

ISLE OF MAN DOMESTIC HEATING COMPARISON

COST PER USEFUL kWh

Prices Collected:

15 April 2024

FUEL TYPE	APPLICATION	COST PER kWh (pence)	COST PER USEFUL kWh (pence)	ASSUMED THERMAL EFFICIENCY OF APPLIANCE
Electricity				
<i>* Daily standing charge (in brackets) applies</i>				
Standard or Prepayment (25.83p)*	Radiator/Electric	32.28	32.28	100%
Comfy Heat (Composite) (25.83p)*	Storage Heater	24.43	25.64	95%
Gas				
<i>* Daily standing charge (in brackets) applies</i>				
All Island Tariff (16.90p)*	Gas Boiler	12.21	13.57	90%
Cylinder Central Heating Gas (19.32)*	Gas Boiler	12.29	13.66	90%
Mini Bulk Gas (17.71)*	Gas Boiler	12.24	13.60	90%
Natural Gas Cooking (NA Tariff) (0p)*	Gas Bottled	15.88	17.65	90%
Natural Gas Fire (NB Tariff) (6.02p)*	Gas Fire	14.32	25.12	57%
LPG Cooking (AK & CA Tariff) (0p)*	Gas Bottled	19.53	21.70	90%
LPG Gas Fire (BK & CB Tariff)	Gas Fire	15.15	26.58	57%
Heating Oil (28 Sec)				
900 Litres Quantity	Oil Boiler	7.71	8.57	90%
450 Litres Quantity	Oil Boiler	8.12	9.03	90%
Air Source Heat Pump				
Heat Pump (Composite)	Heat Pump	25.84	7.38	350%
Solid Fuels				
House Coal	Multi-Fuel Stove	9.03	12.04	75%
Anthracite	Multi-Fuel Stove	8.46	11.28	75%
Taybrite	Multi-Fuel Stove	8.30	10.37	80%
Wood				
Woodchip (Moisture Content < 30%)	Woodchip Boiler	4.50	5.00	90%
Manufactured Heat Logs	Wood Burning Stove	13.14	16.42	80%

Cost Per kWh: Expresses cost in relation to the total energy within a fuel. It is a theoretical comparator which assumes 100% efficiency with no wastage. $\text{Cost Per kWh} = \text{Cost Per Unit Sold [including standing charge where applicable]} / \text{Heat Content (kWh) Per Unit Sold}$.

Cost Per Useful kWh: Expresses cost in relation to the useable energy within a fuel, in effect the heat energy that is likely to be extracted. It is intended to be a more realistic comparator which takes into account the efficiency of the appliance burning the fuel. $\text{Cost Per Useful kWh} = (\text{Cost Per Unit Sold [including standing charge where applicable]} / \text{Thermal Efficiency of Appliance}) / \text{Heat Content (kWh) Per Unit Sold}$.

Standing Charge: The portion of standing charge included within costs per kWh is based on the average annual usage of each fuel type across the Island.

kWh: The kilowatt-hour is a unit of energy equivalent to one kilowatt (1 kW) of power used for one hour (1 h) of time.

Heat Content: The kWh of energy contained within a fuel. Heat contents quoted are taken from the 'Sutherland Tables': <http://www.sutherlandtables.co.uk/>

Thermal Efficiency: The percentage of energy contained with a fuel, which the appliance can successfully extract and convert into useful heat. E.g. a 90% efficient boiler will extract 90% of the fuels energy and convert this into useful heat. The remaining 10% is wasted. Efficiencies of individual appliances may vary substantially from the examples provided. In particular, the 90% efficiency for gas and oil boilers is based on a modern condensing boiler, in conditions where the return temperature is low enough to allow condensing to take place. A 350% efficiency is applied for a heat pump which assumes a property is very well insulated.

ISLE OF MAN DOMESTIC HEATING COMPARISON COST PER UNIT SOLD

Prices Collected:

15 April 2024

FUEL TYPE	SOLD IN UNITS OF	AVERAGE HEAT CONTENT PER UNIT SOLD (kWh)	ASSUMED THERMAL EFFICIENCY OF APPLIANCE	AVERAGE COST PER UNIT SOLD (PENNY)
Electricity				
<i>* Daily standing charge (in brackets) applies</i>				
Standard or Prepayment (20.2p)*	1 kWh	1	100%	32.28
Comfy Heat (Composite) (20.2p)*	1 kWh	1	95%	24.43
Gas				
<i>* Daily standing charge (in brackets) applies</i>				
All Island Tariff (16.90p)*	1 kWh	1	90%	12.21
Cylinder Central Heating Gas (19.32p)*	1 kWh	1	90%	12.29
Mini Bulk Gas (17.71p)*	1 kWh	1	90%	12.24
Natural Gas Cooking (NA Tariff) (0p)*	1 kWh	1	90%	15.88
Natural Gas Fire (NB Tariff) (6.02p)*	1 kWh	1	57%	14.32
LPG Cooking (AK & CA) (0p)*	1 kWh	1	90%	19.53
LPG Gas Fire (BK & CB Tariff) (6.02p)*	1 kWh	1	57%	15.15
Heating Oil (28 Sec)				
900 Litre Quantity	1 Litre	10.18	90%	78.51
450 Litre Quantity	1 Litre	10.18	90%	82.71
Air Source Heat Pump				
Heat Pump (Composite)	1 kWh	1	350%	25.84
Solid Fuels				
House Coal - Modern Stove	50 kg	423.5	75%	3823.33
Anthracite - Room Heater	50 kg	452.3	75%	3826.67
Taybrite - Multi-Fuel Stove	50 kg	460	80%	3816.67
Wood				
Woodchip (Moisture Content < 30%)	1 tonne	3500	90%	15750.00
Heat Logs	10 kg	55	80%	722.50

HOW TO INTERPRET THIS SECTION:

The prices shown below indicate the annual cost of domestic heating, according to the volume of usage. The prices below do not take into account the thermal efficiency of the appliances being used, since it relates to overall consumption (i.e. the total number of units purchased from suppliers) rather than useful heat extracted.

The average gas consumption per annum per central heating consumer in the Isle of Man is 10,000 kWh. It is difficult to estimate annual usage for oil, solid fuel and heat logs since consumers purchase from different suppliers over time, so a comparison over a range of different volumes have been calculated.

The average consumption of electricity per annum is assumed to be 3,800 kWh for those using standard electricity, used only partially or rarely for heating the home. This cost will therefore be in addition to other heating expenses such as gas, oil or solid fuel. Those using electricity for central heating should be on the comfy heat tariff, where consumption is assumed to be 6,000 kWh per annum, split 50:50 between peak and off-peak hours. The lower consumption reflects the fact that consumers tend to be housed in relatively small, newly built apartments which require less energy to heat. For further explanation, please see the UK Department of Energy and Climate Change's publication, for which a web link is contained on the final page.

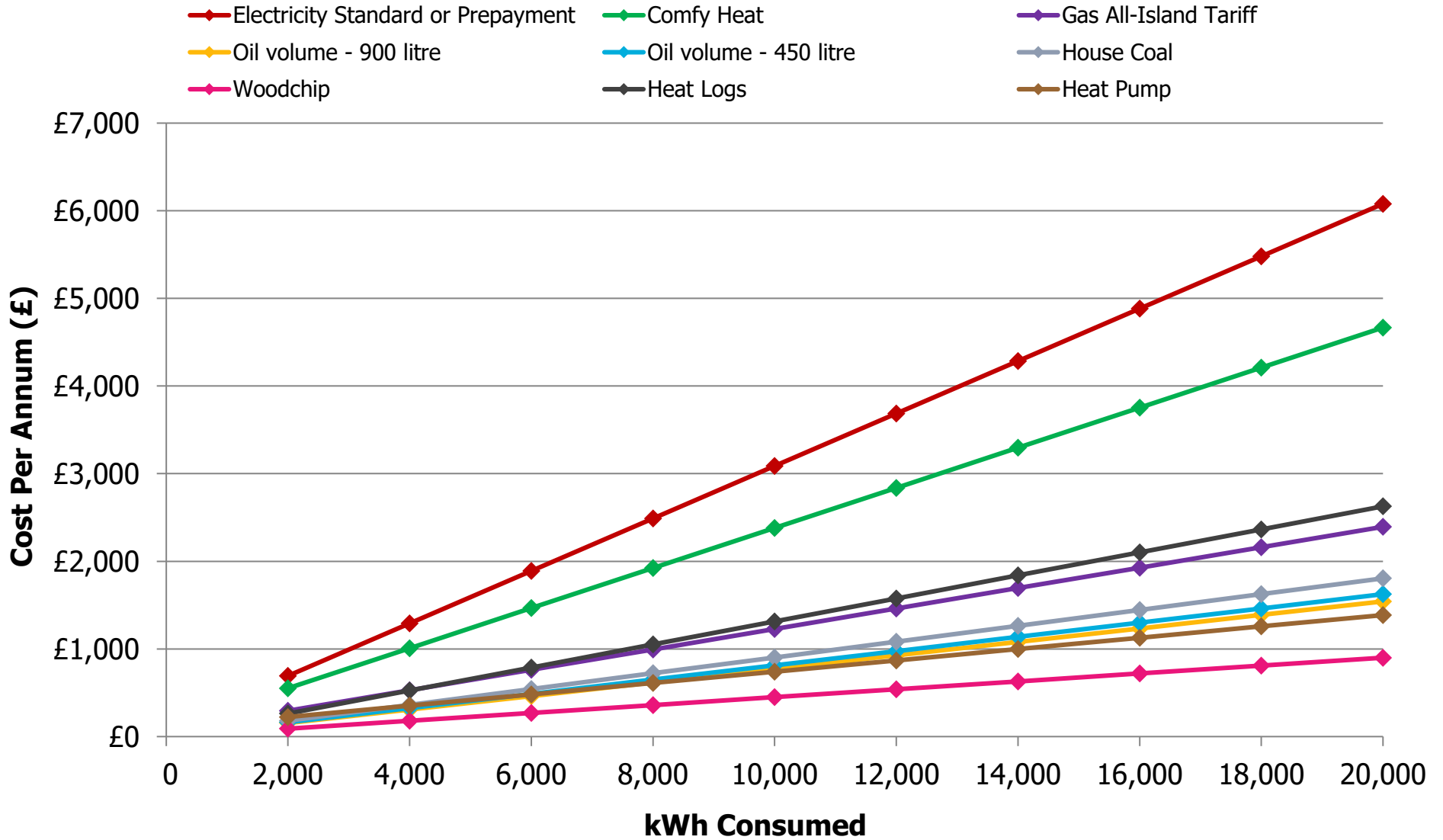
The average energy consumption for running a heat pump is expected to be lower than other methods, due to the high thermal efficiency of heat pumps. Given a c.350% thermal efficiency, a heat pump would be able to provide c.10,000 kWh of useful heat whilst the consumer would be charged approximately 2,857 kWh of input energy. Therefore the figures in the table reflect this level of efficiency.

The annual bills stated below include standing charges for gas and electricity.

Heat output in kWh	Electricity			Gas	Heating Oil		Solid Fuel	Manufactured Wood	
	Standard or Prepayment	Comfy Heat	Heat Pump	All-Island Tariff	Oil volume - 900 litre	Oil volume - 450 litre	House Coal	Woodchip	Heat Logs
2,000	£693	£552	£223	£295	£154	£162	£181	£90	£263
4,000	£1,291	£1,009	£353	£528	£308	£325	£361	£180	£525
6,000	£1,890	£1,466	£482	£761	£463	£487	£542	£270	£788
8,000	£2,488	£1,923	£611	£994	£617	£650	£722	£360	£1,051
10,000	£3,087	£2,381	£740	£1,228	£771	£812	£903	£450	£1,314
12,000	£3,685	£2,838	£869	£1,461	£925	£975	£1,083	£540	£1,576
14,000	£4,284	£3,295	£999	£1,694	£1,080	£1,137	£1,264	£630	£1,839
16,000	£4,882	£3,752	£1,128	£1,927	£1,234	£1,300	£1,444	£720	£2,102
18,000	£5,481	£4,210	£1,257	£2,160	£1,388	£1,462	£1,625	£810	£2,365
20,000	£6,079	£4,667	£1,386	£2,394	£1,542	£1,625	£1,806	£900	£2,627

Annual Cost = (Average cost per unit x kWh Consumed) + Standing charge (where applicable)

Annual Domestic Heating Price Comparison



HOW TO INTERPRET THIS SECTION:

These figures illustrate how the thermal efficiency of an appliance can considerably impact on the cost per useful kWh. It is not possible to achieve 100% conversion efficiency, (highlighted in blue), the columns are included for reference purposes.

The average heating requirement in the IOM is 9,000 kWh of useful heat which is based on the average efficiency of a gas boiler of 90% requiring an input of 10,000 kWh. For comparative purposes, it is assumed that 9,000 kWh of useful heat are required for all fuels. Figures in the "average annual bill" table illustrate the annual cost required to extract 9,000 kWh of useful energy from each of the heating fuels listed, through a range of appliance efficiency levels.

A 350% heat pump efficiency is only possible with a modern, highly insulated property and so a range of efficiency levels has been produced to cover different types of properties.

The prices below do not include standing charges in the total cost, as this is not affected by changes in efficiency.

For the purposes of the final table shown, it is assumed that one 47kg gas cylinder contains 650 kWh and one litre of bulk gas contains 7 kWh.

$$\text{Cost Per Useful kWh} = (\text{Average Cost Per Unit Over Year} / \text{Heat Content Per Unit Sold}) / \text{Thermal Efficiency of Appliance}$$

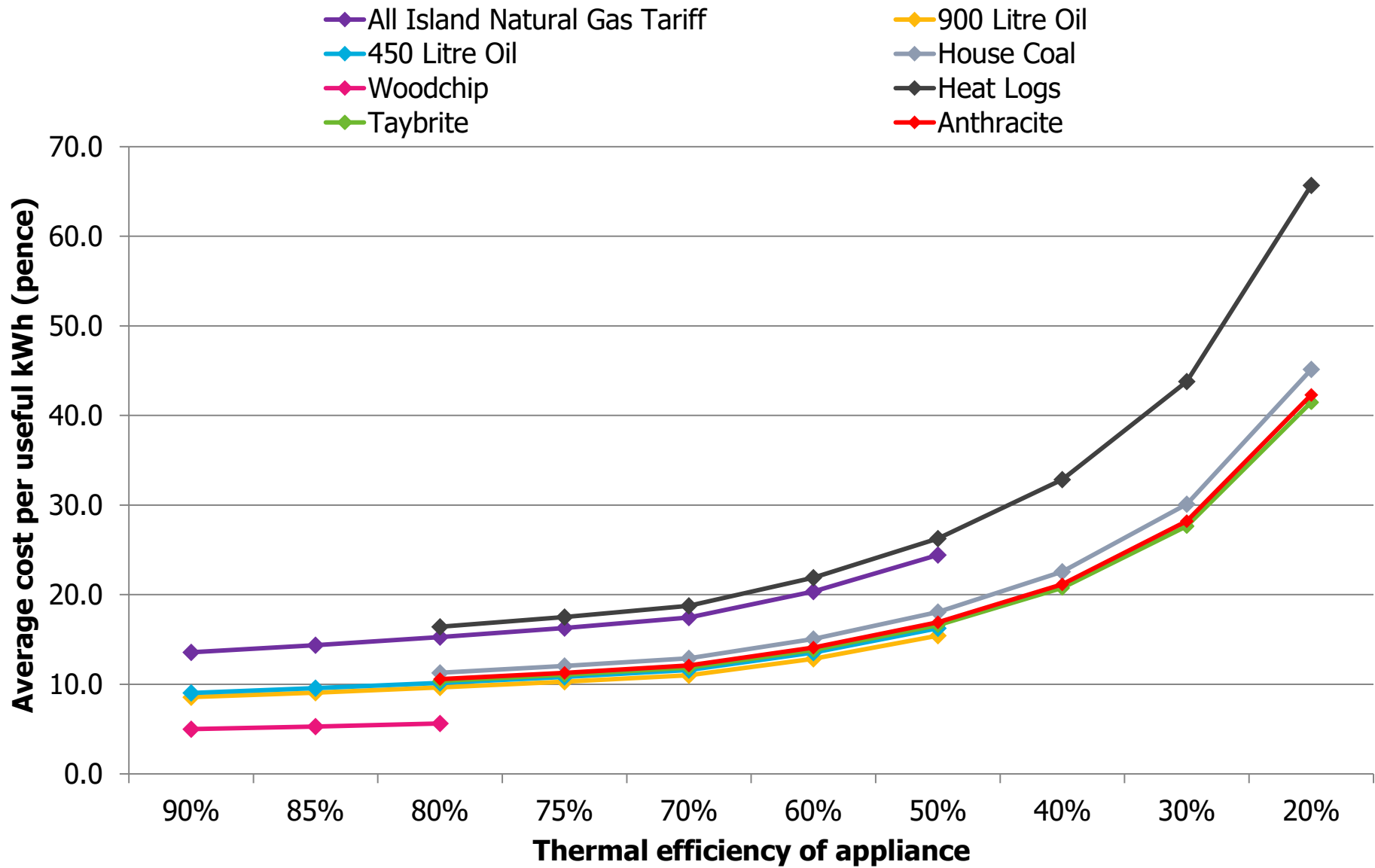
COST PER USEFUL kWh CONSUMED (pence)											
	100%	90%	85%	80%	75%	70%	60%	50%	40%	30%	20%
Gas	<i>Typical of a modern, fully condensing boiler</i>					<i>Typical of an older, less efficient boiler</i>					
All Island Natural Gas Tariff	12.21	13.57	14.37	15.27	16.29	17.45	20.36	24.43			
Heating Oil											
900 Litre Oil	7.71	8.57	9.07	9.64	10.28	11.02	12.85	15.42			
450 Litre Oil	8.12	9.03	9.56	10.16	10.83	11.61	13.54	16.25			
Average Solid Fuel	<i>Typical of a multi-fuel stove</i>						<i>Typical of an open fire</i>				
House Coal	9.03			11.28	12.04	12.90	15.05	18.06	22.57	30.09	45.14
Taybrite	8.30			10.37	11.06	11.85	13.83	16.59	20.74	27.66	41.49
Anthracite	8.46			10.58	11.28	12.09	14.10	16.92	21.15	28.20	42.30
Manufactured Wood	<i>Typical of a modern wood chip boiler</i>										
Woodchip	4.50	5.00	5.29	5.63							
Heat Logs	13.14			16.42	17.52	18.77	21.89	26.27	32.84	43.79	65.68

	350%	325%	300%	275%	250%	225%	200%
	<i>Typical of a modern, well insulated property</i>				<i>Typical of a less well insulated property</i>		
Heat pump	7.38	7.95	8.61	9.40	10.33	11.48	12.92

AVERAGE ANNUAL BILL EXTRACTING 9,000 kWh OF USEFUL HEAT (rounded to the nearest £)											
	100%	90%	85%	80%	75%	70%	60%	50%	40%	30%	20%
Gas	<i>Typical of a modern, fully condensing boiler</i>					<i>Typical of an older, less efficient boiler</i>					
All Island Natural Gas Tariff	£1,099	£1,221	£1,293	£1,374	£1,466	£1,570	£1,832	£2,199			
Heating Oil											
900 Litre Quantity	£694	£771	£817	£868	£925	£992	£1,157	£1,388			
450 Litre Quantity	£731	£812	£860	£914	£975	£1,045	£1,219	£1,462			
Average Solid Fuel	<i>Typical of a multi-fuel stove</i>						<i>Typical of an open fire</i>				
House Coal	£813			£1,016	£1,083	£1,161	£1,354	£1,625	£2,031	£2,708	£4,063
Taybrite	£747			£933	£996	£1,067	£1,245	£1,493	£1,867	£2,489	£3,734
Anthracite	£761			£952	£1,015	£1,088	£1,269	£1,523	£1,904	£2,538	£3,807
Manufactured Wood	<i>Typical of a modern wood chip boiler</i>										
Woodchip	£405	£450	£476	£506							
Heat Logs	£1,182			£1,478	£1,576	£1,689	£1,970	£2,365	£2,956	£3,941	£5,911

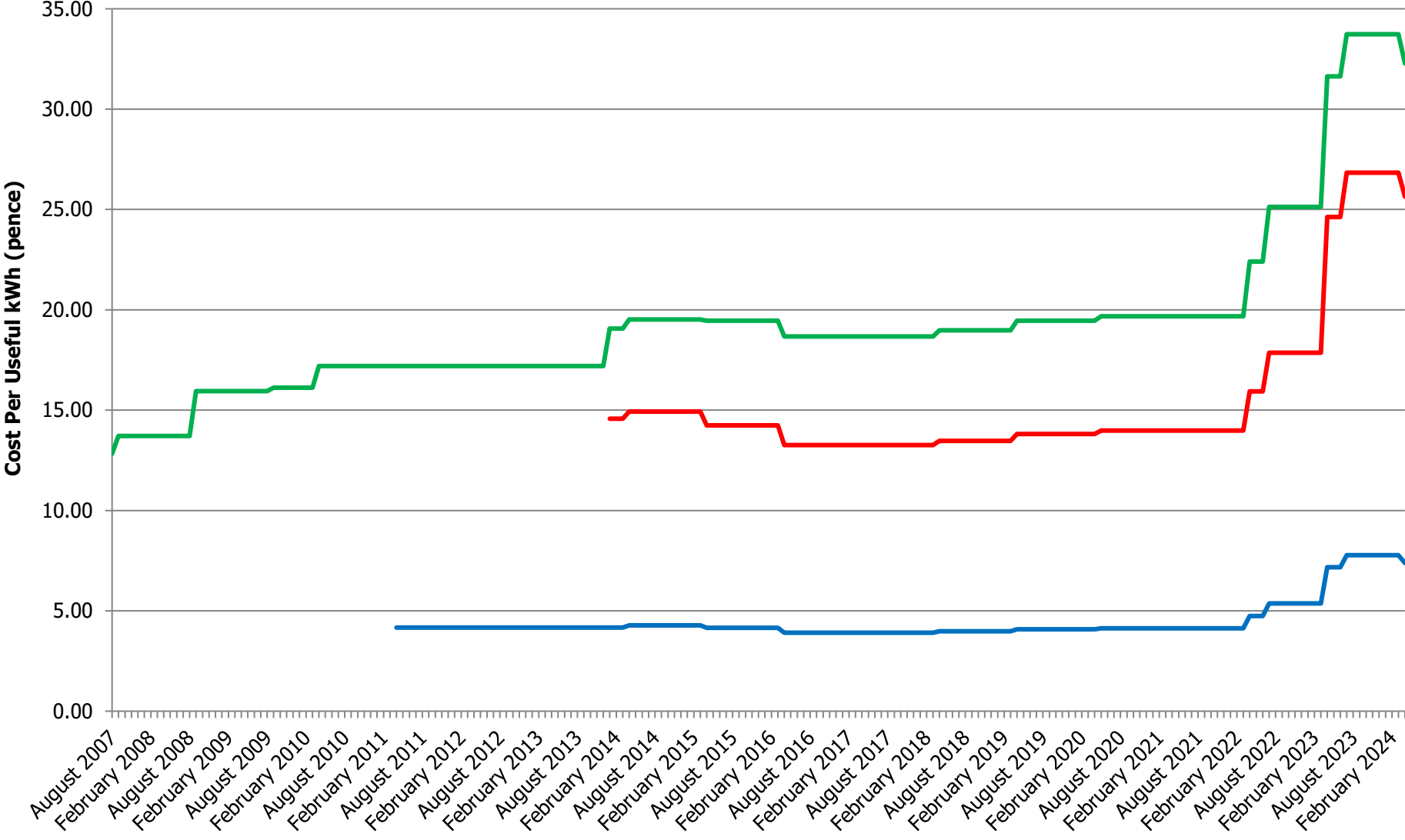
	350%	325%	300%	275%	250%	225%	200%
	<i>Typical of a modern, well insulated property</i>				<i>Typical of a less well insulated property</i>		
Heat pump	£664	£715	£775	£846	£930	£1,033	£1,163

Annual Domestic Heating Price Comparison



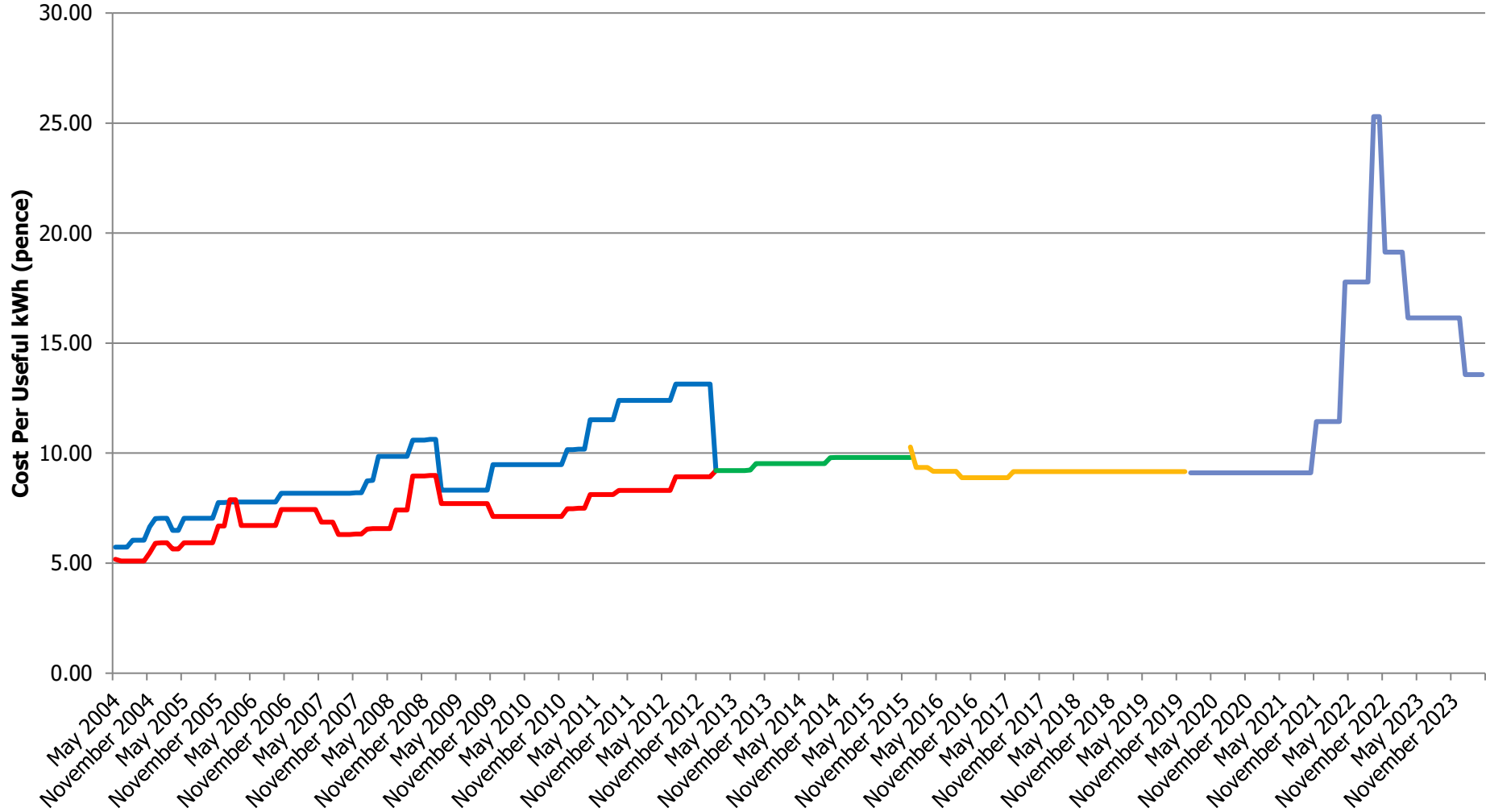
Electricity Cost Per Useful kWh

Heat Pump Composite cost per useful kWh Composite Comfy Heat cost per useful kWh Standard cost per kWh



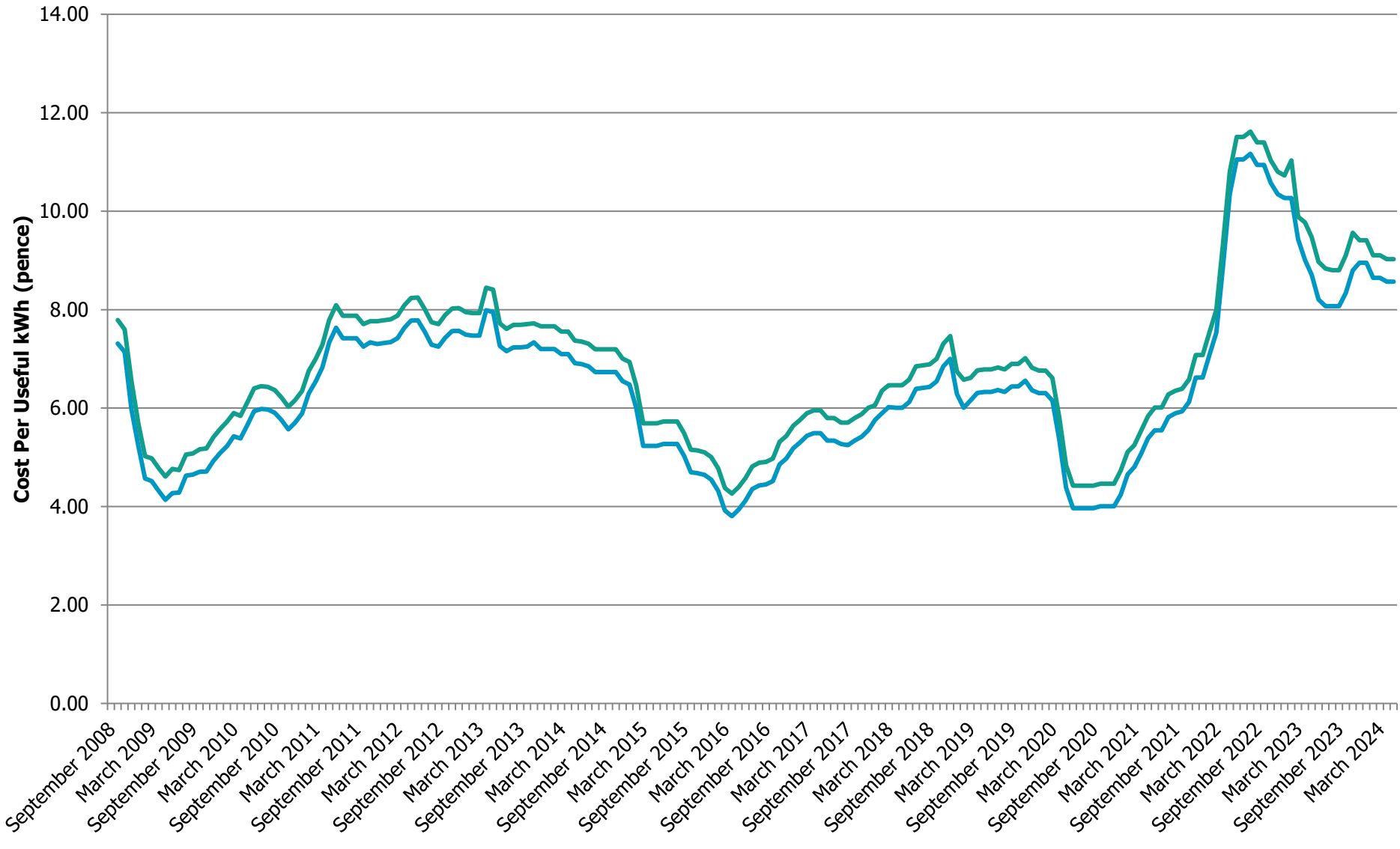
Gas Cost Per Useful kWh

- LPG Towns Gas - cost per useful kWh
- Natural Gas - cost per useful kWh
- All Island up to Jan up to Jan 2016 - cost per useful kWh
- Band C - cost per useful kWh (ceased Jan 2020)
- All Island Tariff Jan 2020 onwards - cost per useful kWh



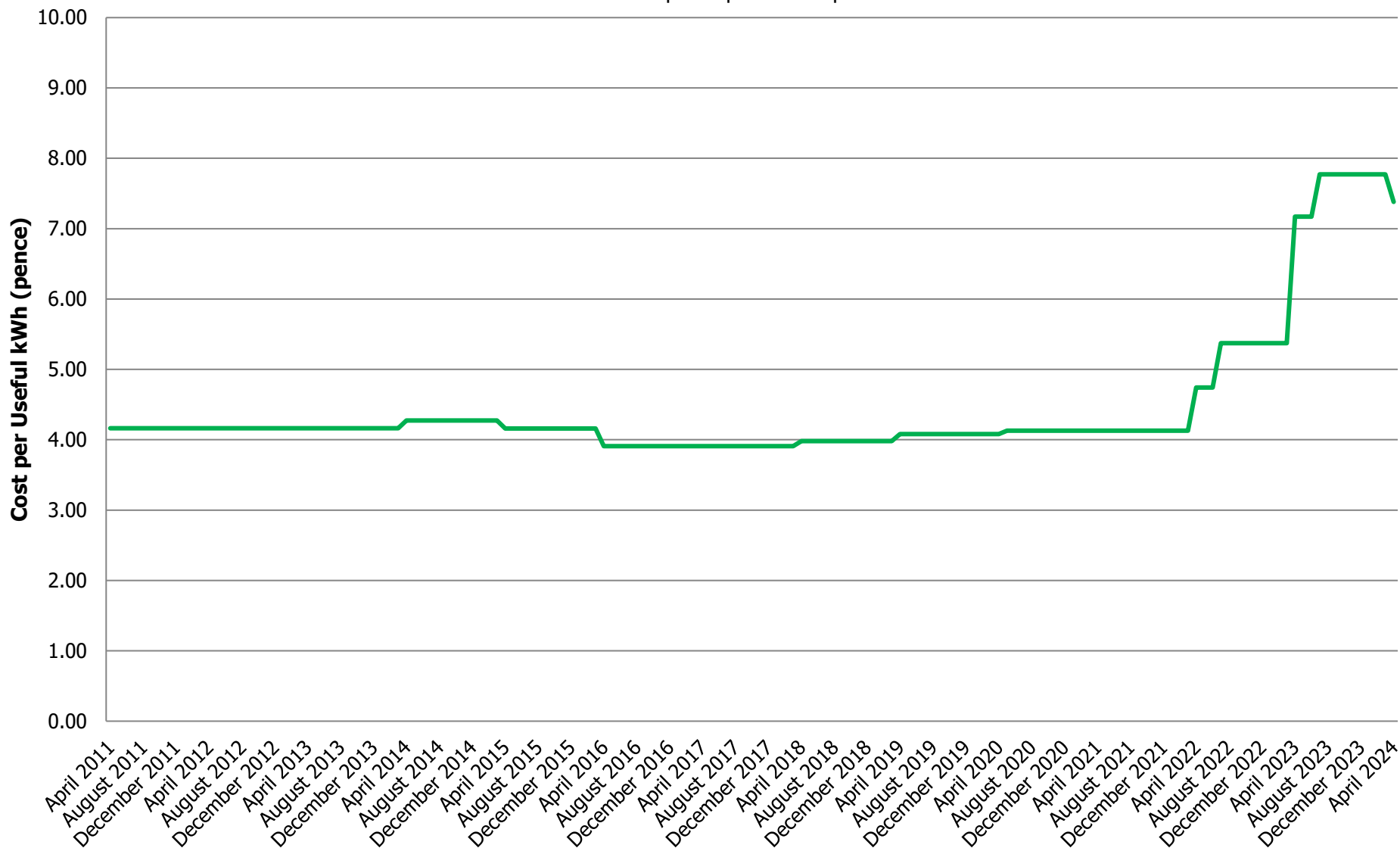
Heating Oil Cost Per Useful kWh

900 Litres 450 Litres

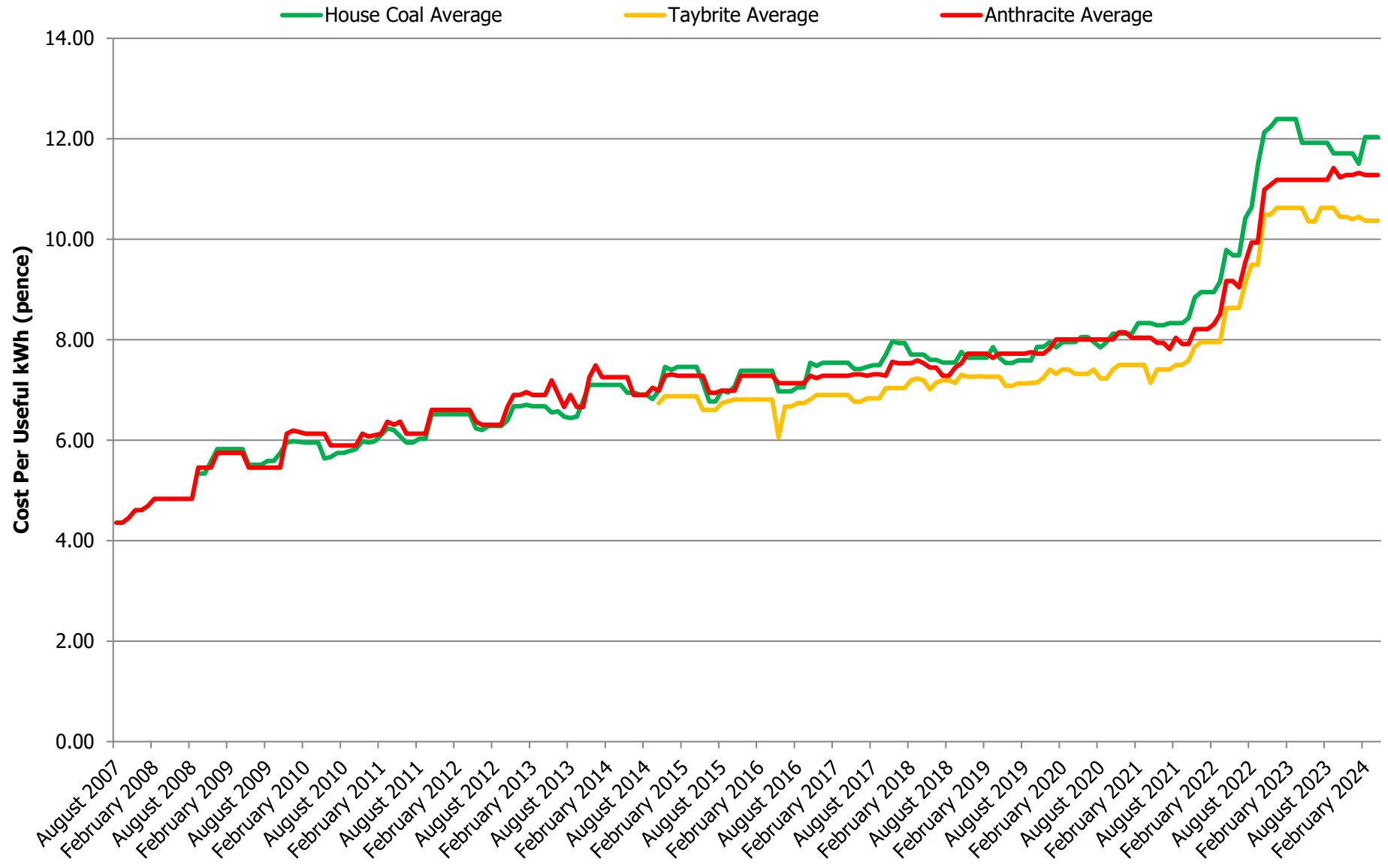


Air Source Heat Pump Cost Per Useful kWh

Heat Pump Composite cost per useful kWh

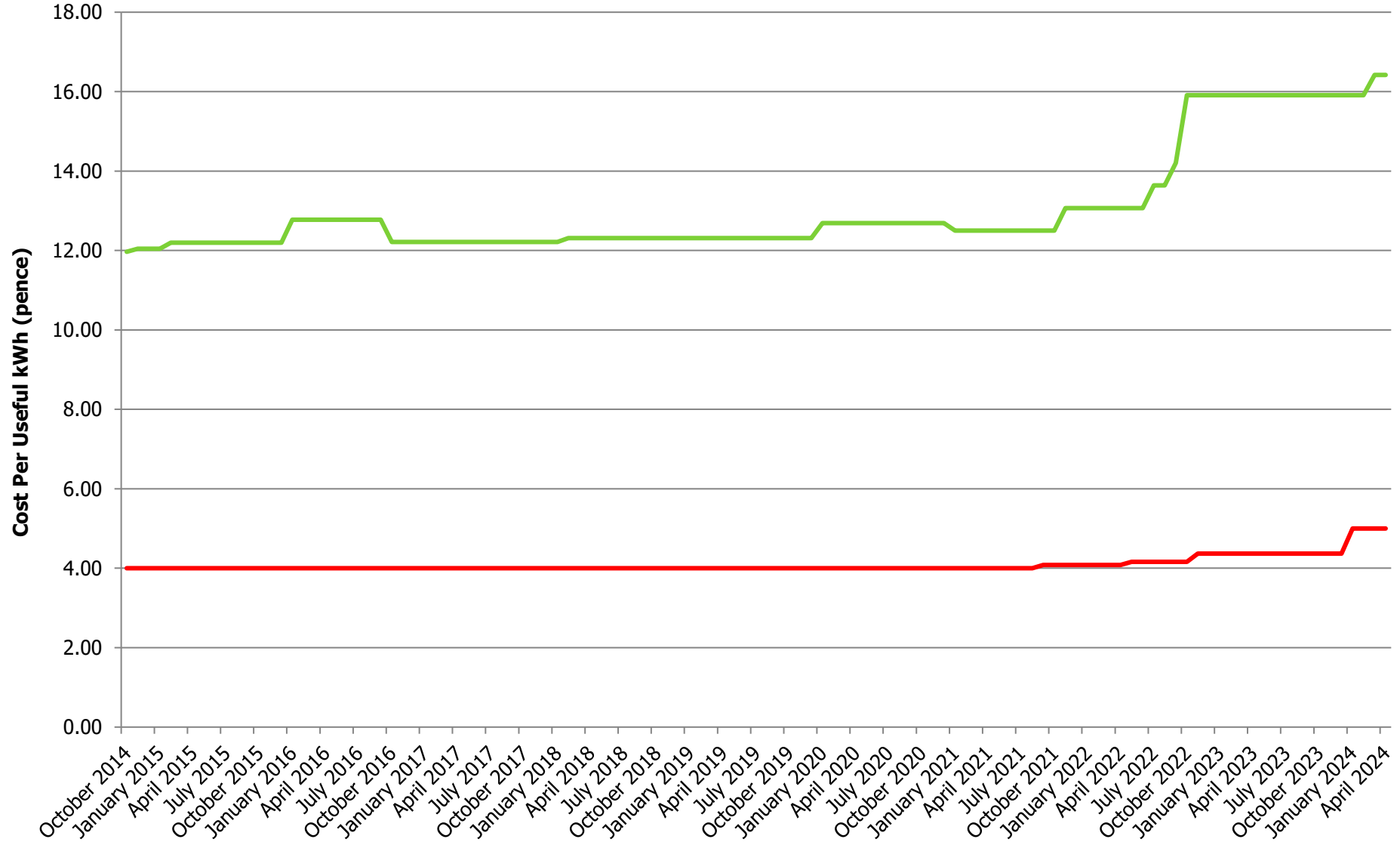


Solid Fuels Cost Per Useful kWh



Wood Cost Per Useful kWh

Woodchip Average Heat Logs kWh



DOMESTIC FUEL NOTES:

General

- 1** The prices and figures provided are based on domestic heating fuel only and includes standing charges. Discounts for bulk purchases (with the exception of oil for bulk purchase), discount for early settlement, maintenance or purchase of appliances, size of properties and the energy efficiency of homes etc, are not taken into account.
- 2** All prices include V.A.T at 5%.
- 3** Standing charges are added to average consumption to generate the costs where standing charges are applicable.
- 4** This information may not be used for advertising purposes without prior agreement from the Isle of Man Office of Fair Trading (OFT).

Gas

- 5** The Star Saver tariff applies to those using gas for central heating. Liquefied Petroleum Gas (LPG) BK and CB tariffs and the Natural Gas NB tariff apply to those using gas only for a gas fire and not as central heating.
- 6** LPG is supplied in the following areas: Foxdale, Laxey, Lonan, Andreas, Santon, St Johns, Jurby and Ballabeg.
- 7** Natural Gas is supplied within the following areas: Douglas, Onchan, Braddan, Glen Vine, Crosby, Union Mills, Ramsey, Port St Mary, Port Erin, Castletown, Ballasalla, Kirk Michael, Peel and Ballaugh.
- 8** Natural Gas Tariffs changed on 1st January 2020 from a banded system to single tariff structure shown as Band A in the Gas graphs.

Electricity

- 9** The Manx Utilities Authority currently offers a "Comfy Heat" tariff, which allows consumers to benefit from a cheaper tariff rate, if consuming electricity in the lower demand (off peak) hours. The thermal efficiency of "comfy heat" electricity is 5% lower than standard, as the tariff is generally used by consumers with storage heaters for hot water. A small amount of useful heat is lost in the storing process and hence the lower efficiency rating. This also has the benefit of reducing the overall cost of electricity of a household as any electricity used will be included on the comfy heat tariff.

Air Source Heat Pumps

- 10** Air source heat pumps extract heat from the outside air, which can then be used to heat properties. Heat pumps require electricity to work, but they are very efficient (up to 350%). For every 1 kWh of electricity used, 3.5 kWh's are produced to heat the home.
- 11** The calculation for Air Source Heat Pumps changed in May 2020 to more accurately represent the efficiency of modern pumps and the standing charge was removed. These changes have been back dated but subsequent published reports will show the previous data.

Solid Fuel - Coal, Taybrite, Anthracite & Phurnacite

12 Taybrite, Anthracite and Phurnacite are solid smokeless fuels which are used for heating.

Biomass - Wood Fuel

13 Prices are only collected for manufactured wood products, as the heat content is relatively consistent for these products.

14 Prices are collected for heat logs sold in 10kg and 20kg. The weights, heat contents and prices are simple averages of the price for 10kg.

Additional

15 The OFT has altered the way cost per useful kWh is calculated for electricity comfy heat, heat pumps and all forms of gas. Up to January 2019, the efficiency percentage of the boiler was applied to the whole charge for both forms of fuel; going forward this has only been applied to the usage charge and not the standing charge. A further change was made as of April 2019 which removed the electricity standing charge from the heat pump calculations.

16 The graphs shown in this publication have been revised in order to show the new calculation method. Previous versions of this publication (showing the earlier calculation methods) are available upon request.

CONTACT DETAILS

Data is obtained directly from suppliers on the date of publication. Please contact suppliers directly to obtain current prices. The following suppliers are thanked for providing information contained within this publication:

Castletown Fuels
CPL
Department of Environment, Food & Agriculture (DEFA)
Ellan Vannin Fuels
Fairy Cottage Filling Station
Farmers' Combine
Manx Gas
Manx Petroleums
Manx Utilities Authority

This list does not represent an exhaustive list of all local suppliers.

OFT Debt Counselling / Money Management Service	http://www.gov.im/oft/money/
Energy Saving Tips From Members of the Community	https://www.gov.im/brightideas/
Interactive Advice on Building Control Regulations	https://www.gov.im/categories/planning-and-building-control/building-control/find-out-if-you-need-building-
Advice Regarding Renewable Energy	http://www.energysavingtrust.org.uk/renewableselector/sta
Advice Regarding Installation of Wood Burning Stoves	http://www.gov.im/categories/home-and-neighbourhood/emergency-services/fire-and-rescue-
Advice on woodfuel supplies and matching requirements	https://www.forestresearch.gov.uk/tools-and-resources/biomass-energy-resources/fuel/woodfuel-
Advice on sustainability of biomass fuel	https://www.forestresearch.gov.uk/tools-and-resources/biomass-energy-resources/technical-and-
Identifying a Specific Boiler's Efficiency Rating	http://www.ncm-pcdb.org.uk/sap/pcdbsearch.jsp?pid=26
UK Department for Energy Security & Net Zero Strategy - Energy Trends April to June 2023	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1187525/Energy Trends September 2023.pdf

Please Contact the Competition & Markets Section of the Office of Fair Trading with any queries regarding this publication.

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