

From: [Steve Goldthorpe](#)
To: [Mailroom Mailbox](#)
Subject: Submission on proposed Canterbury Air Regional Plan
Date: Thursday, 30 April 2015 3:33:14 p.m.
Attachments: [SEE SUBMISSION TO ECAN ON PROPOSED CANTERBURY AIR REGIONAL PLAN-30Apr15.doc](#)

Please receive the attached submission on behalf of the Sustainable Energy Forum. I have also sent copies of this submission by post.

Regards

Steve Goldthorpe
Convenor, Sustainable Energy Forum

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SEF SUBMISSION ON PROPOSED CANTERBURY AIR REGIONAL PLAN (pCARP)

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I am the convenor of SEF. I am making this submission on behalf of the Sustainable Energy Forum (SEF) after consultation with the SEF membership and with the approval of the SEF committee.

The Sustainable Energy Forum Incorporated has the objective of promoting the transition toward sustainable energy in New Zealand. In this context 'sustainable energy' means the sourcing, transformation, use and management of energy in a manner which improves social well-being, while conserving physical resources, maintaining the integrity of ecosystems, and avoiding the transfer of costs onto future generations.

Trade competition I could not gain an advantage in trade competition through this submission

Signed: 

Dated: 30th April 2015

B.

SEF wishes to be heard in support of this submission. SEF would be prepared to consider presenting our submission in a joint case with others making a similar submission at any hearing. This submission may be presented by another member of SEF.

C. We seek the following specific decisions from Environment Canterbury:-

An additional category of wood burner should be defined in Table 2.2 as

| | | |
|--------------------------------------|--|---|
| Certified low emission burner (CLEB) | an enclosed solid fuel burning device certified by CRC with the following standards: (a) the emissions result in no more than one gram of total suspended particulate emissions per kilogram of fuel burned; and (b) thermal efficiency of 65% or greater (c) emit no significant visible smoke during steady state operation (excluding lighting and refuelling) | To allow the use of existing and new certified low emission burners indefinitely or until the long term outcomes of the pCARP have been fully evaluated |
|--------------------------------------|--|---|

In Tables 2.1, 4.1, and paragraphs 6.27, 6.32, 6.33, 6.37, 6.38, 6.39, 6.42, 7.76, 7.77 and Schedule 8 replace "ultra-low emission enclosed burner" with "certified low emission burners or ultra-low emission enclosed burners"

Paragraph 6.28 – replace "ultra-low emitting" with "certified low emitting or ultra-low emitting"

Paragraph 6.4 should be deleted

The SEF submission follows with the rationale for this proposed change to the pCARP.



SEF SUBMISSION ON PROPOSED CANTERBURY AIR REGIONAL PLAN (pCARP)

Background

The pCARP identifies a wide range of air quality parameters but only quantifies one parameter; PM10, which is required to be below the National Environmental Standard of 50 $\mu\text{g}/\text{m}^3$ as a 24 hour average. The PM10 parameter is used as a proxy in the plan for all the air pollutants, indoor and outdoor, that may contribute to premature deaths and respiratory ailments. It is estimated that domestic heating with coal and wood contribute more to daily average PM10 concentrations than industrial and transport emissions combined. On the basis of this evidence, a direct cause and effect relationship between wood smoke and excess mortality is claimed as a foundation for a severe simplistic policy to completely phase out the use of domestic wood burning including certified low emission domestic wood burners (CLEBs). Open fires and uncontrolled enclosed log burners are already proscribed.

The pCARP will permit the use of ultra-low emission wood burners (ULEBs) that can achieve less than 38 mg/kJ of particulate emissions* in a standardised test. That is a very severe criterion that can effectively only be met reliably by new advanced designs, including pellet burners and down draught burners. Many, previously certified, wood burner designs would be unable to meet this tight criterion if tested according to the “real life” method, which uses poorly seasoned firewood.

We consider that: -

1. This policy is using CLEBs as a scapegoat to address air quality and public health issues;
2. Focussing only on PM10 as a quantifiable air quality parameter is a crude means of relating air pollution to averse public health outcomes. The Parliamentary Commissioner for the Environment (PCE) notes that PM2.5 correlates with adverse health impacts better than PM10 (*The state of air quality in New Zealand*; PCE; March 2015);
3. Focussing on the National Environmental Standard of 50 $\mu\text{g}/\text{m}^3$ PM10 in the sense of a boundary between good and bad is simplistic. The relationship between air quality and public health is a gradual trend and is complex, because the chemical composition of inhaled particles has more impact on health than just their weight.
4. The evidence that domestic heating dominates PM10 emissions does not distinguish between CLEBs and uncontrolled wood burners, open wood fires or domestic coal fires;
5. The production of smoke from wood burners relates more to the behaviour of the operators than to the technology and is better dealt with by education and enforcement than by costly replacing of equipment. The fact that some people drive too fast is not a good reason to ban all cars from the streets.
6. The community health benefit of a householder's investment in conversion from an CLEB to a ULEB or a heat pump may be better served if that investment is instead directed towards home energy efficiency measures such as good insulation, advanced glazing and well controlled ventilation;
7. An outcome of the proposed policy is likely to be the mandated replacement of about 18,000 efficient wood burners, at high cost to homeowners or landlords, with uncertainty concerning a net benefit to public health;
8. If CLEB's are phased out they are likely to be replaced with less resilient costly all-electric heating. For households that can't afford heat pumps, the use of electric resistance heating would severely impact their budgets, This would result in poorly heated homes with consequent adverse health effects for vulnerable people, thus offsetting the intended benefit of PM10 emission reduction.



9. Heat pumps tend to lose efficiency over time, increasing costs and reducing effectiveness.
10. The probability of public health benefits resulting from further reduction of present day particulate concentrations is low and is hard to quantify. However, the economic and renewable energy cost of the proposed regulation is high and is more easily quantified.

In view of these considerations we submit that the proposed extreme policy to eliminate all wood burning, except ULEBs, should be revised to permit the continued use and installation of CLEBs that have a low level of smoke emissions, when operated correctly. Pulling back on the proposed policy direction would be consistent with the precautionary principle as defined in 6.14 of the pCARP.

In particular we submit that: -

The principle must be to ban the smoke, not the wood-burner

An additional category of wood burner should be defined in Table 2.2 as

| | | |
|---|---|--|
| <i>Certified low emission burner (CLEB)</i> | <i>an enclosed solid fuel burning device approved by CRC with the following standards: (a) the emissions result in no more than one gram of total suspended particulate emissions per kilogram of fuel burned*; and (b) thermal efficiency of 65% or greater; and (c) emit no significant visible smoke during steady state operation (excluding lighting and refuelling)</i> | <i>To allow the use of correctly-functioning existing and new certified low emission burners indefinitely or until the long term outcomes of the pCARP have been fully evaluated</i> |
|---|---|--|

Rationale: - This provision is moved from the definition of an ULEB, where it is anomalous. The date is removed to allow CRC to certify new designs of satisfactory low-emission burners in the future. The new “smoke-free” criterion is added to provide a simple means of initial screening of the performance of wood-burners without the need for costly particulate emission tests in the first instance. The PCE advises that smoke correlates well with adverse health impacts (PCE, 2005). This is confirmed by ECAN’s December 2014 report on the relationship of visible emissions to particulate emissions.

In Tables 2.1, 4.1, and paragraphs 6.27, 6.32, 6.33, 6.37, 6.38, 6.39, 6.42, 7.76, 7.77 and Schedule 8 replace “ultra-low emission enclosed burner” with “certified low emission burners or ultra-low emission enclosed burners”

Paragraph 6.28 – replace “ultra-low emitting” with “certified low emitting or ultra-low emitting”

Rationale: - These change would implement the principle that ALEBs be permitted indefinitely.

Paragraph 6.4 - delete

Rationale: - This over-simplistic rule, which requires scrapping wood burners more than 15 years old, takes no account of the extent of use, maintenance, operation by user, quality of original equipment etc. Instead the criterion for decommissioning equipment as it ages should be based, in the first instance, on its visual performance and ultimately on compliance with the quantified particulate emission standard.



We submit that this submitted revision to the pCARB is fair and reasonable, economically efficient and fully compliant with the objective of improving public health outcomes via air quality in the Canterbury Region.

*Note

On the basis of a wood fuel with 15% moisture and 17.3 MJ/kg gross calorific value being burned at 65% thermal efficiency to produce a flue gas with 8% O₂ on a dry basis: -

- A ULEB wood burner emitting 38mg of particulate per MJ of delivered energy would have a particulate emission rate of about 62 mg/Nm³.
- A CLEB wood burner emitting one gram of particulate per kg of fuel would have a particulate emission rate of about 146 mg/Nm³.
- An industrial resource consent for a 5 MW wood fired boiler (Northpine in Waipu) has a consented particulate discharge limit of 300 mg/Nm³. This plant routinely achieves 200-250 mg/Nm³ and there are no visible emissions of particulate from the boiler stack.