

There is low public awareness of the harms of wood burning, and this topic can provoke strong reactions as well as interest.

These Frequently Asked Questions (FAQs) are intended as a guide for organisations that want to communicate about wood burning, to help you shape your responses.

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Misconceptions

How bad can wood burning really be? Humans have been doing it for thousands of years.

- There is new and mounting evidence that shows wood burning harms your wallet, your health and the planet.
- Lighting fires in our homes (domestic burning) is the single biggest source of harmful small particle air pollution in the UK. Burning wood accounts for 75% of these emissions.ⁱ
- Over the past ten years, the amount of harmful small particle air pollution caused by domestic burning has more than doubled, while the pollution caused by industry and cars, vans and lorries is decreasing.ⁱⁱ
- Wood burning in an open fire or stove – even an “ecodesign” stove – is the most polluting way to heat your home.ⁱⁱⁱ Even homes with the newest “ecodesign” wood burners are three times more polluted than those without.ⁱⁱⁱ
- Air pollution is the biggest environmental threat to our health. The more harmful small particle air pollution you are exposed to, the more likely you are to die from heart or lung disease or lung cancer. It can also cause diabetes, damage your brain health and lead to dementia, and affect unborn children.ⁱⁱⁱ
- For the same amount of heat or energy, burning wood releases more carbon dioxide (CO₂) than oil or gas.^{iv}
- Wood burners are almost always more expensive to heat your home than gas boilers or heat pumps.^v
- We know that this information is not widely known or spoken about. The aim of Clean Air Night is to empower the public with the facts about wood burning so they can make informed choices for themselves, their health and their community.

I've owned a wood burner for years and I'm healthy, so it can't be that bad?

- Wood burning in an open fire or stove (even an “ecodesign” stove) is the most polluting way to heat your home.ⁱⁱⁱ
- Even homes with the newest “ecodesign” wood burners are three times more polluted than those without.ⁱⁱⁱ
- The more harmful small particle air pollution you are exposed to, the more likely you are to die from heart or lung disease or lung cancer. It can also cause diabetes, damage your brain health and lead to dementia, and affect unborn children.ⁱⁱⁱ
- The harmful pollution created by wood burners doesn't only affect you – it's also released into the atmosphere and can damage the health of those living around you. Most people who use wood burners in their home live in towns or cities, which creates poor air quality in these more densely populated areas.

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It's mostly people who live in rural areas who have a wood burner and they rely on it for their heating, so why is this a problem?

- Wood burning is a problem in rural areas. The harmful pollution created by wood burners affects those using them as well as those living nearby.
- Wood burning is also an issue in our towns and cities. Over twice as many people who burn indoors live in towns and cities than in rural areas.^{vi}
- Only 8% of those burning indoors have no alternative source of heating – and most of these people live in rural areas and are on lower incomes.^{vi}
- Most people who burn wood live in towns and cities and are from more affluent households^{vi} – yet everyone, including the most vulnerable, experiences the consequences in neighbouring homes and communities.
- Lighting fires in our homes (domestic burning) is the single biggest source of harmful small particle air pollution in the UK. Burning wood accounts for 75% of these emissions.ⁱ
- Air pollution is the biggest environmental threat to our health. The more harmful small particle air pollution you are exposed to, the more likely you are to die from heart or lung disease or lung cancer. It can also cause diabetes, damage your brain health and lead to dementia, and affect unborn children.ⁱⁱⁱ
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Loads of my neighbours have a wood burner, so they can't be that bad?

- There was a 40% increase in purchases of wood burners between 2021-22, and the Stove Industry Alliance expects sales to rise even further this winter.
- In January 2023 London's air was the dirtiest it has been in six years – up to 70% of the soot/black carbon in the air came from wood burning.^{vii}
- Only 8% of those burning indoors do so because they have no other choice.^{vi} Most people burn for aesthetic and lifestyle reasons, or because they believe it's cheaper than using other forms of heating.
- Wood burning in an open fire or stove (even an "ecodesign" stove) is the most polluting way to heat your home.ⁱⁱⁱ
- Wood burners are almost always more expensive to heat your home than gas boilers or heat pumps.^v

- For the same amount of heat or energy, burning wood releases more carbon dioxide (CO₂) than oil or gas.^{iv}
- We know that this information is not widely known or spoken about. The aim of Clean Air Night is to empower the public with the facts about wood burning so they can make informed choices for themselves, their health and their community.

Why is this a problem now, all of a sudden?

- There is new and mounting evidence that shows wood burning harms your wallet, your health and the planet.
- Air pollution is the biggest environmental threat to our health. Lighting fires in our homes (domestic burning) is the single biggest source of harmful small particle air pollution in the UK.ⁱ
- We want to help protect people and planet by shining a light on myths about wood burning being cheaper or more environmentally friendly.
- We know that this information is not widely known or spoken about. The aim of Clean Air Night is to empower the public with the facts about wood burning so they can make informed choices for themselves, their health and their community.

Is this still a problem if I'm not in a smoke control zone?

- Smoke control areas (SCAs) are areas in England where wood cannot be burned, except in an exempt appliance – also known as “ecodesign” stoves.
- But, wood burning in an open fire or stove – even an “ecodesign” stove – is the most polluting way to heat your home. Even homes with the newest “ecodesign” wood burners are three times more polluted than those without.ⁱⁱⁱ
- There is new and mounting evidence that shows wood burning harms your wallet, your health and the planet.
- Lighting fires in our homes (domestic burning) is the single biggest source of harmful small particle air pollution in the UK. Burning wood accounts for 75% of these emissions.ⁱ
- Over the past ten years, the amount of harmful small particle air pollution caused by domestic burning has more than doubled, while the pollution caused by industry and cars, vans and lorries is decreasing.ⁱⁱ

Surely burning wood is better than burning fossil fuels?

- For the same amount of heat or energy, burning wood releases more carbon dioxide (CO₂) than oil or gas.^{iv}
- It can take decades for trees to regrow and absorb the carbon emitted by harvesting and burning wood and in the meantime, the atmospheric carbon released contributes to climate change.

- Cutting down trees destroys forests, damages ecosystems and leads to biodiversity loss.^{viii}

Types of burning

Aren't open fires the problem, not stoves?

- While open fires are the most polluting way to heat your home, even homes with the newest "ecodesign" wood burners are three times more polluted than those without.ⁱⁱⁱ
- Almost twice as many people who burn indoors use a stove rather than an open fire.^{vi}

Surely eco-stoves are fine? Why do they sell eco-stoves then?

- Even homes with the newest "ecodesign" wood burners are three times more polluted than those without.ⁱⁱⁱ
- For the same amount of heat or energy, burning wood releases more carbon dioxide (CO₂) than oil or gas.^{iv}
- It can take decades for trees to regrow and absorb the carbon emitted by harvesting and burning wood and in the meantime, the atmospheric carbon released contributes to climate change.^{ix}
- Cutting down trees destroys forests, damages ecosystems and leads to biodiversity loss.^{viii}
- The "ecodesign" label on stoves is unfortunately misleading consumers to believe that burning wood in these stoves doesn't produce pollution or harm the environment – whereas the truth is that wood burning harms your health and the planet.
- We know that this information is not widely known or spoken about. The aim of Clean Air Night is to empower the public with the facts about wood burning so they can make informed choices for themselves, their health and their community.

Does it matter what sort of wood you burn?

- Wood burning in an open fire or stove is the most polluting way to heat your home.ⁱⁱⁱ
- Burning well-dried wood will reduce the amount of pollutants produced to a quarter of the pollution of wet wood, but it is still highly polluting compared to other heat sources.ⁱⁱⁱ
- Burning wet or contaminated wood is even worse for your health. If you burn wet wood, the fuel will burn at a lower temperature and result in a higher level of air pollution. Burning contaminated wood, such as painted or treated/preserved wood, will also create more air pollution.

What about bonfires and/or wood burning in restaurants? Why should I change?

- There is new and mounting evidence that shows wood burning harms your wallet, your health and the planet.

- We know that this information is not widely known or spoken about. The aim of Clean Air Night is to empower the public with the facts about wood burning so they can make informed choices for themselves, their health and their community.
- Bonfires contribute to outdoor air pollution, so they are an issue, but not what we are focusing on in this campaign. Indoor wood burning stoves also contribute to outdoor air pollution for all of the neighbourhood around each burner.
- Wood burning in restaurants contributes to outdoor and indoor air pollution, so it is an issue, but not what we are focusing on in this campaign.

Cost

Surely it's cheaper to burn wood than use a gas boiler, given the rise in energy prices?

- Wood burners are almost always more expensive to heat your home than gas boilers or heat pumps.^v
- Research shows that in a typical urban household, the annual cost of using an existing wood burner is 15% higher than a gas boiler.^v
- When a household uses a newly installed wood burner for 20% of its heat, its yearly cost is 24% more than a gas boiler.^v
- That cost rises to almost 50% more expensive where a household uses a newly installed wood burner for 80% of its heat.^v
- The only scenario in which burners are cheaper is when lots of the wood is free – for example, if you have access to private woodland and can forage your own wood (which must then be dried properly, for at least two years). Free wood such as scrap wood that hasn't been properly dried or seasoned and has coatings such as varnish or paint can be extremely toxic when burned.

Isn't it better for people to burn wood so they're not at the mercy of energy companies and their price rises?

- Wood burning in an open fire or stove (even an "ecodesign" stove) is the most polluting way to heat your home.ⁱⁱⁱ
- Even homes with the newest "ecodesign" wood burners are three times more polluted than those without.ⁱⁱⁱ
- Most people who burn wood live in towns and cities and are from more affluent households – yet everyone, including the most vulnerable, experiences the consequences in neighbouring homes and communities.
- We now know that wood burners are almost always more expensive to heat your home than gas boilers or heat pumps.

I've seen claims that wood burning is cheaper than using other forms of heating – is this correct?

- Claims that wood burners are cheaper than other forms of heating are based on unrealistically low assumptions about the cost of wood.
- Research recently published by Global Action Plan and Impact on Urban Health included a “mystery shopper” exercise to verify claims about the cost of wood. The only way to match previously-quoted costs was to bulk buy large amounts of wood online (which requires space to be stored properly). Most online bulk and single bag purchases were more expensive. Single bag in-person purchases from garages, DIY stores and garden centres were even more expensive, with one garage over four times previously quoted costs.^v
- This research also looked at the costs of owning a wood burner compared to other sources of heating in real-world scenarios, based on two typical urban households. This took into account installation and maintenance costs, and current and future energy prices over a 15-year period.^v

Why doesn't the latest economic research compare the cost of a new wood burner with that of a new gas boiler?

- Only 8% of those burning indoors have no alternative source of heating.^{vi} 85% of UK households have a gas boiler,^x so the most realistic scenario is to assume that a household would already have a gas boiler installed.
- The economic research results are the average of a 15-year projection which takes into account the cost of replacing a gas boiler about halfway through its lifespan.
- The research shows that even using an existing wood burner is still 15% more expensive than a gas boiler.^v

Doesn't the latest economic research underestimate the running costs of a heat pump, as these are unsuitable for older properties?

- Every heating source works more efficiently and economically in better insulated houses. It is a common misconception that heat pumps don't work in older properties such as the one included in the research. As long as the system is installed correctly, it will provide more than enough heating even in a poorly insulated house.^{xi}
- The research is based on a late Victorian terraced house with loft insulation and double glazing, and the modelled installation costs of a heat pump include budget to install larger radiators and underfloor heating. This is still at least 6% cheaper than using a wood burner and gas central heating.^v

How did the latest economic research account for variations in gas and electric prices?

- The research was based on 2023 data from Ofgem and Cornwall Insight (a trusted industry source). This was plugged into our dynamic simulation model to produce 15-year price projections, which were then used to model heating costs in real-world scenarios.

Environmental Impact

Isn't wood carbon neutral?

- Wood is not a carbon neutral fuel.
- For the same amount of heat or energy, burning wood releases more carbon dioxide (CO₂) than oil or gas.^{iv}
- It can take decades for trees to regrow and absorb the carbon emitted by harvesting and burning wood and in the meantime, the atmospheric carbon released contributes to climate change.^{ix}
- Cutting down trees destroys forests, damages ecosystems and leads to biodiversity loss.^{viii}

Surely burning wood is better than burning fossil fuels?

- For the same amount of heat or energy, burning wood releases more carbon dioxide (CO₂) than oil or gas.^{iv}
- It can take decades for trees to regrow and absorb the carbon emitted by harvesting and burning wood and in the meantime, the atmospheric carbon released contributes to climate change.^{ix}
- Timber plantations are usually dominated by a single species of tree, so they cannot support the diversity of animal and plant life found in natural forests.^{xii}
- Cutting down trees destroys forests, damages ecosystems and leads to biodiversity loss.^{viii}
- Over time, logging erodes soil and reduces its fertility.^{xiii}
- While good forest management involves thinning trees to promote biodiversity, the large demand for wood as a fuel we see in England poses a risk to biodiversity, either through single-species timber plantations or logging in natural forests.^{xiv}

Campaign

Who is behind Clean Air Night

- Clean Air Night is brought to you by [Global Action Plan](#) with funder [Hertfordshire County Council](#) and founder supporters [Lancaster City Council](#) and [Surrey Air Alliance](#).

Wood burning FAQs



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- ⁱ Emissions of air pollutants in the UK – Particulate matter (PM10 and PM2.5)
 - ⁱⁱ Tables for emissions stats publication 2021
 - ⁱⁱⁱ Chief Medical Officer’s annual report 2022: air pollution
 - ^{iv} Range and uncertainties in estimating delays in greenhouse gas mitigation potential of forest bioenergy sourced from Canadian forests
 - ^v Wood burning is more expensive than central heating
 - ^{vi} Burning in UK Homes and Gardens, Research Report
 - ^{vii} Worst London air pollution in six years as home fires burn
 - ^{viii} A stand of trees does not a forest make: Tree plantations and forest transitions
 - ^{ix} Does replacing coal with wood lower CO2 emissions? Dynamic lifecycle analysis of wood bioenergy
 - ^x Offshore Energies UK Economic Report 2023
 - ^{xi} From flats to terraced houses: heat pumps are suitable for all property types
 - ^{xii} Are wood pellets a green fuel?
 - ^{xiii} Is wood a green source of energy?
 - ^{xiv} Seeing the wood for the trees: the contribution of the forestry and timber sectors to biodiversity and net zero goals