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**From:** XXXXXXXXXXXXXXXXXXXXXXXXX
**Mail received time:** Mon, 5 Jul 2021 11:55:41
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**To:** Space Heating
**Subject:** CESA : E3 Consultation: Product Profile: Residential space heaters in Australia and New Zealand - response.
**Importance:** Normal
**Sensitivity:** None
**Attachments:**
australias-emissions-projections-2020.pdf;

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Dear E3,

I'm forwarding information provided by one of our members.

CESA supports comparisons across heating technologies to promote consumer choice. We prefer the comparison of energy efficiency as measured at the point of end use, based on Seasonal Energy Efficiency Ratings for labelling.

Greenhouse gas emission factors vary considerable by region and will change in the future as electricity supply progresses to renewable sources. Individual consumers influence their electricity greenhouse gas contributions by on site generation and purchasing green power. A greenhouse rating is less suitable for labelling but could be incorporated into an online calculator. Comparison based on primary energy is another form of greenhouse gas emission rating. Greenhouse rating may be counterproductive because it could penalise technology with future decreasing emissions because the fuel source progressively shifts to renewable fuels.

Comments on reported data:

1. Characteristics of electric in-slab heaters makes reference to "gas boiler or electric heat pump to heat water", page 23. We believe this should be deleted because it is covered under next section – Hydronic.
2. Consideration to provide a forecast to 2030 for greenhouse gas emissions by state. Data can be sourced from report "Australia's emissions projections 2020" – Department of Industry, Science, Energy and Resources. Reference https://www.industry.gov.au/data-and-publications/australias-emissions-projections-2020

*Table 4: Electricity emissions, Mt $CO_2$-e*

| Emissions by grid | 2005 | 2020 | 2025 | 2030 |
|---|---|---|---|---|
| **National Electricity Market** | 176 | 142 | 106 | 88 |
| **Queensland** | 46 | 47 | 39 | 35 |
| **New South Wales/ACT** | 58 | 49 | 34 | 27 |
| **Victoria** | 64 | 42 | 32 | 25 |
| **South Australia** | 8 | 4 | <1 | <1 |
| **Tasmania** | <1 | <1 | <1 | <1 |
| **Western Australia Wholesale Electricity Market** | 11 | 12 | 8 | 7 |
| **Other grids, including off-grid** | 10 | 18 | 16 | 16 |
| **Total electricity sector** | **197** | **172** | **130** | **111** |

Note: totals may not sum due to rounding

3. The New Zealand greenhouse gas contribution of electric heating appears high because electricity is mostly hydroelectric with an implied generation factor of approximately 0.1 kt CO2-e/GWh in year 2018. Application of the this emissions factor with data from the energy pie chart suggests reconsideration of the greenhouse gas emissions pie chart. Reference https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statisticsand-modelling/energy-statistics/new-zealand-energy-sector-greenhouse-gas-emissions/

| | Energy Pie | Emission Factor | Energy x Factor | GHG Pie |
|---|---|---|---|---|
| Solid Fuel | 40% | 0.0 | 0 | 0% |
| Reverse Cycle | 9% | 0.1 | 0.009 | 3% |
| Gas Space | 18% | 1.0 | 0.18 | 67% |
| Gas Ducted | 5% | 1.0 | 0.05 | 19% |
| Electric Main | 18% | 0.1 | 0.018 | 7% |
| Electric Second | 10% | 0.1 | 0.01 | 4% |
| Total | 100% | | 0.27 | 100% |

4. Product specific requirements, page 65. New Zealand recently harmonised air conditioner minimum standards with Australia. The requirements are currently directly referenced in the regulation instead of industry standards.
5. Reverse cycle air conditioners, technical potential for consumers to choose higher efficiency split systems, page 93. Consideration segmenting the analysis to GEMS product classes because smaller air conditioners have a higher efficiencies than larger air conditioners. Application of an appropriate size for the heating demand is important for consumer satisfaction. It would be counterproductive to compare a 8kW system at 400% efficiency with a 2kW system at 500% efficiency because the smaller system would not heat the space sufficiently.

Best regards,

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Consumer Electronics Suppliers Association
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