Addendum to the Space Heating Comparison Methodology: Public Consultation

November 2024

A joint initiative of Australia, State and Territory and New Zealand Governments

Contents

1.0 Introduction

This addendum supplements and modifies the Space Heating Comparison Methodology: Public Consultation paper. It:

- summarises the results of the public consultation process
- clarifies updates to the comparison methodology based on the comments received
- communicates next steps.

2.0 Public consultation summary

The Australian Government Department of Climate Change, Energy, the Environment and Water publicly consulted on the Space Heating Comparison Methodology: Public Consultation paper from 28 August 2024 date to 27 September 2024. The department received 8 public submissions including from industry associations, manufacturers and suppliers, and academia:

- Alan Pears
- Australian Gas Infrastructure Group
- Australian Home Heating Association
- CDB Group
- Consumer Electronics Suppliers Association
- Daikin Australia
- Gas Appliance Manufacturers Association of Australia
- STIEBEL ELTRON.

Stakeholder messages included:

- specific suggestions to improve the technical accuracy of the proposed comparison methodology
- specific suggestions to improve the presentation of information in the consultation paper
- general statements about the usefulness of the comparison methodology and information resources to inform consumers and help them to choose the most suitable heating systems for their needs.

Table 1 below provides an overview of how the department has responded to specific suggestions for improving the comparison methodology or the presentation of information in the consultation paper.

Table 1: Response to public stakeholder comments on the comparison methodology

Item	Summary of stakeholder comment	Response
1	Solid fuel heaters Suggested correction to Appendix 4: No commercially available wood heater has a maximum heat output of only 2kW.	See section 3.1 below.
2	Solid fuel heaters Suggested correction to Appendix: Solid fuel heaters are not more efficient at high burn rates. Solid fuel heaters operate most efficiently at low burn rates, where less heat is lost up the flue and more energy is transferred into the living space.	See section 3.2 below.
3	Solid fuel heaters Suggested correction to the Heating Seasonal Performance Factor (HSPF) figures in Figure 5: To better reflect actual performance, the calculated HSPF for a 7kW output solid fuel heater (Heater Unit 14) with a medium burn rate efficiency of 63% (see Appendix 4) should align closer to this nominal value. However, the HSPF values for Hot, Average, and Cold zones are 0.57, 0.60, and 0.61, respectively—significantly lower than the expected nominal efficiency.	See section 3.3 below.
4	General Seeking confirmation of next steps, process and timings.	See '4.0 Next steps' section below.

3.0 Updates to the comparison methodology

3.1 Solid fuel heaters – remove 2kW wood heater example

Table 5 and Appendix 4 of the consultation paper included an example of a 2kW wood heater for comparison purposes. But it is agreed that small capacity solid-fuel heaters are not commercially available, and this example product is deleted.

In Table 5 of the Comparison Methodology, delete Heater Unit 6, and update the numbering of Heater Units 7-20 to reduce by 1. Correspondingly, in Appendix 4, delete Heater Unit 6, and update the numbering of Heater Units 7-20 to reduce by 1. Complete versions of the updated Table 5 and affected parts of Appendix 4 are included below in section 3.4

3.2 Solid fuel heaters – correction to reflect that low burn rates are more efficient than high burn rates

For the purposes of testing the comparison methodology for solid fuel heaters, the possibility of both increasing and decreasing efficiency with burn rate were considered. It is agreed that it is more typical that low burn rates are more efficient than high burn rates. The efficiency data for Heater Unit 13 (previously 14) is therefore updated to be 66% at high burn rate, 70% and medium burn rate, and 71% at low burn rate, and the calculated results updated in both Appendix 4 and Table 5.

The decrease in high burn rate efficiency from 67% to 66% results in a small increase in the full capacity rated input power and a small decrease in the full capacity rated efficiency. The increases in the medium and low burn rates efficiencies significantly decrease the annual energy use (and HSEC) and increase the HSPF for all zones. In **Appendix 4, Solid fuel combustion heaters, Test Data**, update the rows for Heater Unit 13 (previously 14) as shown below:

Heater Unit	High Burn Rate: Maximum Heat Output = Full Capacity (kW)	High Burn Rate: Thermal Efficiency	High Burn Rate: Electrical Energy Consumption (kW)	Medium Burn Rate: Heat Output = "Half" Capacity (kW)	Medium Burn Rate: Thermal Efficiency	Medium Burn Rate: Electrical Energy Consumption (kW)
13 ~~14~~	7	66% ~~67%~~	0.14	5.6	70% ~~63%~~	0.056

Heater Unit	Low Burn Rate: Heat Output = Min Capacity (kW)	Low Burn Rate: Thermal Efficiency	Low Burn Rate: Electrical Energy Consumption (kW)	Standby: Electrical Energy Consumption (W)
13 ~~14~~	4.2	71% ~~60%~~	0.028	5

In **Appendix 4, Calculation Results**, update the rows for Heater Unit 13 (previously 14) as shown below:

Heater Unit	Technology Type	Full Capacity: Rated Capacity (kW)	Full Capacity: Rated Capacity at 2degC (kW)	Full Capacity: Rated Input Power (kW)	Full Capacity: Rated Efficiency	Standby, Pia (W)	Heating Season Total Load: HSTL_hot (kWh/y)	Heating Season Total Load: HSTL_avg (kWh/y)	Heating Season Total Load: HSTL_cold (kWh/y)
13 ~~14~~	Solid Fuel Heater	7	7	10.75 ~~10.59~~	65.1% ~~66.1%~~	5	587	3801	9141

Heater Unit	Technology Type	Heating Season Energy Consumption: HSEC _hot (kWh/y)	Heating Season Energy Consumption: HSEC _avg (kWh/y)	Heating Season Energy Consumption: HSEC _cold (kWh/y)	Inactive Energy Consumption: IAEC _hot (kWh/y)	Inactive Energy Consumption: IAEC _average (kWh/y)	Inactive Energy Consumption: IAEC _cold (kWh/y)
13 ~~14~~	Solid Fuel Heater	831 ~~983~~	5399 ~~6308~~	13069 ~~14965~~	42.4	37.3	30.5

Heater Unit	Technology Type	Annual Energy Use: Hot (kWh/y)	Annual Energy Use: Average (kWh/y)	Annual Energy Use: Cold (kWh/y)	Overall Product Efficiency: HSPF _hot	Overall Product Efficiency: HSPF _average	Overall Product Efficiency: HSPF _cold
13 ~~14~~	Solid Fuel Heater	874 ~~1025~~	5437 ~~6346~~	13100 ~~14996~~	0.67 ~~0.57~~	0.70 ~~0.60~~	0.70 ~~0.61~~

In **Table 5** update the row for Heater Unit 13 (previously 14) as shown below:

Heater Unit	Technology Type	Characteristics	Size	Full Capacity: Rated Capacity (kW)	Full Capacity: Rated Input Power [1](kW)	Full Capacity: Rated Efficiency	Annual Energy Use: Hot (kWh /y)	Annual Energy Use: Average (kWh/y)	Annual Energy Use: Cold (kWh/y)	Overall Product Efficiency: HSPF_ hot	Overall Product Efficiency: HSPF_ avg	Overall Product Efficiency: HSPF_ Cold
13 ~~14~~	Solid Fuel Heater	Fixed, Adjustable Air Control, 3 data points	Medium	7	10.75 ~~10.59~~	65.1% ~~66.1%~~	874 ~~1025~~	5437 ~~6346~~	13100 ~~14996~~	0.67 ~~0.57~~	0.70 ~~0.60~~	0.70 ~~0.61~~

Complete versions of the updated Table 5 and affected parts Appendix 4 are included below in section 3.4.

3.3 Solid fuel heaters – correction to example HSPF figures

For the purposes of testing the comparison methodology, a standby electricity consumption of 5W was implemented for heater unit 13 (previously 14), along with decreasing efficiency at lower burn rates. It is agreed that it is more typical to have no standby electricity consumption of solid fuel heaters, and to have increasing efficiency at lower burn rates. The efficiency data for heater unit 13 (previously 14) is therefore updated to be 66% at high burn rate, 70% and medium burn rate, and 71% at low burn rate, and the standby electricity consumption set to 0. The calculated results are updated in both Appendix 4 and Table 5, resulting in HSPF values of 71% for the hot zone, 70% for the average zone and 70% for the cold zone.

The efficiency changes implemented according to section 3.2 of this paper above, significantly decreased the annual energy use and increased the HSPF for all zones, bringing them close to the medium burn rate efficiency. Setting the standby electricity consumption to zero further decreases annual energy use, and in the hot zone this has a significant impact on HSPF, increasing the HSPF_hot to 71%. There is no significant change in the HSPF for the average and cold zones.

[1] Note: Capacity, Input Power, Energy Use and Product Efficiency are all based on the total energy use (e.g. gas plus electricity for gas space heaters). Input Power and Energy Use would also be separated out by fuel type in order to calculate running costs and greenhouse gas emissions.

In **Appendix 4, Solid fuel combustion heaters, Test Data**, further update the rows for Heater Unit 13 (previously 14) as highlighted below:

Heater Unit	High Burn Rate: Maximum Heat Output = Full Capacity (kW)	High Burn Rate: Thermal Efficiency	High Burn Rate: Electrical Energy Consumption (kW)	Medium Burn Rate: Heat Output = "Half" Capacity (kW)	Medium Burn Rate: Thermal Efficiency	Medium Burn Rate: Electrical Energy Consumption (kW)
13 ~~14~~	7	66% ~~67%~~	0.14	5.6	70% ~~63%~~	0.056

Heater Unit	Low Burn Rate: Heat Output = Min Capacity (kW)	Low Burn Rate: Thermal Efficiency	Low Burn Rate: Electrical Energy Consumption (kW)	Standby: Electrical Energy Consumption (W)
13 ~~14~~	4.2	71% ~~60%~~	0.028	0 ~~5~~

In **Appendix 4, Calculation Results**, further update the rows for Heater Unit 13 (previously 14) as highlighted below:

Heater Unit	Technology Type	Full Capacity: Rated Capacity (kW)	Full Capacity: Rated Capacity at 2degC (kW)	Full Capacity: Rated Input Power (kW)	Full Capacity: Rated Efficiency	Standby, Pia (W)	Heating Season Total Load: HSTL_hot (kWh/y)	Heating Season Total Load: HSTL_avg (kWh/y)	Heating Season Total Load: HSTL_cold (kWh/y)
13 ~~14~~	Solid Fuel Heater	7	7	10.75 ~~10.59~~	65.1% ~~66.1%~~	0 ~~5~~	587	3801	9141

Heater Unit	Technology Type	Heating Season Energy Consumption: HSEC _hot (kWh/y)	Heating Season Energy Consumption: HSEC _avg (kWh/y)	Heating Season Energy Consumption: HSEC _cold (kWh/y)	Inactive Energy Consumption: IAEC _hot (kWh/y)	Inactive Energy Consumption: IAEC _average (kWh/y)	Inactive Energy Consumption: IAEC _cold (kWh/y)
13 ~~14~~	Solid Fuel Heater	831 ~~983~~	5399 ~~6308~~	13069 ~~14965~~	0 ~~42.4~~	0 ~~37.3~~	0 ~~30.5~~

Heater Unit	Technology Type	Annual Energy Use: Hot (kWh/y)	Annual Energy Use: Average (kWh/y)	Annual Energy Use: Cold (kWh/y)	Overall Product Efficiency: HSPF _hot	Overall Product Efficiency: HSPF _average	Overall Product Efficiency: HSPF _cold
13 ~~14~~	Solid Fuel Heater	831 ~~874~~ ~~1025~~	5399 ~~5437~~ ~~6346~~	13069 ~~13100~~ ~~14996~~	0.71 ~~0.67~~ ~~0.57~~	0.70 ~~0.60~~	0.70 ~~0.61~~

In **Table 5** further update the row for Heater Unit 13 (previously 14) as highlighted below:

Heater Unit	Technology Type	Characteristics	Size	Full Capacity: Rated Capacity (kW)	Full Capacity: Rated Input Power [2](kW)	Full Capacity: Rated Efficiency	Annual Energy Use: Hot (kWh /y)	Annual Energy Use: Average (kWh/y)	Annual Energy Use: Cold (kWh/y)	Overall Product Efficiency: HSPF_ hot	Overall Product Efficiency: HSPF_ avg	Overall Product Efficiency: HSPF_ cold
13 ~~14~~	Solid Fuel Heater	Fixed, Adjustable Air Control, 3 data points	Medium	7	10.75 ~~10.59~~	65.1% ~~66.1%~~	831 ~~874~~ ~~1025~~	5399 ~~5437~~ ~~6346~~	13069 ~~14996~~	0.71 ~~0.67~~ ~~0.57~~	0.70 ~~0.60~~	0.70 ~~0.61~~

Complete versions of the updated Table 5 and affected parts of Appendix 4 are included below in section 3.4.

[2] Note: Capacity, Input Power, Energy Use and Product Efficiency are all based on the total energy use (e.g. gas plus electricity for gas space heaters). Input Power and Energy Use would also be separated out by fuel type in order to calculate running costs and greenhouse gas emissions.

3.4 Solid fuel heaters – Revised Tables

Table 5: Summary of example space heating comparison methodology outputs, by product size, technology type and climate zone

Heater Unit	Technology Type	Characteristics	Size	Full Capacity: Rated Capacity (kW)	Full Capacity: Rated Input Power [3](kW)	Full Capacity: Rated Efficiency	Annual Energy Use: Hot (kWh /y)	Annual Energy Use: Average (kWh/y)	Annual Energy Use: Cold (kWh/y)	Overall Product Efficiency: HSPF_ hot	Overall Product Efficiency: HSPF_ avg	Overall Product Efficiency: HSPF_ cold
1	Air Conditioner* (Non-ducted)	Avg GEMS Register 1.75-2.25kW non-ducted	Small	2	0.5	426%	47	292	742	4.06	3.80	3.55
2	Electric Resistance	Portable, Thermostatic control	Small	2	2	100%	181	1098	2619	0.93	0.99	1.00
3	Electric Resistance	Portable, Two-setting, No thermostatic control	Small	2	2	100%	189	1152	2749	0.89	0.94	0.95
4	Electric Resistance	Portable, One-setting, No thermostatic control	Small	2	2	100%	198	1207	2880	0.85	0.90	0.91

[3] Note: Capacity, Input Power, Energy Use and Product Efficiency are all based on the total energy use (e.g. gas plus electricity for gas space heaters). Input Power and Energy Use would also be separated out by fuel type in order to calculate running costs and greenhouse gas emissions.

* Explanation of air conditioner values are provided in Appendix 4: Example data and results.

5	Gas Space Heater	Portable, Thermostatic Control, 2 data points	Small	2	2.5	80.6%	203	1311	3159	0.83	0.83	0.83
~~6~~	~~Solid Fuel Heater~~	~~Fixed, Adjustable Air Control, 3 data points~~	~~Small~~	~~2~~	~~3.03~~	~~66.1%~~	~~281~~	~~1802~~	~~4276~~	~~0.60~~	~~0.60~~	~~0.61~~
6 ~~7~~	Gas Decorative App.	Fixed, Thermostatic Control, 2 data points	Small	2	4.4	45.8%	358	2310	5561	0.47	0.47	0.47
7 ~~8~~	Air Conditioner* (Non-ducted)	Avg GEMS Register 6.5-7.5kW non-ducted	Medium	7	1.8	390%	135	918	2499	4.8	4.2	3.7
8 ~~9~~	Ducted Air Conditioner*	Avg GEMS Register 6.5-7.5kW ducted	Medium	7	1.8	388%	165	1009	2689	4.4	3.9	3.4
9 ~~10~~	Electric Resistance	Multiple Portable (e.g. 2.4kW + 2.4kW + 2.2kW), Thermostatic Control	Medium	7	7	100%	627	3837	9160	0.94	0.99	1.00
10 ~~11~~	Electric Resistance	Multiple Fixed (e.g. 3kW + 4kW), Thermostatic Control	Medium	7	7	100%	715	3913	9215	0.82	0.97	0.99

11 ~~12~~	Gas Space Heater	Fixed, Thermostatic Control, 2 data points	Medium	7	8.9	78.6%	750	4824	11576	0.78	0.79	0.79
12 ~~13~~	Ducted Gas	Fixed, Thermostatic Control, 3 data points	Medium	7	9.33	75.0%	787	4942	11884	0.75	0.77	0.77
13 ~~14~~	Solid Fuel Heater	Fixed, Adjustable Air Control, 3 data points	Medium	7	10.75 ~~10.59~~	65.1% ~~66.1%~~	831 ~~874~~ ~~1025~~	5399 ~~5437~~ ~~6346~~	13069 ~~14996~~	0.71 ~~0.67~~ ~~0.57~~	0.70 ~~0.60~~	0.70 ~~0.61~~
14 ~~15~~	Air Conditioner* (Non-ducted)	Avg GEMS Register 11-13kW non-ducted	Large	12	2.9	391%	248	1563	4253	5.0	4.3	3.7
15 ~~16~~	Ducted Air Conditioner*	Avg GEMS Register 11-13kW ducted	Large	12	3.0	392%	274	1684	4494	4.5	4.0	3.5
16 ~~17~~	Electric Resistance	Multiple Fixed (e.g. 4kW + 4kW + 4kW), Thermostatic Control	Large	12	12	100%	1134	6628	15731	0.89	0.98	1.00
17 ~~18~~	Gas Space Heater	Multiple Fixed (e.g. 6kW + 6kW), Thermostatic Control, 2 data points	Large	12	15.3	78.6%	1282	8267	19841	0.79	0.79	0.79

18 ~~19~~	Ducted Gas	Fixed, Thermostatic Control, 3 data points	Large	12	15.75	75.0%	1299	8315	20036	0.76	0.77	0.77
19 ~~20~~	Solid Fuel Heater	Fixed, Adjustable Air Control, 3 data points	Large	12	18.46	65.0%	1343	8761	21399	0.75	0.74	0.73

Appendix 4, Solid fuel combustion heaters

Product Type and HSEC Calculation Method:

Heater Unit	Technology Type	Characteristics	HSEC Calculation Method
~~6~~	~~Solid Fuel Heater~~	~~Fixed, Adjustable Air Control, 3 data points~~	~~5~~
13 ~~14~~	Solid Fuel Heater	Fixed, Adjustable Air Control, 3 data points	5
19 ~~20~~	Solid Fuel Heater	Fixed, Adjustable Air Control, 3 data points	5

Test Data:

Heater Unit	High Burn Rate: Maximum Heat Output = Full Capacity (kW)	High Burn Rate: Thermal Efficiency	High Burn Rate: Electrical Energy Consumption (kW)	Medium Burn Rate: Heat Output = "Half" Capacity (kW)	Medium Burn Rate: Thermal Efficiency	Medium Burn Rate: Electrical Energy Consumption (kW)
~~6~~	~~2~~	~~67%~~	~~0.04~~	~~1.6~~	~~63%~~	~~0.016~~
13 ~~14~~	7	66% ~~67%~~	0.14	5.6	70% ~~63%~~	0.056
19 ~~20~~	12	65%	0	9.6	70%	0

Test Data, continued

Heater Unit	Low Burn Rate: Heat Output = Min Capacity (kW)	Low Burn Rate: Thermal Efficiency	Low Burn Rate: Electrical Energy Consumption (kW)	Standby: Electrical Energy Consumption (W)
~~6~~	~~1.2~~	~~60%~~	~~0.008~~	~~0~~
13 ~~14~~	4.2	71% ~~60%~~	0.028	0 ~~5~~
19 ~~20~~	8.4	75%	0	0

Appendix 4, Calculation Results:

Heater Unit	Technology Type	Full Capacity: Rated Capacity (kW)	Full Capacity: Rated Capacity at 2degC (kW)	Full Capacity: Rated Input Power (kW)	Full Capacity: Rated Efficiency	Standby, Pia (W)	Heating Season Total Load: HSTL_hot (kWh/y)	Heating Season Total Load: HSTL_avg (kWh/y)	Heating Season Total Load: HSTL_cold (kWh/y)
1	AC[◊] (Non-ducted)	2	1.6, 2.5	0.5	426%	2.4	168	1086	2612
2	Electric Resistance	2	2	2	100%	5	168	1086	2612
3	Electric Resistance	2	2	2	100%	5	168	1086	2612
4	Electric Resistance	2	2	2	100%	5	168	1086	2612
5	Gas Space Heater	2	2	2.5	80.6%	0.4	168	1086	2612
~~6~~	~~Solid Fuel Heater~~	~~2~~	~~2~~	~~3.03~~	~~66.1%~~	~~0~~	~~168~~	~~1086~~	~~2612~~
6 ~~7~~	Gas Decorative App.	2	2	4.4	45.8%	0.4	168	1086	2612
7 ~~8~~	AC[◊] (Non-ducted)	7	5.7, 6.5	1.8	390%	4.9	587	3801	9141
8 ~~9~~	Ducted AC[◊]	7	5.7, 6.5	1.8	388%	12.1	587	3801	9141
9 ~~10~~	Electric Resistance	7	7	7	100%	15	587	3801	9141
10 ~~11~~	Electric Resistance	7	7	7	100%	15	587	3801	9141
11 ~~12~~	Gas Space Heater	7	7	8.9	78.6%	0.7	587	3801	9141
12 ~~13~~	Ducted Gas	7	7	9.33	75.0%	5	587	3802	9142

[◊] For air conditioners (AC), an average of the GEMS register data was used to define inputs; the two values of rated capacity at 2°C are the default value provided by the ACCM and the average of the GEMS data for this product size; the rated input power is defined at 7°C; and the rated efficiency is the average ACOP.

13 ~~14~~	Solid Fuel Heater	7	7	10.75 ~~10.59~~	65.1% ~~66.1%~~	0 ~~5~~	587	3801	9141
14 ~~15~~	AC◊ (Non-ducted)	12	9.8, 10.1	2.9	391%	19.2	1007	6517	15670
15 ~~16~~	Ducted AC◊	12	9.8, 10.0	3.0	392%	20.7	1007	6517	15670
16 ~~17~~	Electric Resistance	12	12	12	100%	15	1007	6517	15670
17 ~~18~~	Gas Space Heater	12	12	15.3	78.6%	0.7	1007	6517	15669
18 ~~19~~	Ducted Gas	12	12	15.75	75.0%	5	991	6416	15429
19 ~~20~~	Solid Fuel Heater	12	12	18.46	65.0%	0	1007	6517	15670

Calculation Results, continued

Heater Unit	Technology Type	Heating Season Energy Consumption: HSEC _hot (kWh/y)	Heating Season Energy Consumption: HSEC _avg (kWh/y)	Heating Season Energy Consumption: HSEC _cold (kWh/y)	Inactive Energy Consumption: IAEC _hot (kWh/y)	Inactive Energy Consumption: IAEC _average (kWh/y)	Inactive Energy Consumption: IAEC _cold (kWh/y)
1	AC^ (Non-ducted)	41	286	736	6	6	5
2	Electric Resistance	168	1086	2607	13	12	12
3	Electric Resistance	176	1140	2737	13	12	12
4	Electric Resistance	185	1195	2867	13	12	12
5	Gas Space Heater	202	1310	3158	1.1	1.0	1.0
~~6~~	~~Solid Fuel Heater~~	~~281~~	~~1802~~	~~4276~~	~~0.0~~	~~0.0~~	~~0.0~~
6 ~~7~~	Gas Decorative App.	355	2307	5559	3.4	3.0	2.4
7 ~~8~~	AC^ (Non-ducted)	123	905	2488	12	13	11
8 ~~9~~	Ducted AC^	135	977	2662	30	32	27
9 ~~10~~	Electric Resistance	587	3801	9123	40	36	37
10 ~~11~~	Electric Resistance	587	3801	9123	127	112	92
11 ~~12~~	Gas Space Heater	744	4819	11572	6	5	4
12 ~~13~~	Ducted Gas	745	4904	11853	42.4	37.3	30.5
13 ~~14~~	Solid Fuel Heater	831 ~~983~~	5399 ~~6308~~	13069 ~~14965~~	0 ~~42.4~~	0 ~~37.3~~	0 ~~30.5~~
14 ~~15~~	AC^ (Non-ducted)	200	1512	4211	48	51	43
15 ~~16~~	Ducted AC^	223	1629	4448	52	55	46
16 ~~17~~	Electric Resistance	1007	6516	15640	127	112	92
17 ~~18~~	Gas Space Heater	1276	8261	19837	6	5	4
18 ~~19~~	Ducted Gas	1257	8278	20005	42.4	37.3	30.5
19 ~~20~~	Solid Fuel Heater	1343	8761	21399	0.0	0.0	0.0

^ For air conditioners (AC), an average of the GEMS register data was used to define inputs; inactive energy consumption was calculated from the 0.4 multiplied by the standby power (Pia) times inactive hours, as per the ACCM; HSEC was determined from Annual Energy Use minus Inactive Energy Consumption; and Overall Product Efficiency was calculated from the ratio of HSTL to HSEC.

Calculation Results, continued

Heater Unit	Technology Type	Annual Energy Use: Hot (kWh/y)	Annual Energy Use: Average (kWh/y)	Annual Energy Use: Cold (kWh/y)	Overall Product Efficiency: HSPF _hot	Overall Product Efficiency: HSPF _average	Overall Product Efficiency: HSPF _cold
1	AC^ (Non-ducted)	47	292	742	4.06	3.80	3.55
2	Electric Resistance	181	1098	2619	0.93	0.99	1.00
3	Electric Resistance	189	1152	2749	0.89	0.94	0.95
4	Electric Resistance	198	1207	2880	0.85	0.90	0.91
5	Gas Space Heater	203	1311	3159	0.83	0.83	0.83
~~6~~	~~Solid Fuel Heater~~	~~281~~	~~1802~~	~~4276~~	~~0.60~~	~~0.60~~	~~0.61~~
6 ~~7~~	Gas Decorative App.	358	2310	5561	0.47	0.47	0.47
7 ~~8~~	AC^ (Non-ducted)	135	918	2499	4.8	4.2	3.7
8 ~~9~~	Ducted AC^	165	1009	2689	4.4	3.9	3.4
9 ~~10~~	Electric Resistance	627	3837	9160	0.94	0.99	1.00
10 ~~11~~	Electric Resistance	715	3913	9215	0.82	0.97	0.99
11 ~~12~~	Gas Space Heater	750	4824	11576	0.78	0.79	0.79
12 ~~13~~	Ducted Gas	787	4942	11884	0.75	0.77	0.77
13 ~~14~~	Solid Fuel Heater	831 ~~874~~ ~~1025~~	5399 ~~5437~~ ~~6346~~	13069 ~~13100~~ ~~14996~~	0.71 ~~0.67~~ ~~0.57~~	0.70 ~~0.60~~	0.70 ~~0.61~~
14 ~~15~~	AC^ (Non-ducted)	248	1563	4253	5.0	4.3	3.7
15 ~~16~~	Ducted AC^	274	1684	4494	4.5	4.0	3.5
16 ~~17~~	Electric Resistance	1134	6628	15731	0.89	0.98	1.00
17 ~~18~~	Gas Space Heater	1282	8267	19841	0.79	0.79	0.79
18 ~~19~~	Ducted Gas	1299	8315	20036	0.76	0.77	0.77
19 ~~20~~	Solid Fuel Heater	1343	8761	21399	0.75	0.74	0.73

4.0 Next steps

Exploring policy options

There is no easy way for consumers to compare the energy performance of different heater types, such as air conditioners (heat pumps), gas space heaters and electric resistance heaters. The outputs of the comparison methodology could be used to communicate to consumers performance information about space heaters including their capacity, annual energy use, energy efficiency, running costs and greenhouse gas emissions. Accessible performance information would help consumers to choose the most suitable heating systems for their needs.

The department will be exploring options for enabling consumers to make easy energy performance comparisons of residential space heaters. Subject to appropriate approvals, including through the Equipment Energy Efficiency (E3) Program, the department may release a Regulation Impact Statement (RIS) for public comment and submissions in 2025. It would describe the policy problem to be resolved, why government action is needed, what policy options are being considered, what is the likely net benefit of each option, and who will be consulted and how.

Complex heater types

Some work has been done, and is continuing, to develop methods for the more complex heater types, such as electric resistance underfloor heating systems (including directly under flooring, in-screed and in-slab) and hydronic (gas, electric resistance, solar or heat pump) heating systems. The Space Heating Comparison Methodology: Public Consultation paper focused on describing a comparison methodology that initially applies to the more common simple heater types.

Work will continue to develop calculation methods for more complex heaters, based on a similar approach to the calculation methods already developed for the simpler heaters. The department will consult with relevant stakeholders for these technologies as part of developing these product methods. Once ready, the product method papers for more complex heaters will be published for broader consultation.

Get in touch

For enquiries about this work, please contact:

- for Australian stakeholders, the Australian Government Department of Climate Change, Energy the Environment and Water (DCCEEW), by emailing spaceheating@dcceew.gov.au.
- for New Zealand stakeholders, the Energy Efficiency and Conservation Authority (EECA) of New Zealand, by emailing star@eeca.govt.nz.