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**Product Profile: Residential Space Heaters in Australia  
and New Zealand**

Thank you for the opportunity to comment on the Product Profile for Residential Space Heaters.

Daikin Australia is recognized as a leading air conditioner manufacturer. As one of the regions most trusted names in air conditioning, Daikin can be found in homes, offices, hotels, and shops across Australia and around the world.

Daikin Australia has ten branches and six major service centres nationwide including a production facility in Australia. We distribute products through the trade specialist installer.

We would like to thank the Department for the work undertaken including active consultation with industry.

Daikin 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.

Greenhouse rating may be counterproductive because it could penalise technology with future decreasing emissions because the fuel source progressively shifts to renewable fuels.

Comparison based on primary energy is another form of greenhouse gas emission rating.

A greenhouse rating is less suitable for labelling but could be incorporated into an online calculator.

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We would like to comment further on the data within the report as follows.

- 1) Characteristics of electric in-slab heaters refers 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<sub>2</sub>-e

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

Note: totals may not sum due to rounding

- 3) The New Zealand greenhouse gas contribution of electric heating appears high because electricity is mostly hydro-electric with an implied generation factor of approximately 0.1 kt CO<sub>2</sub>-e/GWh in year 2018. Application of 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-statistics-and-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%
<b>Total</b>	<b>100%</b>		<b>0.27</b>	<b>100%</b>

- 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. Consider segmenting the analysis to GEMS product classes because smaller air conditioners are higher efficiencies compared to larger air conditioners. Application of an appropriate size for the heating demand is important for consumer satisfaction. It would be counterproductive to compare an 8kW system at 400% efficiency with a 2kW system at 500% efficiency because the smaller system would not heat the space sufficiently.
- 6) Gas heater efficiency, page 95. "if no heat is lost in the exhaust gases, the heater will be rated at 100%". Should this be if all heat is lost in the exhaust gases the heater is 100% efficient.
- 7) Flexible duct standard AS 4254.1 was revised in June 2021. The previous standard allowed the duct rating to be as per the insulation blanket supplier rating. Most duct manufacturers were purchasing 70mm R1.0 thick lower density blankets. They then compressed the blanket into a 40mm annulus gap between the inner duct and outer jacket. The resulting actual insulation performance became R0.6.

The new standard requires the insulation blanket to be removed from the finished duct and tested at the actual annulus gap. This should promote actual R1.0 ratings by thicker higher density blankets and increasing the annulus gap to 70mm.

The new standard is in progress to be referenced in the NCC 2022 and should reduce duct loss by about half compared to the previous duct standard.

We trust the above is of assistance and for further clarification please contact the writer at XXXXXXXXXXXXXXXXXXXX or phone XXXXXXXXXX.

Yours Faithfully

Gary Knox  
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Engineering Manager  
**DAIKIN Australia Pty. Limited**