

9(2)(a)

19 September 2025

Dear 9(2)(a)

Re: Official Information Act Request: Health effects of gas cooking

Thank you for your email on 26 August 2025 in which you requested information under the Official Information Act 1982. You requested:

“Copies of any reports, documents or briefings regarding the health effects of gas cooking and/or emissions from gas cooking, produced by, commissioned or received by EECA, since January 1 2023.”

As part of EECA’s broader home electrification programme, we commissioned research into air pollution from indoor combustion to inform overall cost benefit analysis of our activities.

We are releasing the report from this research with you in confidence, **embargoed until midday Wednesday 24 September**. EECA will be publishing the report (along with the model used to develop the findings) on our website on at midday Wednesday 24 September.

- Please note the copies of the report attached to this letter are near-final; and we are considering adding further graphs before publication. If changes are made, we will share an updated copy with you as soon as possible.
- Please also note, this report has undergone a peer review in New Zealand and we are currently arranging an international peer review. The report is being published prior to the international peer review being complete. If the international peer review recommends changes, we will publish an updated version.

Please refer to **Appendix One**, for a summary of the material in scope, and EECA’s decision on release. Further explanation on our decisions can be found in the appendix.

We have provided a media statement for you that will be published alongside the report, on the EECA website. Please contact Kate Barlow, Manager Strategic Communications, if you have any questions, or need further comment (email: <Kate.Barlow@eeca.govt.nz> , mobile: 027 478 4478).

You have the right to seek an investigation and review by the Ombudsman of this decision. Information about how to make a complaint is available at www.ombudsman.parliament.nz or freephone 0800 802 602.

Please note that it is our policy to proactively release our responses to official information requests where possible. Our response to your request will be published shortly at <https://www.eeca.govt.nz/about/news-and-corporate/official-information/> with your personal information removed.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'M. Bell', with a stylized flourish at the end.

Murray Bell
Group Manager, Policy and Regulation

Appendix One: Overview of all documents within scope

Item	Date	Title	Decision
Research report			
1	1 August 2025	EIL Indoor Combustion Study	Release in full, under embargo until midday 24 September 2025
2	5 August 2025	20250805 – FINAL Indoor Combustion Peer Review Report	Release in full, under embargo until midday 24 September 2025
Other documents			
3	9 July 2025	LT agenda item: EECA Research into Air Pollution from Indoor Combustion	Release in full, under embargo until midday 24 September 2025
3a		<i>Attachment:</i> EIL Indoor Combustion Study Final 30Jun25	Withhold in full, under 9(2)(g)(i). Refer to Item 1 for updated version.
3b		<i>Attachment:</i> Indoor Combustion Health Impacts Model 30Jun25.xlsx	Withhold in full, under 9(2)(g)(i). Refer to Item 4 for updated version.
4	1 August 2025	Indoor Combustion Health Impacts Model 1Aug25.xlsx	Release in full, under embargo until midday 24 September 2025
5	22 August 2025	EECA's Fortnightly Report to the Minister for Energy	Release in part, under embargo until midday 24 September 2025: - Section 9(2)(a) - Out of scope Note, pages 2-4 and 6-7 have been removed due to being out of scope of your request.
6	26 August 2025	Board Report: Chief Executive's Report for August 2025	Release in part, under embargo until midday 24 September 2025: - Out of scope Note, pages 2-9, and 12-15 have been removed due to being out of scope of your request.
7	19 September 2025	DRAFT PR Indoor Combustion report	Release in full, under embargo until midday 24 September 2025. Note, this PR release has been included as we believe it will provide useful context for you.

An explanation of the refusal grounds:

- 9(2)(a) - to protect the privacy of natural persons, including that of deceased natural persons.
- 9(2)(g)(i) - to maintain the effective conduct of public affairs through the free and frank expression of opinions.
- Out of scope.

Item Three

LT Agenda Item

Meeting Date	9/07/2025
Subject	EECA Research into Air Pollution from Indoor Combustion
Purpose/actions sought	To discuss the research findings, their implications, and potential communications plans.
Prepared by	Oliver Hefford
Links	EIL Indoor Combustion Study Final 30Jun25 , Indoor Combustion Health Impacts Model 30Jun25.xlsx

EECA has received a research report into the health effects of indoor combustion

1. The EECA funded *Indoor Combustion in New Zealand Homes: Health Effects and Costs* study has found that indoor combustion has significant national health impacts, measuring in the multiple billions with annual deaths comparable to the road toll¹.
2. This memo aims to facilitate discussion on the implications of this research for EECA's work programme and determine next steps in communicating these findings within government and to the public.
3. The research paper is available [here](#) and includes a three page executive summary.

Researchers estimate high public harm

4. In late 2024, EECA commissioned Emission Impossible Ltd and Resource Economics to quantify health costs from gas stoves, unflued gas heaters and wood burners in New Zealand homes.
5. The study fills a long-standing evidence gap in Treasury's CBAX model and will support more complete value-for-money (VfM) assessments across several EECA programmes.
6. EECA is currently procuring peer review from the Ministry of Health (MoH), National Air Quality Working Group (NAQWG) and a Doctor of Public Health who is a former MoH Chief Clinical Advisor.
7. The table below outlines the headline costs per appliance and at a national level.

Appliance	Indoor health cost per appliance	National annual cost (billion dollars)	Key health outcomes
Gas stove	\$9,200	\$3.31 bn	208 premature deaths, 1,300 childhood asthma cases.

¹ [Safety — Road deaths | Ministry of Transport](#)

Unflued gas heater	\$20,400	\$0.91 bn	57 premature deaths, 370 childhood asthma cases.
Open fire	\$53,400	\$0.1 bn	Highest per-unit health harm but infrequently used.
NES-compliant wood burner	\$1,800	\$0.67 bn	Relatively low indoor harm, but still substantial harm from outdoor air pollution.

Total indoor combustion cost ≈ **€9.0 bn/yr**, comparable to the **€0.9 bn/yr** cost attributed to outdoor air pollution. The researchers determined that this harm is **additional** to outdoor air pollution.

Strategic implications for EECA's work programme – for discussion

Workstream	Implication	Questions for LT
Warmer Kiwi Homes	In 2024, EECA funded the installation of 383 wood/pellet burners as part of warmer kiwi homes – around 7% of all heating installs.² The research findings suggest that these installations may be causing significant harm to the end recipient and their community. Furthermore, EECA does not require capping existing chimneys or burners as part of insulation or heating retrofits. Doing so would please regional councils – but might risk lowering uptake.	Should EECA continue funding wood and pellet burners through WKH? If/if not, how will we communicate the decision alongside these findings? Could we alter part of the intervention logic to fund the decommissioning of fireplaces or burners? What is our appetite for a potential drop in installs this could create?
Marketing and Communications	EECA's current work programme is centred on consumer energy savings – especially the winter campaign and Switch on Efficiency. This report offers an opportunity to move into residential fuel switch, encouraging consumers to move away from combustion-based burning for health as well as economic reasons. This campaign could also	Is this a direction EECA wants to take? Do we have the capability and appetite for this move? What is the minister and board's appetite for moving in this direction?

² [Quarterly Installs \(by Service Type\) 24' - For Quarterly Reporting](#)

	promote mitigations (air filtration systems, opening windows, show that rangehoods are ineffective). This would be a significant departure from current plans. To note: including the health harms from combustion in the Switch on Efficiency review would increase the campaign's net benefit by two orders of magnitude.	
Research and engagement	Treasury and other central government Cost Benefit analysis should be updated to include these costs. These avoided health costs can dwarf climate or consumer savings for fuel switch programmes. There are a number of conferences and opportunities to present these findings coming up (national air quality group, clean air conference in Melbourne, and a bespoke EECA public policy presentation by Motu).	Does EECA want to develop its expertise and reputation in this space? Or alternatively, was this the outside edge of our involvement? Are there opportunities for future regulation?

Strategic communications planning – for LT discussion

EECA will need to coordinate communication of these findings across a few government agencies. Beyond that collaboration, there are two broad approaches for communicating these findings:

- Purely academic and intra-government strategy. Communicate the findings within government to other agencies. Stick to the academic side and avoid any widespread publication of the findings.
- More consumer-focused strategy. This would give us more opportunity but more risk of pushback – EECA should ensure we have ministerial and board approval before going too far down this road.

Risks and opportunities presented by this research

Aspect	Risk / Opportunity	Mitigations / actions
Reputation	Mission creep – going out of our wheelhouse, stepping on toes, and potentially landing in trouble by misunderstanding evidence or findings.	Position ourselves as evidence owner rather than regulator or lead agency. Collaborate with

		relevant agencies (MoH, HNZ, MfE) before any major decisions.
Stakeholder pushback	Risk of pushback from incumbents. Many New Zealanders have an emotional connection to combustion heating – there may be pushback from a perception that ‘the government wants to ban your fireplace/gas cooking’.	Ensure peer review, publish communications with evidence focus rather than action focus, coordinate communications with lead agencies.
Equity	Low-income households are more likely to use unflued heaters and old burners.	Targeted grants, special support through WKH, engagement with Kainga Ora.
Research gaps	There are opportunities for future research. We could develop more regionalised findings through a monitoring programme. Especially for pellet and ULEB burners, more monitoring could provide better data and more exact findings.	Endorse EECA to procure more research. This basic research would be much more costly than the desktop-based research to date.

Next steps – to be confirmed

Item	Indicative Deadline
Peer review	1 August
Brief Minister and Board	End of August
Develop full communications plan	End of August
Remove wood and pellet burners from WKH	From 1 January 2026

Item Five

EECA's Fortnightly Report to the Minister for Energy

22 August 2025

EECA Contact: Will Jensen, Manager, Policy and Engagement

Phone: 04 470 2441 Mobile: 9(2)(a)



2. Accelerating Renewable Energy

2.1 Indoor combustion research

EECA, with input from the Ministry of Health (MoH) and the National Air Quality Group (NAQG), recently commissioned research into the health effects and costs of indoor combustion, specifically gas stoves, unfluted gas heating, open fires and wood burners. The research was undertaken to fill a gap in gap in Treasury's CBAX model and to support more complete value-for-money assessments across several of our residential programmes.

The findings of the research show significant health and national cost impacts from these appliances, comparable to that of outdoor air pollution.

We are now preparing an engagement and communications plan and will work with relevant government agencies and key stakeholders to share the findings. We are preparing for likely public interest ahead of releasing the report release in late September.

Internally we are updating our cost models to include data from the report and are actively considering changes to the Warmer Kiwi Homes Programme which currently funds a small number of wood burner installations.

Key points:

- EECA commissioned research into the health effects and costs of indoor combustion
- The findings of the research show significant health and national cost impacts from these appliances.
- We will share these findings with relevant government agencies and will be used to inform EECA programmes

Next steps:

- We will brief you on the report findings and potential policy/programme considerations in September prior to the report release.

Chair and Members

-
- | Group | Bar Index | Approximate Length (%) |
|-------|-----------|------------------------|
| 1 | 1 | 95 |
| 2 | 2 | 92 |
| 2 | 3 | 100 |
| 3 | 4 | 10 |
| 4 | 5 | 100 |
| 4 | 6 | 65 |
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Out of Scope

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Peer review confirmed findings for Indoor Combustion research

We have now received an independent peer-review of the *Indoor Combustion in New Zealand Homes* which has confirmed the report findings and noted the harm estimates are conservative. We are now preparing an engagement and communications plan and will work with relevant government agencies and key stakeholders to share the findings and prepare for likely public interest ahead of releasing the report.

Internally we are updating our cost models to include data from the report and are actively considering changes to the Warmer Kiwi Homes Programme which currently funds a small number of wood burner installations.

Immediate next steps:

- Coordinate with MoH, MBIE and NAQG on communications, briefings and policy implications.
- Brief the Minister for Energy, with a recommendation to forward on to Ministers of Environment, Housing, and Health.
- Share results with health, consumer, and environmental NGOs, regional councils, and affected stakeholders such as the Gas Industry Council.
- Publish report on the EECA website in late September with a plain-English summary and FAQs.

Both the research report and peer review have been included in your background papers (and Diligent Resource Centre).

Out of Scope

[illegible]

MEDIA STATEMENT – embargoed to 12pm 24 September

Indoor air pollution impacts of household appliances: Findings published

A report released today, prepared by Emission Impossible Ltd in conjunction with Resource Economics, examines the health impacts of combustion appliances – adding to a growing body of research in New Zealand on household energy use.

The independent study looks at gas stoves, unflued gas heaters, and wood burners of all types. Commissioned by EECA (the Energy Efficiency and Conservation Authority), the study models fine particulate (PM2.5) and nitrogen dioxide (NO2) emitted indoors from using different types of appliances for heating and cooking.

“Open fires and gas appliances – both gas stoves and unflued gas heaters – are identified as resulting in the highest indoor air pollution costs per household,” said EECA Lead Advisor Efficient Homes, Dr Gareth Gretton.

“This is in contrast to the results for outdoor air pollution, established in previous work, which shows significant impacts from open fires and wood burners, but no impact from gas burning appliances.”

The report does not consider flued gas space heaters, which vent all combustion products to the outside. Similarly, outdoor gas water heater califonts and gas barbeques were out of scope.

Indoor air pollution impacts identified in the report are those that occur for the household with the combustion appliance. These are additional and distinct to the impacts of outdoor air pollution which also impacts air quality in your home.

“The clearest example of the distinction between indoor and outdoor air pollution is that from wood burners,” said Gretton.

“Most of the particulate emissions from any wood burner will go up the flue. These contribute to outdoor air pollution, and some of this will enter homes through ventilation. The additional indoor air pollution identified in the present study occurs when lighting the fire, or refuelling, which is when particulate emissions enter the house directly.”

The report puts estimated national annual cost to the healthcare system from indoor air pollution at \$102 million*. Wider social costs are modelled at \$5.6 billion (social costs include the statistical value of a life). The impacts in the report are expressed using Treasury’s standard measures [the Value of a Statistical Life (VOSL) and the Value of a Life Year (VOLY)] – in 2025, the central VOSL figure is set at \$15 million**.

“Health impacts from indoor air pollution connected to different appliances will now be included in EECA’s cost benefit analysis – alongside financial and environmental outcomes,” said Gretton.

Indoor air quality is an emerging area of interest globally. “This data set is the first to quantify the health costs from the release of indoor combustion products in New Zealand and so we really welcome feedback and discussion from across the wider industry,” said Gretton.

“The study is best understood as part of wider analysis which considers all the impacts of different appliance choices.”

The results are based on real-world testing in New Zealand homes, supplemented by and benchmarked against international evidence. The study has been peer reviewed from health and economic perspectives, and a further international peer review from an indoor air quality scientist is being scoped.

Ends

* \$102 million of healthcare cost is calculated from the per-appliance fiscal costs in Table 12, and the number of appliances which are given in Tables ES-3 and 16. Costs are driven by respiratory and cardiovascular hospitalisations, and childhood asthma prevalence and hospitalisations, and are given in Table 7.

** These figures, which originated from studies on what people are willing to pay to reduce road fatalities, are now widely applied across government.

Assumptions – for a full list please review report methodology.

- This data inherently includes ventilation, window use, and extractor fan use – in line with the real-world efficacy of these mitigations.
- The methodology includes seasonal variation to this mitigation by assuming lower NO₂ exposure in summer, due to higher window use and resulting ventilation. In the central scenario, summertime exposure is 25% of winter. The methodology does not factor in “flooding events” in which exposure briefly reaches a very high level immediately after cooking, instead focusing entirely on the long-term low increase in exposure from the regular use of gas stoves.
- The report assumes a very low number of houses use open fires. EECA’s omni survey in 2025 found that 7% of respondents owned an open fire which they had used in the past 12 months. This would equate to 129,000 open fires – well above the 1973 used for the harm estimates in this paper.
- The report assumes all fixed gas heaters are flued. In the 2023 census, 150,000 people indicated they had a fixed gas space heater.