



**Summary of eligible activities and abatement in the *Energy Efficiency (Cost of Living) Improvement (Eligible Activities) Determination 2017***

**Activities and abatement applying from 1 January 2018**

ID	Activity	Abatement factor formula	AAV
<b>Schedule 1. Residential building envelope activities</b>			
<b>1.1 Building sealing activities</b>			
1.1(a)	The gaps between an external door leaf and the door frame and floor when the door is closed	$Abatement\ factor\ (tCO_2-e) = AAV \times N$	0.439
1.1(b)	The gaps between an openable window sash and the window frame when the window is closed	$Abatement\ factor\ (tCO_2-e) = AAV \times m^2$	0.107
1.1(c)	The outlet of a ducted evaporative cooling system located in a heated area of the dwelling on a temporary or seasonal basis in the form of a product designed to cover the ceiling outlet	$Abatement\ factor\ (tCO_2-e) = AAV \times N$	0.256
<b>1.2 Exhaust fan sealing activities</b>			
		$Abatement\ factor\ (tCO_2-e) = AAV \times N$	
1.2(a)	Replace an unsealed ceiling or wall exhaust fan with a self-sealing exhaust fan.		0.290
1.2(b)	Fitting a self-closing damper to an exhaust fan		0.555
<b>1.3 Ventilation opening sealing activities</b>			
		$Abatement\ factor\ (tCO_2-e) = AAV \times N$	
1.3(a)	Sealing ventilation openings in an external wall.		0.1054
1.3(b)	Installing damper or flap to chimney or flue of an open solid fuel burning appliance.		2.3451
<b>1.4 Install a thermally efficient window</b>			
<b>For activities 1.4 and 1.5</b>			
<ul style="list-style-type: none"> <li>• <math>U_w</math> = the total U value for the window system (as certified under WERS) – maximum 4.0</li> <li>• <math>A</math> = the area of the installed thermally efficient window</li> </ul>			
1.4	Install high performance glazing or glazed products.	$AF = ((-0.074 * U_w) + 0.9028) * A$	
<b>1.5 Retrofit thermally efficient glazing</b>			
1.5	A product that improves window thermal efficiency.	$AF = ((-0.0452 * U_w) + 0.5517) * A$	
<b>1.6 Install thermally efficient window coverings</b>			
1.6	Installing window coverings to a window in an external wall of a conditioned zone.	$AF = AAV \times m^2$	0.1655
<b>1.7 Install window pelmets</b>			
1.7	Installing a box pelmet to a window in an external wall of a conditioned zone.	$AF = AAV \times m^2$	0.1002

<b>Schedule 2. Space heating and cooling activities</b>			
<b>2.1 Install a specified high efficiency central electric space heater</b>			
$AF = [AAV_{fixed} + H2 + AAV_{var} \times (ACOP - baseline)] \times Capacity$ <ul style="list-style-type: none"> <li>• <math>AAV_{fixed}</math>, <math>AAV_{var}</math> and <i>baseline</i> are from the following table.</li> <li>• <math>ACOP</math> is the Annual Coefficient of Performance recorded for the installed model in the Energy Rating database for condition H1. Minimum <math>ACOP</math> of 3.7 at condition H1.</li> <li>• <i>Capacity</i> is the rated heating capacity of the installed model for condition H1 in <b>kW</b>. Where the Capacity is greater than 30kW, the value of 30 is used in the equation for Abatement factor.</li> <li>• <math>H2</math> is a value of 0.04 if the installed model has been tested and registered for low temperature performance under condition H2 and meets the requirements of Clause 3.7 of AS/NZS3823.2 otherwise <math>H2</math> is a value of 0.0 for all other products.</li> </ul>			



ID	Existing Heater Type	New product type	Baseline	AAV <sub>fixed</sub>	AAV <sub>var</sub>
2.1(HC1A)	Qualifying electric resistance - fixed panel heaters	Ducted High Efficiency Central Heat Pump	3.6	1.02	0.15
2.1(HC1B)	Qualifying electric resistance - fixed panel heaters	Non-ducted High Efficiency Central Heat Pump	3.6	1.12	0.13
2.1(HC1C)	Qualifying electric resistance - fixed panel heaters	Ducted High Efficiency Central Heat Pump compliant with provisions of section 3(b)(ii), p22 in the Instrument	3.1	0.90	0.20
2.1(HC1D)	Qualifying electric resistance - slab or ducted	Ducted High Efficiency Central Heat Pump	3.6	1.44	0.15
2.1(HC1E)	Qualifying electric resistance - slab or ducted	Non-ducted High Efficiency Central Heat Pump	3.6	1.55	0.13
2.1(HC1F)	Qualifying electric resistance - slab or ducted	Ducted High Efficiency Central Heat Pump compliant with provisions of section 3(b)(ii), p22 in the Instrument	3.1	1.33	0.20
2.1(HC2A)	Qualifying gas ducted heater	Ducted High Efficiency Central Heat Pump	3.6	3.77	0.15
2.1(HC2B)	Qualifying gas ducted heater	Non-ducted High Efficiency Central Heat Pump	3.6	3.88	0.13
2.1(HC2C)	Qualifying gas ducted heater	Ducted High Efficiency Central Heat Pump compliant with provisions of section 3(b)(ii), p22 in the Instrument	3.1	3.66	0.20
2.1(HC3A)	None, any, not specified	Ducted High Efficiency Central Heat Pump	3.6	0.00	0.15
2.1(HC3B)	None, any, not specified	Non-ducted High Efficiency Central Heat Pump	3.6	0.10	0.13

### 2.2 Replace a ducted gas heater with a high efficiency ducted gas heater

$$AF = [AAV_{fixed} + AAV_{var} \times (SRI - baseline)] \times Capacity$$

- $AAV_{fixed}$ ,  $AAV_{var}$  and *baseline* are in the following table.
- *Capacity* is the rated heating capacity for the installed model as listed in the register of products for the activity in kW.
- *SRI* is the decimal star rating of the installed model as listed in the register of products for the activity.

ID	Existing heater type	New product type	Baseline	AAV <sub>fixed</sub>	AAV <sub>var</sub>
2.2HC4	Qualifying ducted gas heater	Gas Ducted Heater	3.5	0.00	0.57

### 2.3 Install a specified high efficiency electric room heater

$$Abatement\ factor\ (t\ CO_{2-e}) = [AAV_{fixed} + H2 + AAV_{var} \times (ACOP - baseline)] \times Capacity$$

- $AAV_{fixed}$ ,  $AAV_{var}$  and *baseline* are the relevant values prescribed the following table.
- *ACOP* is the Annual Coefficient of Performance recorded for the installed model in the Energy Rating database for condition H1. Minimum ACOP of 4.0 at condition H1.
- *Capacity* is the rated heating capacity of the installed model for condition H1 in kW.
- *H2* is a value of 0.04 if the installed model has been tested and registered for low temperature performance under condition H2 and meets the requirements of Clause 3.7 of AS/NZS3823.2 or *H2* is a value of 0.0 for all other products.

ID	Existing Heater Type	New Product Type	Baseline	AAV <sub>fixed</sub>	AAV <sub>var</sub>
2.3(HR1A)	Any qualifying fixed electric resistance heater	High efficiency room heat pump	3.7	1.22	0.13



2.3(HR1B)	Any qualifying fixed electric resistance heater	High efficiency room heat pump compliant with provisions of section 3(c)(ii) (Instrument p28)	3.7	1.22	0.13
2.3(HR2A)	Any qualifying fixed gas room heater	High efficiency room heat pump	3.7	3.26	0.13
2.3(HR2B)	Any qualifying fixed gas room heater	High efficiency room heat pump compliant with provisions of section 3(c)(ii) (Instrument p28)	3.7	3.26	0.13
2.3(HR3)	Any other heater type not specified above, no heater	High efficiency room heat pump	3.7	0.00	0.13

#### 2.4 Install insulated space conditioning ductwork

Abatement factor ( $tCO_2-e$ ) =  $AAV \times Capacity$

- AAV is the relevant activity abatement value prescribed in the following table.
- Capacity is the rated heating capacity for the installed model in **kW**. (Divide Mj/h by 3.6 to get kW.)

ID	Existing Heater Type	AAV
2.4(a)	Gas Ducted	0.7525
2.4(b)	Electric ducted Heat pump	0.1200

### Schedule 3. Hot water service activities

#### 3.1 Decommission an electric resistance water heater and install a specified high efficiency water heater

Abatement factor ( $tCO_2-e$ ) =  $AAV_{base} - (AAV_{Bs} \times Bs) - (AAV_{Be} \times Be)$

- $AAV_{base}$ ,  $AAV_{Bs}$  and  $AAV_{Be}$  are the relevant values prescribed in the following table.
- $Bs$  is the annual supplementary purchased energy consumption used by a high efficiency water heater to directly heat water in Gigajoules per year (**GJ/Yr**).
- $Be$  is the annual electrical energy used by auxiliary equipment integral to the water heater other than resistive heating units in Gigajoules per year (**GJ/Yr**).
- For medium sized Heat Pump water heaters, the value of  $Bs$  and  $Be$  are given as follows:
  - $Be = 0$  (for medium size heat pump systems only).
  - $Bs = (1 - RECs \times 0.0214) \times 16.67$  (for medium size heat pump systems only) in **GJ**.
- RECs is the number of certificates for an installation in Zone 5 for the specific model listed by the Clean Energy Regulator in the register of air source heat pumps with a volumetric capacity of no more than 425 L and where the number of RECs is greater than or equal to 28 for Zone 5 (HP5-AU).

ID	New system size and type	$AAV_{base}$	$AAV_{Bs}$	$AAV_{Be}$
3.1(a)	Solar electric small (25.2 MJ/day or 120 litres per day)	4.069	0.396	0.396
3.1(b)	Solar electric medium (42 MJ/day or 121 to 200 litres/day)	6.598	0.396	0.396
3.1(c)	Electric heat pump medium (42 MJ/day or 200 litres/day)	6.598	0.396	0.396



**3.2 Decommission a gas or liquefied petroleum gas water heater and install a specified high efficiency water heater**

$Abatement\ Factor = AAV_{base} - (AAV_{Bs} \times Bs) - (AAV_{Be} \times Be)$

- $AAV_{base}$ ,  $AAV_{Bs}$  and  $AAV_{Be}$  are the relevant values prescribed in the following table.
- $Bs$  is the annual supplementary purchased energy consumption used by a high efficiency water heater to directly heat water in megajoules per year (**MJ/Yr**) as determined in the performance evaluation process in AS/NZS 4234 and as recorded in the register of products for the activity; and
- $Be$  is the annual electrical energy used by auxiliary equipment integral to the water heater other than resistive heating units in Gigajoules per year (**GJ/Yr**) as determined in the performance evaluation process in AS/NZS 4234 and as recorded in the register of product for the activity.
- For medium sized Heat Pump water heaters, the value of  $Bs$  and  $Be$  are given as follows:
  - $Be = 0$  (for medium size heat pump systems only).
  - $Bs = (1 - RECs \times 0.0214) \times 16.67$  (for medium size heat pump systems only) in **GJ**.
- Where RECs is the number of certificates for an installation in Zone 5 for the specific model as listed by the Clean Energy Regulator in the register of air source heat pumps with a volumetric capacity of no more than 425 L and where the number of RECs is greater than or equal to 28 for Zone 5 (HP5-AU).

ID	New system size and type	$AAV_{base}$	$AAV_{Bs}$	$AAV_{Be}$
3.2(a)	Solar electric small (25.2 MJ/day or 120 litres per day)	9.642	0.396	0.396
3.2(b)	Solar electric medium (MJ/day or 121 to 200 litres/day)	14.108	0.396	0.396
3.2(c)	Electric heat pump medium (42 MJ/day or 200 litres/day)	14.108	0.396	0.396

**3.3 Replace an existing shower fixture outlet with low flow shower fixture outlet**

$Abatement\ factor\ (tCO_2-e) = AAV \times N$

- AAV is the relevant abatement value prescribed for the shower head in the following table.
- N is the number of shower fixtures installed with a maximum of 2.

ID	Product WELS rated flow rate	AAV
3.3(a)	Over 6.0 and not more than 9.0 litres/minute	0.359
3.3(b)	Not more than 6.0 litres/minute	0.530

**Schedule 4. Lighting activities**

**4.1 Residential lighting activities**

$Abatement\ factor\ (t\ CO_2-e) = AAV \times N \times PF$

- For all activity items, N is the number of lamps of the relevant type installed in the premises.
- PF is the prescribed power factor of the product, where, if the power factor of the product is:
  - less than 0.9, PF = 1.00, or
  - 0.9 or more, PF = 1.05.



**Table 4.1(a) Activity abatement values for installation of low energy general lighting services in place of mains voltage incandescent general lighting services**

	Light Output Range (lm):	<350	350-649	650-849	850 +	<350	350-649	650-849	850 +	<350	350-649	650-849	850+	<350	350-649	650-849	850+
	Min Efficacy (lm/W):	40	45	52	55	48	54	62	66	58	65	75	79	69	78	90	95
Lamp Life (hours)	8000 to 9999	0.028				0.031				0.032				0.033			
	10000 to 11999	0.032				0.035				0.037				0.038			
	12000 to 14999	0.037				0.040				0.042				0.044			
	15000 to 19999	0.043				0.047				0.050				0.052			
	20000 to 24999	0.055				0.060				0.063				0.065			
	25000+	0.067				0.074				0.077				0.081			

**Table 4.1(b) Activity abatement values for installation of a low energy reflector lamp in place of a mains voltage incandescent reflector lamp**

	Activity Abatement Value (tCO <sub>2</sub> -e)			
Efficacy	Min 45 lumens/watt	Min 54 lumens/watt	Min 65 lumens/watt	Min 78 lumens/watt
12000 to 14999 hrs	0.049	0.050	0.051	0.052
15000 to 19999 hrs	0.058	0.059	0.061	0.061
20000 to 24999 hrs	0.073	0.075	0.076	0.078
25000 hrs +	0.090	0.092	0.094	0.095

**Table 4.1(c) Activity abatement values for installation of low energy 12 volt lamp to replace 12 volt halogen**

	Activity Abatement Value (tCO <sub>2</sub> -e)			
Efficacy	Min 52 l/W	Min 62 l/W	Min 75 l/W	Min 90 l/W
15,000 to 19,999 hrs	0.052	0.055	0.057	0.059
20,000 hrs to 24,999 hrs	0.065	0.069	0.072	0.075
25,000 hrs +	0.080	0.085	0.089	0.092

**Table 4.1(d), Activity abatement values for installation of mains voltage low energy downlight in place of existing 12 volt halogen downlight**

	Activity Abatement Value (tCO <sub>2</sub> -e)				
Efficacy	Min 48 lumens/watt	Min 58 lumens/watt	Min 69 lumens/watt	Min 83 lumens/watt	Min 100 lumens/watt
15,000 to 19,999 hrs	0.053	0.056	0.058	0.060	0.061
20,000 hrs to 24,999 hrs	0.067	0.070	0.073	0.076	0.078
25,000 hrs +	0.082	0.086	0.090	0.093	0.095

**Table 4.1(e), Activity abatement values for installation of low energy lamp with a GU10 base in place of existing mains voltage halogen lamp of at least 35 watts with a GU10 base**

	Activity Abatement Value (tCO <sub>2</sub> -e)				
Efficacy	Min 48 lumens/watt	Min 58 lumens/watt	Min 69 lumens/watt	Min 83 lumens/watt	Min 100 lumens/watt
15,000 to 19,999 hrs	0.065	0.067	0.070	0.072	0.073
20,000 hrs to 24,999 hrs	0.082	0.085	0.088	0.090	0.092
25,000 hrs +	0.101	0.105	0.108	0.111	0.114

**4.2 Commercial lighting activities**

**Upgrading building lighting equipment in a business premises and replacing with more efficient lighting equipment**

*Abatement factor (tCO<sub>2</sub>-e) = AAV x Energy Savings*

- AAV is the relevant activity abatement value and is equal to 0.153 tCO<sub>2</sub>-e/MWh.
- Energy Savings is total energy savings from Clause 9.4 of the ESS rule in MWh.



Schedule 5. Appliance activities		
5.1 Decommissioning and disposal of refrigerator or freezer		
ID	Type of refrigerator	AAV
5.1(a)	1-door refrigerator or freezer	0.5926
5.1(b)	2-door refrigerator or freezer	1.0603
5.2 Purchase of high efficiency refrigerator or freezer		
5.2(a)	single door refrigerator	$AF = (0.9126 \times [200 + 4.0 \times (V_{ff})^{0.67}] - CEC) \times 0.0019$
5.2(b)	two door refrigerator	$AF = (0.6954 \times [150 + 8.8 \times (V_{ff} + 1.60 \times V_{fr})^{0.67}] - CEC) \times 0.0019$
5.2(c)	chest freezer	$AF = (0.6329 \times [150 + 7.5 \times (1.6 \times V_{fr})^{0.67}] - CEC) \times 0.00224$
5.2(d)	upright freezer	$AF = (0.7700 \times [150 + 7.5 \times (1.60 \times V_{fr})^{0.67}] - CEC) \times 0.0024$
Where—		
<ul style="list-style-type: none"> <li>Vff is the volume in litres of the fresh food compartment;</li> <li>Vfr is the volume in litres of the freezer compartment; and</li> <li>CEC is the comparative energy consumption on the energy rating label as defined by AS/NZS 4474.</li> </ul>		
5.3 Purchase of high efficiency electric clothes dryer		
<i>Abatement factor (tCO<sub>2</sub>-e) = (48.08 x Rated Capacity – CEC) x 0.0026</i>		
<ul style="list-style-type: none"> <li>Rated Capacity is measured in kilograms defined by AS/NZS 2442.2.</li> <li>CEC is comparative energy consumption in kilowatt hours per year (kWh/y) from AS/NZS 2442.2.</li> </ul>		
5.4 Install a standby power controller		
<i>Abatement factor (tCO<sub>2</sub>-e) for each standby power controller (i) = (VAF) x 0.16</i>		
<i>Abatement factor (tCO<sub>2</sub>-e) for premises = <math>\sum_{i=1}^n</math> Abatement – factor<sub>i</sub></i>		
<ul style="list-style-type: none"> <li>VAF is the relevant activity abatement value listed in the register of products for the type of standby power controller.</li> <li>Sum the abatement factor <i>i</i> for each standby power controller.</li> <li><i>n</i> is the number of SPCs per premises, which is in the range 1 to 4 (maximum).</li> </ul>		
Note that there are two activity codes, 5.4(a) for an IT environment and 5.4(b) for an AV environment.		
5.5 Purchase a high efficiency television		
<ul style="list-style-type: none"> <li>For TVs with a registered screen area of not more than 7221cm<sup>2</sup> <i>Abatement factor (tCO<sub>2</sub>-e) = (0.32768 x [SA x 0.09344 + 65.408] – CEC) x 0.0008415</i></li> <li>For TVs with a registered screen area of greater than 7221cm<sup>2</sup>. <i>Abatement factor (tCO<sub>2</sub>-e) = (270 – CEC) x 0.0008415</i></li> <li>SA is the area of the screen in square centimetres.</li> <li>CEC is the comparative energy consumption on the energy rating label as defined by AS/NZS 4474.</li> </ul>		
5.6 Install a high efficiency swimming pool pump		
<i>Abatement factor (tCO<sub>2</sub>-e) = (1622 – PAEC) x 0.001228</i>		
<ul style="list-style-type: none"> <li>PAEC is the projected annual energy consumption in kWh/y.</li> <li>Minimum star rating of 3.</li> </ul>		
5.7 High Efficiency Refrigerated Display Cabinet Activities		
<i>Abatement factor (tCO<sub>2</sub>-e) = AAV x TDA</i>		
Where—		
(a) AAV is the relevant AAV prescribed in the following table for the particular refrigerated display cabinet type as defined in the AS 1731 series of standards; and		
(b) TDA is the Total Display Area of the Refrigerated Display Cabinet as defined in the AS 1731 series of standards.		



Activity ID	Type and sub-class	AAV
<b>Remote type refrigerated display cabinets</b>		
5.7(RS 1 - Unlit shelves)	RS 1 - Unlit shelves	1.622
5.7(RS 1 - Lit shelves)	RS 1 - Lit shelves	2.755
5.7(RS 2 - Unlit shelves)	RS 2 - Unlit shelves	1.645
5.7(RS 2 - Lit shelves)	RS 2 - Lit shelves	2.196
5.7(RS 3 - Unlit shelves)	RS 3 - Unlit shelves	1.754
5.7(RS 3 - Lit shelves)	RS 3 - Lit shelves	2.379
5.7(RS 4 - Glass door)	RS 4 - Glass door	1.149
5.7(RS 6 - Gravity coil)	RS 6 - Gravity coil	1.680
5.7(RS 6 - Fan coil)	RS 6 - Fan coil	1.673
5.7(RS 7 - Fan coil)	RS 7 - Fan coil	1.913
5.7(RS 8 - Gravity coil)	RS 8 - Gravity coil	1.447
5.7(RS 8 - Fan coil)	RS 8 - Fan coil	1.560
5.7(RS 9 - Fan coil)	RS 9 - Fan coil	1.564
5.7(RS 10 - Low)	RS 10 - Low	2.204
5.7(RS 11)	RS 11	4.505
5.7(RS 12)	RS 12	7.835
5.7(RS 13 - Solid sided)	RS 13 - Solid sided	2.519
5.7(RS 13 - Glass sided)	RS 13 - Glass sided	2.313
5.7(RS 14 - Solid sided)	RS 14 - Solid sided	1.568
5.7(RS 14 - Glass sided)	RS 14 - Glass sided	9.399
5.7(RS 15 - Glass door)	RS 15 - Glass door	3.753
5.7(RS 16 - Glass door)	RS 16 - Glass door	4.106
5.7(RS 18)	RS 18	3.427
5.7(RS 19)	RS 19	2.553
<b>Self-contained type refrigerated display cabinets<sup>1</sup></b>		
5.7(HC1)	HC1	1.164
5.7(HC4)	HC4	1.591
5.7(VC1)	VC1	3.357
5.7(VC2)	VC2	2.678
5.7(VC4 - solid door)	VC4 - solid door	3.861
5.7(VC4 - glass door)	VC4 - glass door	2.542
5.7(HF4)	HF4	2.716
5.7(HF6)	HF6	0.815
5.7(VF4 - solid door)	VF4 - solid door	4.249
5.7(VF4 - glass door)	VF4 - glass door	4.249

Note 1: This activity applies only to M-package temperature classes M1, M2, L1 and L2 (as applicable) as defined in the AS 1731 series of standards.