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Office of the Minister of Energy and Resources

Office of the Minister for the Environment

Chair, Cabinet Economic Development Committee

**National Direction on Industrial Greenhouse Gas Emissions: approval to develop a National Policy Statement and National Environment Standard**

**Proposal**

- 1 We seek your approval to begin drafting National Direction on Industrial Greenhouse Gas Emissions, in the form of a National Policy Statement (NPS) and National Environmental Standards (NES) under the Resource Management Act 1991 (RMA). The NPS and NES will provide policy direction and a supporting rule framework for phasing out fossil fuels in process heat.
- 2 We also seek agreement for an Order in Council to be drafted to delay the commencement date for the repeal of sections 70A, 70B, 104E and 104F of the RMA (the existing statutory barriers relating to the consideration of greenhouse gases on climate change) from 31 December 2021 to 31 March 2022. A delay in commencement is necessary to allow for the minimum period of three months to draft the NPS and NES and for targeted engagement with the commercial space and water heating sector to occur.

**Relation to government priorities**

- 3 The proposals give effect to Labour's 2020 Election Manifesto commitment to 'phase out fossil fuels in process heat by preventing the installation of new low and medium temperature coal-fired boilers'. This work also relates to the Cooperation Agreement area of "supporting the use of renewable energy for industrial heat."
- 4 The proposals relate to Recommendation 21.4 in the Climate Change Commission's (the Commission's) final report 'ensuring no new coal boilers are installed and setting a timetable for the phase out of fossil fuels in boilers'.
- 5 This policy is a key regulatory tool to support New Zealand's first Emissions Reduction Plan (ERP), which will be in place by 31 December 2021.

**Executive Summary**

- 6 On 6 April 2021, Cabinet approved the release of the discussion document for consultation on National Direction on Industrial Greenhouse Gas Emissions [CAB-21-MIN-0099 refers]. Officials have prepared a summary of submissions and recommendations report in accordance with section 46A of the RMA, which is attached as Appendix C.
- 7 In 2020, the Resource Management Act 1991 (RMA) was amended to enable regional councils to consider the effects of greenhouse gas (GHG) emissions on

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- climate change in planning and consenting decisions, by repealing the existing statutory barriers to these considerations in the RMA.
- 8 These amendments will take effect on 31 December 2021 and, without direction from central government, could lead to regional councils managing GHG emitting activities inconsistently across the country. There is also a key opportunity to avoid the lock-in of new fossil fuel investments that would be costly to change at a later stage. The proposed national direction tools will seek to address these issues.
  - 9 Process heat<sup>1</sup> is responsible for approximately 10 per cent of New Zealand's emissions and is a critical area for emissions reductions to meet New Zealand's net zero emissions by 2050 target.
  - 10 The proposed national direction will make discharges of GHG emissions from new coal-fired process heat assets<sup>2</sup> for low and medium temperatures a prohibited activity. Any consents granted for existing coal-fired assets in low and medium temperature process heat under the national direction must expire by 2037.
  - 11 We propose a NPS to provide policy guidance on reducing industrial GHG emissions and avoiding the lock-in of new long-lived emissions-intensive process heat assets, whilst providing a more flexible approach to existing assets to better align with the natural asset replacement cycle.
  - 12 We propose a NES to support this policy direction and provide nationally consistent rules for industrial GHG emissions. The NES will classify discharges from fossil fuel process heat assets (other than new coal assets) as a *restricted discretionary activity*<sup>3</sup> to encourage emission reductions where viable.
  - 13 For existing assets, the matters of council discretion will be restricted to the application of the Best Practicable Option(s) (BPO)<sup>4</sup> to reduce GHG emissions, and the content and quality of a GHG emissions plan ('GHG Plan'). The application of BPO is a more flexible approach than the original proposal.
  - 14 The amended proposal for existing assets responds to industry concerns about risk and uncertainty in the consent process; compliance costs and capital constraints; and for inflexibility to direct and prioritise capital for fuel-switching projects (with coal generally the priority).
  - 15 For new fossil fuel assets (other than coal), applicants will be required to demonstrate that there are no technically or economically feasible low emissions alternatives to fossil fuels for their process heat end-use. This ensures that shadow pricing is factored into investment analysis to avoid the lock-in of new long-lived emissions-intensive process heat assets.

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<sup>1</sup> The International Energy Agency defines process heat as energy "primarily used for warming spaces and industrial processes". This is often in the form of steam, hot water or hot gases.

<sup>2</sup> New assets include those installed on greenfield sites and replacement assets on existing sites. Existing assets are defined as assets in operation when national direction is enacted. Assets include the fuel burning equipment used to generate process heat including boilers, ovens, furnaces and kilns depending on the heat requirements.

<sup>3</sup> A restricted discretionary activity requires a resource consent to be applied for from a local authority. The consent authority can exercise discretion on whether or not to grant consent, and to impose conditions, but only in respect to those matters over which its discretion is restricted to in the national environmental standard.

<sup>4</sup> Best Practicable Option is defined in the RMA in relation to the discharge of contaminants. It is focused on achieving the best option to reduce emissions taking into account the nature of discharge and sensitivity of receiving environment, financial implications of different options, and technical knowledge and feasibility of different options.

## Background

- 16 In 2020, the Government amended the RMA to enable climate change mitigation to be considered in planning and consenting decisions. This removed sections that prohibit regional councils from considering the effects of GHG emissions on climate change on 31 December 2021. It will also require councils to have regard to emissions reduction plans and national adaptation plans published under the Climate Change Response Act 2002 (CCRA) when making regional plans, policy statements and district plans. These amendments link the Climate Change Response Act 2002 and the RMA.
- 17 A discussion paper 'National direction on industrial greenhouse gas emissions - Phasing out fossil fuels in process heat' was consulted on from 8 April to 20 May 2021. A full report on submissions and recommendations can be found in Appendix C. In its final advice, the Commission recommends that, in the first emissions reduction plan, the Government commit to outlining a plan for actions required to decarbonise the industrial sector. This should include (Rec 21.4) *Ensuring no new coal boilers are installed and setting a timetable for the phase out of fossil fuels used in boilers.*
- 18 We propose that in the first ERP, the Government will signal it will consider a phase out date for other fossil fuel boilers as part of actions to decarbonise the industrial sector, alongside the energy strategy and work on how to phase down natural gas use in buildings in the first Emissions Budget period.

## Why are we focussing on decarbonising the industrial sector

- 19 Process heat offers an opportunity to decarbonise, as there are proven, cost-effective options for decarbonising low- and medium-temperature process heat. These include switching fuel use from fossil fuels to biomass and electricity, and opportunities to improve energy efficiency.
- 20 There are also some energy efficiency gains possible by high-temperature users although switching away from fossil fuels is challenging with current technology. A strategic approach to high-temperature users is being considered through responding to the Climate Change Commission's recommendations relating to hard-to-abate industries and equitable transitions, and in the context of ongoing work that supports economic transformation and a just transition.
- 21 The \$70 million Government Investment in Decarbonising Industry (GIDI) fund is already accelerating the uptake of low-emissions fuels. Coal boilers, in particular, are being replaced with biomass or electricity. However, the total investment required to replace all fossil fuel process heat assets with low-emissions alternatives is significant. The Energy Efficiency and Conservation Authority (EECA) estimates it to be in the order of \$3 billion excluding space and water heating, and \$4.5 billion if it is included. There are also many smaller entities, such as small tomato growers, that may face capital constraints or are unable to absorb the costs of transition. The bulk of GIDI funding will be allocated by the end of 2021.
- 22 Despite the focus on industrial GHG emissions, there are other sectors where the resource management system could play a role in driving down emissions. The Government is undertaking a comprehensive review of the resource management system which will provide opportunities for reducing emissions in an integrated way throughout this legislation. The intention is for a more fulsome package of national direction on climate change to be developed through the new system.

## Complementary measure to the Emissions Trading Scheme (ETS)

- 23 The NZ ETS is a key mechanism to drive emissions reductions in energy and industry. By design, a price on emissions, assuming rational behaviour from those subject to it, leads to cheaper emissions reduction opportunities being taken up first. These price signals are relatively short term, as NZ ETS caps are only set for a few years into the future.
- 24 The uncertainty of the emissions price makes investing in reducing emissions riskier, so businesses may underinvest. s9(2)(f)(iv)
- 25 Putting target dates in place, s9(2)(f)(iv) provides a higher degree of certainty in emissions abatement and investment. In addition, these measures can send a signal for low-emissions solutions that take time, such as electrical grid expansion and wider biomass infrastructure and market development.

## Public consultation on the national direction indicated the need for refinement and some substantive changes to achieve policy intent

- 26 The proposed national direction on industrial GHG emissions was consulted on from 8 April to 20 May 2021. A total of 91 submissions were received, 47 from industry and 7 from local government. The submissions supported a nationally consistent approach on addressing industrial GHG emissions, as it created greater certainty for industry and local government.
- 27 There was limited feedback from the commercial sector on whether commercial water and space heating should be included within the scope of the NPS and NES. Because of this, we recommend:
- 27.1 Further targeted engagement be carried out with the building and construction sectors.
- 27.2 The decision on whether to include commercial water and space heating be delegated to us and the Minister for Climate Change to make following this consultation.
- 28 We also recommend extending the timeframes by three months for developing national direction and the amendments to the RMA coming into force through an Order in Council to accommodate this further consultation.
- 29 There was agreement on the ban for coal-fired assets and the 2037 phase out timeframe, as it provided a clear message and incentive to industry. There was a lack of consensus on the future role and phase out of natural gas.
- 30 The key challenges that were identified through consultation were:
- 30.1 **Technically feasible and economically viable:** there was general concern regarding the definition and criteria to assess 'technically feasible and economically viable' alternatives.

- 30.2 **Time and options available to transition:** the need to allow appropriate time for businesses to invest in new technology and equipment, and for alternative fuel sources to be made available.
  - 30.3 **Risk of uncertain consent processes:** a risk of drawn-out and ambiguous consent processes contributing to uncertainty around future operations.
  - 30.4 **Multiple sites:** businesses with multiple sites raised the risk of having sites under the jurisdiction of different regional councils, as councils have limited mandate or visibility of actions occurring in other regions.
  - 30.5 **Cost and capital constraints:** the cost and capital constraints of transitioning away from fossil fuels was raised. The GIDI fund's focus is on large companies, and stakeholders raised that financial support is required for SMEs to transition away from coal is required.
- 31 A full summary of the submissions to the national direction discussion document *Phasing out fossil fuels from process heat* and recommended amendments are attached in Appendix C.

### National Policy Statement

- 32 Taking into account stakeholder feedback and the Commission's final advice, we propose a National Policy Statement (NPS) to provide direction on the following matters:
- 32.1 the need to reduce emissions from industrial process heat through RMA decision-making to transition to a low emissions economy;
  - 32.2 reducing emissions from industrial process heat should be underpinned by consenting decisions that encourage energy efficiency and the uptake of best practices, and transition fossil fuel assets to low emissions energy sources over time;
  - 32.3 consenting decisions for new assets should avoid the lock-in of long-lived emissions-intensive assets by requiring applicants to demonstrate there are no technically feasible and economically viable alternatives, s9(2)(f)(iv) [redacted];
  - 32.4 consenting decisions for existing assets should consider the remaining useful economic life of assets, s9(2)(f)(iv) [redacted];
  - 32.5 application of Best Practicable Option (BPO) to reduce GHG emissions from industrial process heat in existing and new assets;
  - 32.6 a strong signal and separate pathway to phase out coal coal-fired process heat assets for low and medium temperature requirements;
  - 32.7 recognition of emerging fuel alternatives internationally for high-temperature process heat that require significant development and investment to become technically and economically feasible in New Zealand.



## National Environmental Standard

- 33 To support the policy intent and provide nationally consistent rules for industrial GHG emissions from process heat under the RMA, we propose a NES to classify discharges of greenhouse gases from:
- 33.1 New coal-fired assets for low and medium temperatures as a *prohibited activity*.
  - 33.2 Existing coal assets for low and medium temperatures as a *restricted discretionary activity* with consent expiry by 2037.
  - 33.3 All other fossil fuel process heat assets as a *restricted discretionary activity* to encourage emission reductions where viable through application of the BPO and GHG Plans, whilst recognising the bespoke characteristics of industrial process heat users, and that low emissions options may not be available at the time of consent application.

### *Prohibiting new coal-fired boilers in process heat*

- 34 To achieve the policy intent of preventing installation of new emissions-intensive assets in process heat, we propose the NES make the discharge of GHGs from new coal-fired assets for low and medium temperature process heat a prohibited activity, with no size threshold.
- 35 A strong signal to switch away from coal is in line with advice from the Interim Climate Change Committee, the Climate Change Commission, the Government's manifesto commitment, and the moves of some industries that are already prioritising a phase out of coal as a key step in their decarbonisation strategies. The prohibition of coal provides a well-defined timeline that can be clearly communicated so that investment certainty can be given to businesses. During consultation, there was overall support that it was reasonable to target interventions towards coal-fired assets because coal is the cheapest and most emissions-intensive fuel.

### *Phasing out coal in existing assets by 2037*

- 36 Submitters were in support of a phase out date for existing assets, with some individual submitters preferring phase out to occur before 2037. Concern was raised regarding cost and availability of alternative fuels, and the required investment in upgrading technologies and practices.
- 37 To achieve a phase out date of 2037 for coal, we propose the NES prohibit councils from granting resource consents that allow emissions beyond 2037. For example, if a consent for an existing coal boiler expires in 2030 and the operator applies for a new consent, it could only be granted until 2037. This will not mean that all coal assets are phased out by 2037 as some existing consents extend beyond this date. Also, regional councils will be able to grant consent for existing coal assets for a maximum of ten years, subject to the matters of discretion including the application of Best Practicable Option to reduce GHG emissions, the content and quality of the GHG emissions plan (the 'GHG Plan'), and monitoring, reporting and review requirements.

*Existing fossil fuel assets (excluding coal)*

- 38 Industry feedback indicated concern on the ability to use existing natural gas assets, and the difficulty in meeting the technical and economic feasibility test particularly for existing assets when capital is directed and prioritised towards phasing out coal.
- 39 There is also work underway by officials to assess options for managing the diminishing role of natural gas while ensuring energy affordability and security and to assess the potential of repurposing infrastructure for renewable gases.
- 40 To address stakeholder concerns and to align with the Commission's advice, we propose that the NES provide a more flexible approach for existing fossil fuel assets. This will require applicants to demonstrate how they are applying BPO to reduce emissions but are no longer required to demonstrate that there are no other technically or economically feasible low emissions fuel-switching options. Under this approach councils are unlikely to decline a consent application on the basis of fuel but can require them to demonstrate how they are minimising emissions from their existing assets.
- 41 Other matters of discretion are the content and quality of the GHG Plan, and monitoring, reporting and review requirements of the GHG Plan. The GHG Plan should still contain an initial analysis of low emissions options to inform replacement in the future.
- 42 BPO is a concept in the RMA and widely applied in relation to the discharge of contaminants through planning and consenting processes. It allows for the consideration of the nature of discharge and the sensitivity of receiving environment, financial implications of different options, and technical feasibility of different options. It provides a more flexible approach to consider site and sector specific constraints to reduce emissions while still ensuring best practice is adopted where practicable. EECA will publish guidance on BPO as it relates to reducing GHG emissions from process heat.
- 43 As with coal assets, we propose that consents for existing assets are granted for no more than ten years.

*New fossil fuels assets*

- 44 For new fossil fuel assets (other than coal), the applicant must demonstrate there are no technically feasible and economically viable low emissions alternatives as a policy to meet in the NPS. The matters of council discretion listed in the NES are the same as for existing sites. New assets include those that are replacements on existing sites.
- 45 Technical feasibility and economic viability is used in investment analysis and business case development. Guidance to support the NPS is to be developed by EECA using the levelised cost of energy (LCOE)<sup>5</sup> and s9(2)(f)(iv) [REDACTED]. An illustrative example of this analysis for is provided in Appendix B.

<sup>5</sup> LCOE is a measure of the average net present cost of energy generation for a generating plant over its lifetime. It is used for investment planning and to compare different methods of generation on a consistent basis.

s9(2)(f)(iv) [REDACTED]

- 46 We propose consents for new assets are granted for no more than 20 years.

#### *Guidance for greenhouse gas emissions plans*

- 47 For applicants not seeking to replace or install new assets, the GHG Plans will identify relevant BPO and assess these options for implementation. It will also require an initial analysis of low emissions fuel switching opportunities for asset replacement in the future. The plans will outline a timeframe for project implementation and identify how an appropriate emissions reduction target based on identified opportunities will be met.
- 48 The consent process can provide for a staged approach to meet targets through the GHG Plan over the lifetime of the consent. Consent conditions will include emission reduction targets and associated monitoring requirements. Any commercially sensitive information can be highlighted by the applicant for withholding.
- 49 For new assets, the GHG Plans will additionally require an analysis of technical feasibility and economic viability of fuel switching options.
- 50 For sites with thermal emissions over 2,000 tonnes of CO<sub>2</sub> per year (tCO<sub>2</sub>-e per year), the GHG Plans will need to be reviewed by a suitably qualified and experienced practitioner to provide quality assurance.

#### **Design of the national direction**

- 51 The policy proposals above are summarised in a table in Appendix A.

#### *Out of scope of the national direction*

- 52 By definition all 'industrial and trade premises' that are not users of process heat and other 'non-industrial' sectors that emit GHG emissions are out of scope from the NPS and NES. This includes electricity generation, co-generation, waste, transport, agriculture, mobile plant and heritage uses such as coal-fired steam trains.

#### *Inclusions and exclusions*

- 53 High-temperature heat users are excluded from the prohibited activity for new coal assets, but they are included for other fossil fuels. High-temperature users include iron and steel, cement, chemical and petrochemical production, lime production, and aluminium smelting. Co-generation is also excluded.<sup>7</sup> All other fossil fuel use for process heat is in scope, including waste oil and tyres.

#### *Thresholds for the phase out of fossil fuels*

- 54 We propose that there is no size threshold for new coal assets in national direction. However, a threshold of 500 tCO<sub>2</sub>-e per year of total thermal emissions at a site applies to all existing assets and other fossil fuels. This will aim to reduce the compliance costs on small businesses whilst capturing the large share of emissions from process heat assets. Emissions of 500 tCO<sub>2</sub> per year typically requires a boiler

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<sup>7</sup> While co-generation includes some fossil fuel use for process heat, there is no known methodology for allocating emissions to process heat as distinct from electricity emissions.



of at least 1 megawatt of energy and is equivalent to an annual energy consumption of 8,286 gigajoules of natural gas, 185,874 litres of diesel, or 214 tonnes of coal.<sup>8</sup>

### *Phasing out fossil fuels in commercial and public buildings*

- 55 There was limited engagement with the commercial sector on the discussion paper for 'phasing out fossil fuels in process heat' therefore we recommend targeted engagement with this sector should it be included.

### *Non-statutory guidance*

- 56 Non-statutory guidance will be developed by the Ministry for the Environment (MfE), in consultation with the Ministry of Business, Innovation and Employment (MBIE) and EECA. This will provide guidance on how to consider GHG emissions from other sectors that are out of scope of the NPS and NES.

### **Low emissions energy, markets and infrastructure**

- 57 The current low emission alternatives that exist for transitioning process heat are electricity, biomass, geothermal and, to a lesser extent, biogas. Each offers different applications.
- 58 Securing biomass supply needs to start early to meet future demand, as there is a potential deficit of biomass suitable for replacing coal in some regions. Preliminary findings from modelling of forestry and wood processing biomass suggests that there may not be enough suitable biomass to meet combined demand from transport and process heat in the 2030s. Officials are investigating this, but more work is needed to map and forecast all suitable biomass supply (including from forests, agriculture, waste and animal fats).
- 59 Government may need to provide accessible information on availability of biomass resources at local and regional levels to improve business confidence in the security of bioenergy supply. The large-scale afforestation that will occur over the coming decades to increase carbon sequestration provides an opportunity to 'fill in' gaps in the future supply of biomass, but more work is needed to explore the tools available to influence the types, location and timing of new forests to meet future demand for biomass.
- 60 The electricity infrastructure, both distribution and transmission networks, need to enable fuel switching from coal to electricity. Many of the large coal users are located in the South Island which is close to a lot of New Zealand electricity generation assets.

### **Implementation, monitoring and review**

- 61 We recommend the NES and NPS should come into force by 31 March 2022 to align with the entry into force of the 2020 amendments to the RMA (if amended by Order in Council as per paragraph 2).
- 62 EECA will provide guidance on BPO, a method for determining economic viability and GHG Plans. MfE will prepare guidance along with the NPS and NES to support

<sup>8</sup> The amount of GHG emissions per year is dependent on the type and quantity of fuel used. Fuel consumption can vary a lot between assets of the same capacity, based on use pattern (continuous, peaking, seasonal production, working hours and days). It will also depend on how much of the asset's capacity is used on average over the year, which typically ranges from 15 to 50% for boilers below 10MW.

implementation. MfE will also publish non-statutory guidance to support councils on assessing other GHG discharges not included in the scope of the NPS and NES.

- 63 MfE will monitor the implementation and effectiveness of the national direction. We propose to review the national direction in 2026 (five years after it has been in place) to consider how it is working in practice and whether a phase out date for other fossil fuels is appropriate.

### Impacts on industry

- 64 Costs include the upfront capital investment as well as any increases in energy costs. In some cases, biomass, particularly wood pellets, are more expensive than coal, though the rising ETS price means that woody biofuels are increasingly cost-competitive. Electricity, on a per-unit-of-energy basis, is much more costly than fossil fuels. However, the use of industrial heat pumps where there is a high coefficient of performance makes the use of electricity cost-competitive in low temperature applications. Future costs are uncertain due to the changes in key markets, such as the global price of pulp logs and electricity supply and demand dynamics.
- 65 The proposals have been designed to minimise the risk of emissions leakage and business closures. The risk of emissions leakage is considered to be low given the nature of low and medium process heat users (abattoirs, dairy plants). However, there may be some entities, such as small tomato growers, that could face capital constraints or are unable to absorb the costs of transition. Most horticultural activities are eligible for industrial allocation at a 60% level of assistance under the NZ ETS, which is intended to reduce the risk of emissions leakage. Allocations are being reduced by 1% per year starting in 2021.

### Next Steps

- 66 Subject to Cabinet approval, we intend to recommend the NPS and NES on industrial greenhouse gas emissions (IGHG) to the Governor-General in Council for her approval and to issue the NPS and NES IGHG by notice in the New Zealand Gazette.

### Financial Implications

- 67 Preparation of the draft NPS and NES will be funded from baseline resources. An implementation plan will also be prepared to support delivery of the instruments. This will include guidance on GHG Plans and best practice to support adoption of the proposals by industry. s9(2)(f)(iv)

### Legislative Implications

- 68 There are no legislative impacts identified from setting the national direction.

### *Implications for Resource Management system reform*

- 69 An exposure draft of the Natural and Built Environments Bill was released for public consultation on 29 June. The National Direction on Industrial Greenhouse Gas emissions will be drafted in a way that it can be reflected under the new legislation.

### **Impact Analysis**

- 70 A joint Regulatory Impact Assessment Panel between the Ministry for the Environment and the Ministry for Business, Innovation and Employment has reviewed the Regulatory Impact Statement “National direction under the RMA on industrial greenhouse gas emissions”. The Panel confirms that the level of information provided meets the quality assessment criteria.

### **Climate Implications of Policy Assessment**

- 71 The Climate Implications of Policy Assessment (CIPA) team has been consulted and confirms that the modelling for this proposal has followed good practice and used reasonable assumptions. The modelling estimates emissions reductions of between 0.18 to 0.67 mega tonnes carbon dioxide equivalent (Mt CO<sub>2</sub>-e ) in the first budget period (2022 – 2025) and between 2.1 to 26.9 Mt CO<sub>2</sub>-e in total from 2022 to 2050. The wide range in the estimates is largely due to the uncertainty around the ETS price that emitters will face. When there is a high ETS price, the impact of the policy is reduced, and when there is a low ETS price, the impact of the policy is much greater. In combination with the ETS price and other factors, the policy is estimated to reduce annual emission levels compared to 2019 by between 0.8 and 2.5 Mt CO<sub>2</sub>-e by 2030 and by between 0.8 and 3.0 Mt CO<sub>2</sub>-e by 2035.
- 72 This policy is expected to have a net cost to New Zealand (the cost will be borne by emitters). However, marginal abatement cost analysis indicates that this area is one of the lower cost areas of the economy to decarbonise. This policy provides an initial pathway to decarbonisation for this sector. It also provides certainty to emitters and reduces the potential of stranded assets in the future.

### **Population Implications**

- 73 We do not anticipate population implications from National Direction on Industrial Greenhouse Gas Emissions.
- 74 The impacts of this proposal related to Te Tiriti o Waitangi are summarised in section 13 of Appendix C.

### **Human Rights**

- 75 There are no human rights implications arising from this paper.

### **Consultation**

- 76 The following agencies were consulted for the development of the discussion paper: the Energy Efficiency and Conservation Authority, the Ministry for Primary Industries and the Ministry for Housing and Urban Development. The Treasury, Ministry of Transport, Department of Conservation and the Department of Prime Minister and Cabinet were informed of the national direction work programme.

77 [Redacted text block]

**Communications**

78 Subject to Cabinet approval, the section 46A Report in Appendix C will be released on the Ministry for the Environment’s website and submitters will be notified when the report is available. Targeted consultation will be carried out on an exposure draft of the NPS and NES with industry and local government stakeholders.

**Proactive Release**

79 We will release this paper following Cabinet decisions, including any redactions as appropriate under the Official Information Act 1982.

**Recommendations**

The Minister of Energy and Resources and the Minister for the Environment recommend that the Committee:

- 1 **note** that in July 2020, Cabinet agreed for national direction to be developed to support amendments to the Resource Management Act 1991 (RMA) that reintroduced climate change mitigation into the remit of local government decision-making [CAB-20-MIN-0051.01]
- 2 **note** that the national direction will be key tools in supporting decarbonisation of process heat, which is critical for the first set of emissions budgets under the Climate Change Response Act 2002
- 3 **note** that the Climate Change Commission’s recommendation 21.4 is to ‘ensure no new coal boilers are installed and setting a timetable for the phase out of fossil fuels used in boilers’

*Design of the national direction*

- 4 **agree** to RMA national direction on GHG emissions from industrial process heat in the form of a NES supported by a NPS with a summary of the provisions set out in Appendix A
- 5 **agree** that the NPS should provide direction on the matters outlined in paragraphs 31.1 to 31.7 and be prepared in accordance with the detail provided in Appendix A including reducing emissions from fossil fuels in process heat through the resource consent process, application of Best Practicable Option, a requirement for applicants with existing coal assets and new fossil fuel assets to demonstrate there a no technically feasible and economically viable alternatives, and implementation of GHG Plans
- 6 **agree** that the National Environmental Standard should:

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- 6.1 be prepared in accordance with the detail in Appendix A
- 6.2 make provision for regional councils to continue to regulate other adverse effects of the discharge of GHGs from existing low to medium temperature coal or new or existing fossil fuel fired assets, by allowing for more stringent rules than the NES
- 6.3 provide for an 18-month lead in time to apply for resource consents for use of assets that are currently permitted under regional plans for discharging contaminants to air, as set out in appendix A

*For coal-fired assets for low and medium temperature process heat*

- 6.4 prohibit the discharge of GHG emissions from new coal-fired assets with no exceptions based on a size threshold
- 6.5 prohibit councils from granting consents for existing coal-fired assets beyond 2037 and specify that the discharge consent term for existing coal-fired assets is a maximum of 10 years
- 6.6 classify discharges of GHG emissions from existing coal-fired assets as a restricted discretionary activity with matters of discretion restricted to the application of BPO and content and targets in a GHG Plan

*For other fossil fuel assets*

- 6.7 classify discharges of GHG emissions from other fossil fuel assets as a restricted discretionary activity with matters of discretion restricted to application of BPO and contents and targets in a GHG Plan
- 7 **agree** to require sites emitting over 2,000 tonnes CO<sub>2</sub>-e per year to have GHG Plans and emission reduction targets verified by a suitably qualified practitioner
- 8 **agree** to exclude high temperature coal-fired process heat assets from:
  - 8.1 the prohibited activity rule for new coal-fired assets in low to medium temperature process heat
  - 8.2 the restricted discretionary rule for existing coal-fired assets in low to medium temperature process heat
- 9 **agree** that resource consents for new assets (excluding coal) are granted for no more than 20 years
- 10 **agree** that resource consents for existing assets (excluding coal) are granted for no more than 10 years

*Scope*

- 11 **agree** to exclude fossil fuel use of process heat for low-emitting activities, except for new coal-fired assets (as per recommendation 6.4), defined as those emitting less than 500 tonnes of CO<sub>2</sub>-e per year of total thermal energy use at a site
- 12 **agree** to delegate the decision on whether to include commercial space and water heating assets and how this will be reflected in the NES and NPS to the Minister for the Environment, the Minister of Energy and Resources, the Minister for Building and

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Construction, and the Minister for Climate Change following targeted engagement with the commercial building and construction sector

- 13 **Agree** that other non-fossil fuel GHG discharges are not within scope of national direction but will be accompanied by non-statutory guidance for councils to assess the effects of other greenhouse gas emissions

*Implementation, monitoring and review*

- 14 **agree** that EECA, working with MfE and MBIE, will publish guidance on BPO for reducing GHG emissions from process heat, s9(2)(f)(iv)
- 15 **note** that work is needed to understand future supply and demand for suitable biomass across all regions to provide business certainty, and inform policy development to ensure there is a consistent and sufficient supply of biomass over the long-term
- 16 **agree** to review the NPS and NES in 2026, including to determine whether it should include a date by which other industrial fossil fuel use should be phased out
- 17 **note** the Government will be considering a range of issues once its first Emission Reduction Plan is in place that will help inform the review of the NPS and NES; including setting a timetable for fossil fuel boilers and managing the diminishing role of fossil gas across the energy system and the associated consequences for network infrastructure, and the development of an Energy Strategy

*Next steps*

- 18 **agree** that an Order in Council be prepared under section 2(4) of the Resource Management Amendment Act 2020 (RMAA) to delay commencement of sections 17 to 21, 35 and 36 of the RMAA from 31 December 2021 to 31 March 2022 (noting these sections of the RMAA include repealing sections 70A, 70B, 104E, 104F of the RMA and inserting new sections relating to consideration of the emissions reduction plan and the national adaptation plan)
- 19 **invite** the Minister for the Environment to issue drafting instructions to the Parliamentary Counsel Office to prepare the Order in Council referred to at recommendation 18
- 20 **agree** that the Minister for the Environment instructs the Parliamentary Counsel Office to draft an NES on industrial GHG emissions in accordance with recommendations 6 to 13, and the detail in Appendix A
- 21 **agree** that an NPS on industrial GHG emissions as set out in recommendation 5 and Appendix A is drafted by officials with a specialist drafter in accordance with standard NPS drafting protocols
- 22 **agree** to release an exposure draft of the NPS and NES to a small group of industry and local government stakeholders
- 23 **authorise** the Minister of Energy and Resources and the Minister for the Environment to further clarify and develop the proposal as it is drafted in a way that is not inconsistent with Cabinet decisions



**IN CONFIDENCE**

- 24 **note** the NPS and NES will be designed in a way that allows them to be transferred into the national planning framework that is currently under development through resource management reform
- 25 **invite** the Minister for the Environment to report back to Cabinet Legislation Committee to recommend the making of the NPS and NES to the Governor-General.

Authorised for lodgement

Hon Dr Megan Woods

**Minister of Energy and Resources**

Hon David Parker

**Minister for the Environment**

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**Appendix A: National Environmental Standard and National Policy Statement: Policy Intent of Provisions:**

NPS objectives (outcomes to be achieved)	NPS Policies (actions to achieve the objectives)	NES rules and conditions (methods to implement the policies)
<p>Industrial process heat emissions are reduced to mitigate the effects on climate change and other associated adverse effects on the environment</p> <p>Decision-making on industrial process heat emissions is nationally consistent to support the transition to a low emissions economy</p>	<p><b><u>Reducing GHG emissions from new industrial assets:</u></b></p> <p>Discharges to air of GHG emissions from new industrial process heat assets are managed to:</p> <ul style="list-style-type: none"> <li>• Avoid discharges from new coal-fired assets.</li> <li>• Avoid discharges from new fossil fuel assets (excluding coal) except where an applicant can demonstrate there are no other technically feasible and economically viable low emission alternatives.</li> <li>• Reduce GHG emissions to the extent practicable through energy efficiency improvements and the adoption of the best practicable option (as defined in the RMA).</li> </ul>	<p><b><u>New coal-fired process heat assets</u></b></p> <p>Prohibited activity rule for all low and medium temperature process heat assets.</p> <p>For high temperature process heat assets the prohibited activity rule will not apply.</p> <p><b><u>New fossil fuel fired process heat assets (excluding coal)</u></b></p> <p>Restricted discretionary rule for all process heat assets, with no exclusions based on temperature.</p> <p><i>Consent may only be granted when certain conditions are met:</i></p> <ul style="list-style-type: none"> <li>• Compliance with emissions reduction targets that achieve the greatest reduction of GHG emissions that are feasible against an assessment of BPO. Emissions reduction targets must be set at intervals demonstrating how reductions will be achieved during the consent term.</li> <li>• Compliance with a GHG emissions plan prepared in accordance with Schedule A. For sites emitting over 2,000 t CO<sub>2</sub>-e of total thermal demand per annum, the GHG plan and the emissions reduction targets must be reviewed and recommended to the consent authority by an independent <i>suitably qualified practitioner</i>.</li> <li>• Compliance with emissions reduction targets is reported to the consent authority.</li> <li>• Consent is granted for a maximum duration of 20 years.</li> </ul> <p><i>Matters of discretion are restricted to:</i></p> <ul style="list-style-type: none"> <li>• The extent to which low emission alternatives are available</li> <li>• The adoption and demonstration of the best practicable option to reduce GHG emissions and meet an emission reduction target.</li> <li>• Content including targets and quality of a GHG Emissions Plan.</li> <li>• The <sup>s9(2)(f)(iv)</sup>, economic and environmental and benefits of the proposal.</li> </ul>

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<b>NPS objectives (outcomes to be achieved)</b>	<b>NPS Policies (actions to achieve the objectives)</b>	<b>NES rules and conditions (methods to implement the policies)</b>
		<ul style="list-style-type: none"> <li>Monitoring and reporting on the implementation of actions and targets in the GHG Emissions Plan.</li> <li>The timeframe for reviewing conditions on the resource consent.</li> </ul>
<p>As above</p>	<p><b><u>Phasing out fossil fuels in existing industrial assets:</u></b></p> <p>Discharges to air of GHG emissions from existing industrial process heat assets are managed to:</p> <ul style="list-style-type: none"> <li>Significantly reduce the use of coal by 2037.</li> <li>Provide for discharges of GHG emissions from existing coal-fired assets where an applicant can demonstrate there are no other technically feasible and economically viable low emission alternatives.</li> <li>Transition existing fossil fuel assets to low emissions energy within the economic life of the asset.</li> <li>Reduce GHG emissions from fossil fuel assets to the extent practicable through improving energy efficiency and the adoption of the best practicable option.</li> </ul> <p>Recognise the lack of technically feasible and economically viable fuel alternatives for process heat users with high-temperature<sup>9</sup> requirements.</p>	<p><b><u>Existing coal-fired process heat assets</u></b></p> <p>Use of existing coal-fired assets in low to medium temperature process heat is classified as a restricted discretionary rule for consents until 2037 and a prohibited activity rule after 2037.</p> <p>For high temperature assets the restricted discretionary activity rule and prohibited activity rule will not apply.</p> <p>Rule to take effect on consent renewal. An 18-month lead in time provided to apply for consent for unconsented assets under regional plan rules.</p> <p><i>Consent may only be granted when certain conditions are met:</i></p> <ul style="list-style-type: none"> <li>Compliance with emissions reduction targets that achieve the greatest reduction of GHG emissions that are feasible against an assessment of BPO. Emissions reduction targets must be set at intervals demonstrating how reductions will be achieved during the consent term.</li> <li>Compliance with a GHG emissions plan prepared in accordance with Schedule A. For sites emitting over 2,000 t CO<sub>2</sub>-e of total thermal demand per annum, the GHG plan and the emissions reduction targets must be reviewed and recommended to the consent authority by an independent <i>suitably qualified practitioner</i>.</li> <li>Compliance with emissions reduction targets is reported to the consent authority.</li> <li>Consent is granted for a maximum duration of 10 years.</li> <li>Consent cannot be granted beyond 2037.</li> </ul>

<sup>9</sup> High temperature will be defined consistently with the discussion document as temperature requirements greater than 300°. This captures a relatively small number of large plants (oil refining, melting metals, chemical manufacturing) which make up approximately 39% of process heat emissions.

NPS objectives (outcomes to be achieved)	NPS Policies (actions to achieve the objectives)	NES rules and conditions (methods to implement the policies)
<p>As above</p>	<p><b>Assessing resource consent applications for the discharge to air of GHG emissions from new and existing industrial process heat assets:</b></p> <p>When assessing the best practicable option decision-makers must have regard to:</p> <ul style="list-style-type: none"> <li>• The adverse effects of GHG emissions on climate change;</li> <li>• The methods and technology to achieve enhanced resource efficiency and reduce emissions;</li> <li>• The technical feasibility of options to reduce emissions;</li> <li>• The economic cost of different options for reducing emissions.</li> </ul> <p>When assessing applications for the discharge to air of GHG</p>	<p><b><u>Existing fossil fuel fired process heat assets (excluding coal)</u></b></p> <p>Restricted discretionary rule with conditions.</p> <p>Rule to take effect on consent renewal. An 18-month lead in time provided to apply for consent for unconsented assets under regional plan rules.</p> <p><i>Consent may only be granted when certain conditions are met:</i></p> <ul style="list-style-type: none"> <li>• Compliance with emissions reduction targets that achieve the greatest reduction of GHG emissions that are feasible against an assessment of BPO. Emissions reduction targets must be set at intervals demonstrating how reductions will be achieved during the consent term.</li> <li>• Compliance with a GHG emissions plan prepared in accordance with Schedule A. For sites emitting over 2,000 t CO<sub>2</sub>-e of total thermal demand per annum, the GHG plan and the emissions reduction targets must be reviewed and recommended to the consent authority by an independent <i>suitably qualified practitioner</i>.</li> <li>• Compliance with emissions reduction targets is reported to the consent authority.</li> <li>• Consent is granted for a maximum duration of 10 years.</li> </ul> <p><i>Matters of discretion are restricted to (for existing coal and other fossil fuel assets):</i></p> <ul style="list-style-type: none"> <li>• The adoption and demonstration of the best practicable option to reduce GHG emissions and meet an emission reduction target.</li> <li>• Content including targets and quality of a GHG Emissions Plan.</li> <li>• The social, economic and environmental and benefits of the proposal.</li> <li>• Monitoring and reporting on the implementation of actions and targets in the GHG Emissions Plan.</li> <li>• The timeframe to review conditions in the resource consent.</li> </ul>

NPS objectives (outcomes to be achieved)	NPS Policies (actions to achieve the objectives)	NES rules and conditions (methods to implement the policies)
As above	<p>emissions from new and existing industrial process heat assets, decision-makers shall recognise the national and local benefits of proposals that:</p> <ul style="list-style-type: none"> <li>• Achieve emission reductions while providing for the social and economic well-being of people and communities;</li> <li>• Demonstrate the efficient use of energy to the extent practicable.</li> </ul> <p><b>Monitoring, reporting and reviewing resource consent conditions:</b></p> <p>Decision-makers must recognise the importance of regular monitoring and reporting of industrial process heat emissions through:</p> <ul style="list-style-type: none"> <li>• Imposing reporting requirements for GHG Emissions Plan actions and targets at intervals of no greater than 5 years;</li> <li>• Reviewing consent conditions where necessary to ensure applicants are adopting best practicable option to reduce emissions;</li> </ul> <p>Ensuring the consent conditions are complied with to assist with measuring progress towards meeting national goals and targets for reducing GHG emissions.</p>	

**Policy Intent for NES Schedule A: Purpose and Content of GHG Emission Plans (applies to sites emitting over 500 t CO<sub>2</sub>-e per year of site thermal demand)**

The purpose of a GHG Emissions Plan is to encourage energy efficiency best practices and transition fossil fuel assets to sources of renewable and low emissions energy over time by meeting a specified GHG emission reduction target. A GHG Emissions Plan should include the following content:

- At a site level, the total thermal energy use by fuel source and temperature end-use requirement, and associated emissions using up-to-date emission factors
- Number of process heat assets; their size, age and fuel source
- Relevant Best Practicable Option identified that has or will be implemented at the time of consent, or any derogations justified
- Timeframe for implementation of relevant Best Practicable Option during the consent period, or any derogations justified

- Provision of a GHG target(s) to achieve by end of consent period, based on the estimates of emission reductions after implementation of Best Practicable Option
- Investigation of future fuel-switching opportunities for future replacement: considerations and initial assessment
- A transition pathway that includes the relevant Best Practicable Option and fuel-switching opportunities that could be implemented over time, with estimates of emission reductions of each option
- Review and reporting, with at least one mid-term review, for the purpose of demonstrating progress towards target(s)
- For sites emitting over 2,000 t CO<sub>2</sub>-e of total thermal demand per annum, the GHG plan and emission reduction target must be reviewed and recommended on by an independent *suitably qualified practitioner*.

**Policy intent for NPS and NES definitions**

Existing and new assets	Existing assets are fuel burning devices in operation when national direction comes into effect. New assets include fuel burning devices <sup>10</sup> installed in greenfield sites, as well as replacements of existing assets. Fuel-burning device may also be defined as any boiler, furnace, engine or other internal or external combustion device that is designed to burn fuel for the primary purpose of heat production.
Source of GHG emissions	The rules will target the source of the discharge of emissions, for example the discharge of GHG emissions from the burning of coal in a 'fuel-burning device' (or similar)
Fossil fuels	Will be listed and include but not limited to coal, natural gas, LPG, LNG, diesel, oil and waste oil.
Process heat	Will be defined to clarify assets used in industrial processes to generate heat. For the purposes of this instrument, it does not include assets that generate both electricity and heat (co-generation).
Thresholds	The rules will not apply to small-scale activities, defined as those emitting less 500 tonnes of CO <sub>2</sub> -e per annum of total thermal energy use at a site. The exception is for new coal-fired sites where no threshold applies and all coal use in new assets will be a prohibited activity
Economically viable	A proposal will be assessed as economically viable if the economic benefits exceed the economic costs of the proposal.
Low emissions alternative	Low emissions alternatives will be defined as including biomass, electrification and other fuel options with less emissions than the emission factor of electricity.
Best practicable option	As defined in the RMA. Guidance will be developed on how to assess BPO in relation to GHG emissions from industrial process heat.
Suitably qualified practitioner	Definition to include a person with expertise in process heat and emission reduction technology to be determined by the local authority in accordance with non-statutory guidance.
High temperature process heat	High temperature process heat will be defined as process heat temperature requirements of greater than 300 degrees centigrade.

<sup>10</sup> "Fuel burning device" is based on a definition used in the Canterbury Air Regional Plan – Operative 2017.



Medium temperature process heat	Medium temperature process heat will be defined as process heat temperature requirements of between 100 and 300 degrees centigrade.
Low temperature process heat	Low temperature process heat will be defined as process heat temperature requirements of less than 100 degrees centigrade.

### Appendix B – Example of levelised cost of energy (LCOE)<sup>11</sup> and abatement cost

An illustrative example of this analysis for a 9 MW boiler in the food sector, after energy efficiency actions, is provided in the table below:

Option	Yearly emissions (tCO <sub>2</sub> e/y)	Capex (k\$)	Opex (k\$/y)	s9(2)(f)(iv)	s9(2)(f)(iv)	s9(2)(f)(iv)
Gas boiler	18,000	2,250	1,150			
Heat pump	2,600	11,600	2,140			
Biomass boiler (replacement)	270	8,500	1,620			

<sup>11</sup> LCOE is a measure of the average net present cost of energy generation for a generating plant over its lifetime. It is used for investment planning and to compare different methods of generation on a consistent basis.

**Appendix C – National Environmental Standard and National Policy Statement on Industrial Greenhouse Gas Emissions: Summary of Submissions and Recommendations Report**

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Appendix D – Regulatory Impact Assessment

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