

Estimated Savings on Fuel Bills from Heating Control Upgrades

Upgrade		House type				
		Average	Flat	Mid-terrace	End-terrace/ semi-detached	Detached
Baseline assumed: - Timeclock - Class 1 on/off room thermostat - Manual radiator valves	Annual gas used for heating (kWh)	11,808	5,985	9,382	12,132	19,734
	Gas cost per kWh	£0.0462	£0.0462	£0.0462	£0.0462	£0.0462
	Annual heating cost	£545.53	£276.51	£433.45	£560.50	£911.71
Replace manual radiator valves with thermostatic radiator valves (TRVs)	Saving from tests	18%	18%	18%	18%	18%
	Annual saving	£98.20	£49.77	£78.02	£100.89	£164.11
	Lifetime saving	£1,472.93	£746.57	£1,170.31	£1,513.35	£2,461.62
Upgrade Class I room thermostat to Class IV load compensation	Saving from tests	10%	10%	10%	10%	10%
	Annual saving	£54.55	£27.65	£43.34	£56.05	£91.17
	Lifetime saving	£818.29	£414.76	£650.17	£840.75	£1,367.57
Upgrade Class I room thermostat to Class V/VI load/weather compensation	Saving from tests	12%	12%	12%	12%	12%
	Annual saving	£65.46	£33.18	£52.01	£67.26	£109.41
	Lifetime saving	£981.95	£497.71	£780.21	£1,008.90	£1,641.08
Upgrade timeclock/programmer to smart control	Saving from tests	6%	6%	6%	6%	6%
	Annual saving	£32.73	£16.59	£26.01	£33.63	£54.70
	Lifetime saving	£490.98	£248.86	£390.10	£504.45	£820.54
Full upgrade 1 (TRVs + Class IV room thermostat + smart control)	Saving from tests	31%	31%	31%	31%	31%
	Annual saving	£167.10	£84.69	£132.77	£171.68	£279.26
	Lifetime saving	£2,506.44	£1,270.41	£1,991.48	£2,575.21	£4,188.86
Full upgrade 2 (TRVs + Class V or VI room thermostat + smart control)	Saving from tests	32%	32%	32%	32%	32%
	Annual saving	£175.50	£88.95	£139.44	£180.31	£293.30
	Lifetime saving	£2,632.45	£1,334.28	£2,091.61	£2,704.69	£4,399.46

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The table above provides estimates of the potential savings on energy bills through the application of a number of heating control upgrades in a range of house types.

The savings are based on an average price for gas from January to March 2022 of 4.62 p/kWh. (Source: BEIS Quarterly Energy Prices publication 30 June 2022¹.) This provides a reasonable estimate for the gas price over the lifetime of these measures.

Annual fuel bill savings in the short term are expected to be significantly higher due to rising gas prices. The table below provides an estimate of annual fuel bill savings should gas prices rise in line with the predicted increase in the energy price cap to £3,244 in October 2022. (Source: Cornwall Insight quoted on the BBC².) The predicted cost of gas has been estimated from this figure based on percentage change.

The calculation of the annual gas used for heating can be found on the BEAMA website³.

Test results for TRVs, load and weather compensation can be found on the BEAMA website⁴. Savings from smart control are based on a study by the Behavioural Insights Team⁵. A description of the reference temperature control classes (I, IV, V and VI) can be found on the BEAMA website⁶.

The total energy saving for 'full upgrade 1' and 'full upgrade 2' is based on each of the measures referenced for the upgrade being carried out in the order they are stated.

¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1086569/quarterly_energy_prices_uk_june_2022.pdf

² <https://www.bbc.co.uk/news/business-58090533>

³ <https://www.beama.org.uk/resourceLibrary/uk-homes---analysis-of-kwh-gas-consumption-for-heating.html>

⁴ <https://www.beama.org.uk/portfolios/heating-controls/energy-savings.html>

⁵ <https://www.bi.team/publications/evaluating-the-nest-learning-thermostat/>

⁶ <https://www.beama.org.uk/resourceLibrary/temperature-control-classes-from-eu-energy-labelling-regulation-for-space-heaters.html>

Estimate of annual fuel bill savings if gas costs rise to predicted level in October 2022

Upgrade		House type				
		Average	Flat	Mid-terrace	End-terrace/ semi-detached	Detached
Baseline assumed: - Timeclock - Class 1 on/off room thermostat - Manual radiator valves	Annual gas used for heating (kWh)	11,808	5,985	9,382	12,132	19,734
	Gas cost per kWh	£0.1174	£0.1174	£0.1174	£0.1174	£0.1174
	Annual heating cost	£1,386.26	£702.64	£1,101.45	£1,424.30	£2,316.77
Replace manual radiator valves with thermostatic radiator valves (TRVs)	Saving from tests	18%	18%	18%	18%	18%
	Annual saving	£249.53	£126.48	£198.26	£256.37	£417.02
Upgrade Class I room thermostat to Class IV load compensation	Saving from tests	10%	10%	10%	10%	10%
	Annual saving	£138.63	£70.26	£110.14	£142.43	£231.68
Upgrade Class I room thermostat to Class V/VI load/weather compensation	Saving from tests	12%	12%	12%	12%	12%
	Annual saving	£166.35	£84.32	£132.17	£170.92	£278.01
Upgrade timeclock/programmer to smart control	Saving from tests	6%	6%	6%	6%	6%
	Annual saving	£83.18	£42.16	£66.09	£85.46	£139.01
Full upgrade 1 (TRVs + Class IV room thermostat + smart control)	Saving from tests	31%	31%	31%	31%	31%
	Annual saving	£424.61	£215.22	£337.37	£436.26	£709.63
Full upgrade 2 (TRVs + Class V or VI room thermostat + smart control)	Saving from tests	32%	32%	32%	32%	32%
	Annual saving	£445.96	£226.04	£354.34	£458.20	£745.31