikanga ☒	Whanaungatanga ☒	Manaakitanga ☒	Tiakitanga ☒
	The initiative aligns with the He Ara Waiora principles in the following ways: Kotahitanga – the community focused outreach will be coordinated in a way that partners with Māori communities, businesses, iwi and whanau to ensure the programme is successful. Tikanga – building trusted connections with Māori communities will help ensure the programme is culturally appropriate and framed in a culturally relevant way, according to tikanga values. Whanaungatanga – through establishing community connections, we look to foster strong, long-lasting relationships and networks. Manaakitanga – this is a key outcome of the programme to demonstrate an ethic of care for all New Zealanders and address the inequity of Māori being over-represented among households experiencing energy hardship. Tiakitanga – this is another key outcome of the programme, to be good guardians of our environment through reduced resource use and limiting carbon emissions.				

How will the initiative contribute to the ends of He Ara Waiora?	Te Taiao ☒	Te Taiao (the natural world) – ensuring we have energy efficient homes helps to achieve good environmental outcomes through reducing peak demand for energy, reducing the use of resources, and limiting carbon emissions. Te Ira Tangata (the human domain) – the programme improves the waiora (wellbeing) of recipients through improved health outcomes, lifting people out of energy hardship and helping to achieve mana whanake (intergenerational prosperity) through an improved housing stock and limiting carbon emissions.
	Te Ira Tangata ☒	

Section 5B: Pacific initiatives

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What kind of impact would the initiative have on Pacific people?	A	Direct impact	☐	The programme will help to improve the health and wellbeing of Pacific peoples and provide more disposable income through reduced energy bills.
		Indirect impact	☒	
	B	Targeted and tailored impact	☐	Although the programme is not specifically targeted towards Pacific people, the programme targets low-income households, a demographic in which Pacific communities are overrepresented.
		Disproportionate positive impact	☒	
		Other	☐	

	C	In the Warmer Kiwi Homes preliminary evaluation report, Pacific Peoples represented 33.2% of those who participated in the study (337 people), although a direct comparison of ethnicity to the New Zealand population could not be made.

How would the initiative contribute to the focus areas of the All-of-Government Pacific Wellbeing Strategy?	Lalaga Potu: Cultural Values and Principles	☐	Fale Fono: Partnership and Governance	☐	Vaka Moana: Performance and Improvement	☒	Te Kupega: Capability	☐
	The programme supports system shifts within the all-of-Government Pacific Wellbeing Strategy focus area Vaka Moana (performance and improvement). The programme seeks to ensure communities benefit from equitable wellbeing outcomes. Improving the housing stock improves the health, mental health, and wellbeing of low-income households and addresses the inequity of Pacific peoples being over-represented among households experiencing energy hardship (households that cannot afford their energy needs). The community level focused outreach component will engage with communities including groups such as Pasifika healthcare providers, to help ensure positive outcomes for pacific people.							
How would the initiative contribute to the outcomes for Pacific communities articulated in the Pacific Wellbeing Outcomes Framework?	Goal 1: Thriving Pacific languages, cultures, and identities	☐	Goal 2: Prosperous Pacific communities	☐	Goal 3: Resilient and healthy Pacific families	☒	Goal 4: Confident, resilient, and thriving Pacific young people	☐
	Affordable and suitable housing – our homes are the beating heart of the nation, which is why providing suitable housing is important in ensuring New Zealanders consume less energy at home to live more vibrant and healthy lives. Improved labour market participation – through driving more activity through the programme we are supporting jobs in the energy service sector and providing job stability for providers. Improved health – the health benefits generated by this programme will support outcomes pursued by the Ministry of Health. Improved mental health and wellbeing – the evidence base for mental health impacts is growing. Improved mental health accounts for up to 50% of health benefits in some studies. Improved youth mental health and wellbeing – young people living in houses that are insulated and have effective and efficient heating will also benefit from improved wellbeing.							

Section 5C: Child poverty initiatives

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What kind of impact would the initiative have on reducing child poverty?	A	Direct impact	☐	Children that live in houses that are insulated and have effective and efficient heating benefit from improved wellbeing and opportunities – reduced incidences of illness from cold and damp housing, and fewer days off school.
		Indirect impact	☒	
	B	Targeted and tailored impact	☐	Through targeting low-income households, the programme will have a positive impact in addressing the issue of child poverty.
		Disproportionate positive impact	☒	
		Other	☐	
Does the initiative align with the Child and Youth Wellbeing Strategy?	*Yes*	This initiative aligns with the following Child and Youth Wellbeing strategy outcomes: • Children and young people have what they need – more families live in warm, dry houses with reduced energy bills and more disposable income. • Children and young people are happy and healthy – children living in houses that are insulated and have effective and efficient heating benefit from improved wellbeing and opportunities – reduced incidences of illness from cold and damp housing. • Children and young people are learning and developing – reduced incidences of illness from cold and damp housing also means children have fewer days off school.		

Section 5D: Initiatives with impacts on women and girls

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Which group(s) of women and girls would be impacted by	Māori	☐	Pacific	☐	Asian	☐	Culturally and linguistically diverse	☐
	Older persons	☐	Younger persons	☐	Migrants	☐	Refugees	☐

the initiative? Select all that apply.	LGBTQIA+	☐	Rural persons and communities	☐	Students	☐	Disabled people and those with disabilities	☐
	Business owners	☐	Employees	☐	Specific industries or sectors	☐	Other	☐
	-							
How many women and girls would be affected by this initiative?	-							
-								
What is the initiative expected to achieve that will help to improve outcomes for women and girls, including for **wāhine Māori and kōtiro?**	-							
What direct and indirect impacts on women and girls is the initiative expected to have, including on **wāhine Māori and kōtiro?**	-							
Are there any anticipated negative impacts of the initiative on women and girls, including on **wāhine Māori and kōtiro?**	-							
Describe how the initiative contributes to the wellbeing objectives and improves outcomes for women and girls.	-							

Section 5E: Initiatives with environmental impacts

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Does the initiative align to a category within the Green Bond Framework?	Clean Transport	☐	Energy Efficiency and Renewable Energy	☒	Living and Natural Resources and Land Use	☐	Terrestrial and Aquatic Biodiversity	☐
	Climate Change Adaptation	☐	Sustainable Water and Wastewater Management	☐	Pollution Prevention and Control	☐	Green Buildings	☐
	The existing Warmer Kiwi Homes programme is an eligible initiative within the Green Bonds Programme. The extended programme will continue to align with the Green Category of Energy Efficiency & Renewable Energy and meet the objective of improving energy efficiency and managing demand for energy.							

Does the initiative have significant direct or indirect environmental impacts (positive or negative) beyond any climate change implications caught by CERF?	A	Direct impacts	☒	Having energy efficient homes will have a positive impact on the environment. Providing warmer, more energy efficient homes helps to reduce peak energy demand because heating is a primary driver of the demand. Reduced reliance on fossil fuels will also be realised, which will result in environmental benefits.
		Indirect impacts	☐	
	B	Avert long-term tipping-points	☒	Energy savings achieved through having energy efficient homes reduces the use of fossil fuels and reduces carbon emissions, especially in the case of other fuels than electricity. Peak demand is reduced when electricity demands tends to be at its least renewable, such as on winter evenings. The flow on impacts of these reductions in energy consumption will help to avert long term tipping points.
		Advance long-term tipping-points	☐	
	C	*List any assumptions you have made in considering these impacts (see section 4.5 of the Budget 2023 Guidance).*		

Section 5F: Regulatory systems initiatives

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Which regulatory system(s) does the initiative relate to?	*N/A*							
Which category does the initiative primarily relate to?	A major government reform priority (e.g. manifesto commitments)	☐	*Managing or mitigating operational performance of risks*	☐	*Enabling economic activity and/or easing compliance burdens*	☐	*Other*	☐
	-							
Which stage of the policy or legislative process is the proposal at?	*N/A*							