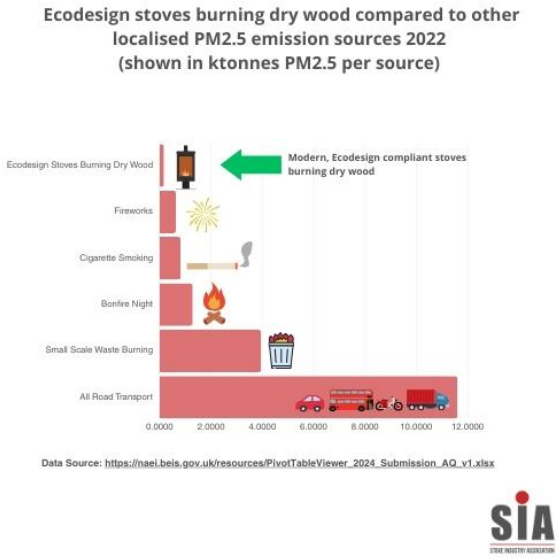
NAEI: What does the data tell us?

In this article we take a closer look at the important detail within the annual National Atmospheric Emissions Inventory (NAEI) data and what it can tell us about the opportunities that exist to further reduce emissions from domestic combustion.



What tends to be missing from the press coverage of the government's air pollution data when it is released each year is any explanation of the detail within the data. For example, if you read this article by Helen Horton for the Guardian published earlier this year, you would understandably be left with the sense that all wood burning stoves are inherently bad.

Part of the reason for this is the Guardian's use of the term "wood burning stoves", something that can be seen across many mainstream media outlets. The reason this term is problematic is because it is reductive and, while it is very effective at reinforcing the negative narrative around domestic wood burning, it fails to properly reflect the facts within the data that it reports on.

As reported by the Stove Industry Association (SIA) in February this year, the latest NAEI data set shows that in 2022 (a record year for stove sales) the total PM2.5 emissions from "domestic combustion" fell by 4% compared to the previous year, and that PM2.5 emissions from domestic wood combustion specifically fell by 2.7%. These are facts that have been, almost without exception, ignored by the media coverage of the latest data.

The reason for this omission may be partly due to the fact that the NAEI data is presented with amalgamated categories by government each year under the heading *Emissions of air pollutants UK - Summary*. Within this summary, the heading "domestic combustion" is used to cover all combustion activities at home which as well as the burning of solid fuel in a fireplace setting, also includes the use of gas for cooking, the outdoor use of coal and charcoal, the use of oil and gas for domestic water heaters and domestic boilers fuelled by solid fuels (excluding wood) and LPG.

As is so often the case, it is the detail that paints the clearest picture and, the NAEI data tables are not short on detail. In fact, when we look closely the category described above by the Guardian as "wood burning stoves", we can see that this is an amalgamation of no less than 28 different data sets:

NAEI Source Name & Description	NAEI Activity Name
Domestic Closed Stove – Basic (Any closed stove pre EN13240 2001)	Anthracite
	Coal
	Petroleum coke
	SSF
	Wood – Dry
	Wood – Seasoned
	Wood - Wet
Domestic Closed Stove – Ecodesign (Stoves that comply with the Ecodesign standard introduced in 2022)	Anthracite
	Coal
	Petroleum coke
	SSF
	Wood – Dry
	Wood – Seasoned
	Wood - Wet
Domestic Closed Stove – Upgraded (Stoves that comply with the EN13240 standard introduced in 2001)	Anthracite
	Coal
	Petroleum coke
	SSF
	Wood – Dry
	Wood – Seasoned
	Wood - Wet
Domestic Fireplace – Standard (UK open grate fireplaces)	Anthracite
	Coal
	Petroleum coke
	SSF
	Wood – Dry
	Wood – Seasoned
	Wood - Wet

If we want to make informed choices on how we heat our homes, keep our families warm and gain a better understanding of how modern stoves are helping to drive down emissions, we need to look at the detail in these categories.

Firstly, it shows us that there was a huge difference between the PM2.5 emissions produced by an open fire compared to an Ecodesign closed stove in 2022; the former being responsible for 13.3% of total UK PM2.5 emissions, while the latter accounts for just 1.8%.[1]

Secondly, we can see that the type of fuel we choose to burn has a significant impact on our emissions. When looking at wood fuel only, open fires account for 9.8% of total UK PM2.5 emissions and Ecodesign stoves a much lower 1.4%.[2]

Furthermore, the data also shows the impact that dry wood fuel has on reducing emissions, bringing the figures above down to 1.8% of total UK PM2.5 from open fires and just 0.3% from Ecodesign compliant stove models.[3]

It is clear to see that when choosing a modern, Ecodesign stove and only burning dry (at or below 20% moisture content) wood fuel, PM2.5 emissions are minimal.

By way of further context, the NAEI data also shows us that:

- Road transport PM2.5 emissions were 66.7 times higher than Ecodesign stoves burning dry wood in 2022.
- Cigarette smoking caused 4.7 times the amount of PM2.5 as Ecodesign stoves burning dry wood.
- Small scale waste burning produces 22.7 times the level of PM2.5 emissions as Ecodesign stoves burning dry wood.
- The PM2.5 emissions created on bonfire night are 7.4 times higher than Ecodesign stoves burning dry wood.

So, to make a difference this Clean Air Day, the SIA is encouraging consumers to look beyond the headlines and to seize the opportunity to reduce emissions and improve air quality by applying the common sense, best practice approach so clearly illustrated by the NAEI: always choose the very latest stove technology and use the very best quality wood fuel.

Here's our top tips to help:

- Choose an Ecodesign compliant sustainable solid fuel stove such as a clearSkies certified appliance. If you live in a Smoke Control Area, your stove will also need to be Defra exempt. All clearSkies Level 3 and above models are certified as Defra exempt.
- Visit your local SIA Retail Group member for independent and no-obligation advice on the best stove for you and your family.
- Visit your local stove retailer for guidance on choosing the right size stove for your property and for a detailed installation quote. You can find your nearest SIA Retail Group member showroom here.
- Ensure your stove is fitted by an appropriately qualified competent person such as one who is HETAS or OFTEC registered.
- Ensure you use quality fuel. Look for the Ready to Burn logo to ensure your wood logs are at or below 20% moisture content. Never used chemically treated wood or burn waste on your stove.
- Ensure your stove is serviced and your chimney swept at least once a year – the SIA recommends NVQ qualified sweeps for the ongoing maintenance and servicing of your stove and chimney. The Federation of British Chimney Sweeps has links to all the main sweep associations. Chimney sweeps are a valuable source of information for good practice and advice.

Notes:

1 Solid fuel local space heating makes up 92.8% (17.41140046 ktonnes) of all Residential Stationary PM2.5 emissions and 26.8% of the total UK PM2.5 emissions in 2022. The term "solid fuel" includes anthracite, coal, petroleum coke, SSF, dry wood, seasoned wood and wet wood. Ecodesign stoves contributed a total of 1.175 ktonnes of PM2.5 emissions in 2022, compared to 8.645 ktonnes from open fires.

2 Solid fuel local space heating using wood fuel make up 74.8% (14.02678152 ktonne) of all Residential Stationary PM2.5 emissions and 21.6% of the total UK PM2.5 emissions in 2022. Ecodesign stoves burning wood fuel contributed a total of 0.919 ktonnes of PM2.5 emissions in 2022, compared to 6.338 ktonnes from open fires.

3 Solid fuel local space heating using dry wood fuel makes up 14.1% (2.649954807 ktonne) of all Residential Stationary PM2.5 emissions and 4.1% of the total UK PM2.5 emissions in 2022. Ecodesign stoves burning dry wood fuel contributed a total of 0.173 ktonnes of PM2.5 emissions in 2022, compared to 1.197 ktonnes from open fires.

ENDS

Editor's Notes:

- The Stove Industry Association was formed in 2008 and is a trade association of stove manufacturers, distributors, retailers and installers, wood fuel suppliers, flue and component manufacturers, chimney sweeps, training providers and other interested industry bodies.
- With over 190 members, the SIA represents the stove industry in discussion with government departments such as Defra and DESNZ, Welsh Government, Scottish Government, and the Greater London Authority.
- Please contact Erica Malkin SIA Communications Manager on 07891 097842 or erica@stoveindustryassociation.org for further comment on this press release.
- Further information on the work of the SIA can be found at www.stoveindustryassociation.org