



Information

Many people do not know that they create health damaging problems by residential burning – even if they have an eco-labelled stove operating under optimal conditions. Information about pollution from residential burning is the way to cleaner air since most people do not want to pollute and will stop burning when informed about their pollution.

Links

Further information on the *Clean Heat* project page: www.clean-heat.eu

Project partners:
Deutsche Umwelthilfe: www.duh.de
Ecological Council: www.ecocouncil.dk

European umbrella organization:
European Environmental Bureau: www.eeb.org

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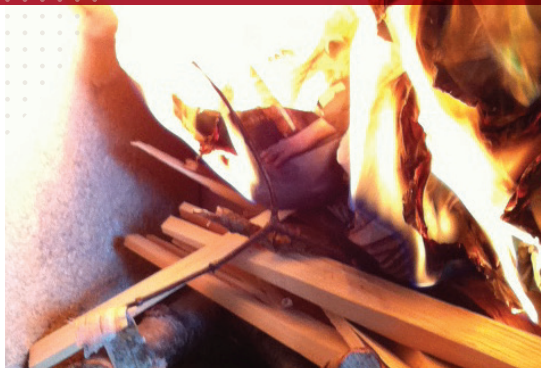
Koch & Falk



Pollution from residential burning

Residential burning of wood, coal, lignite, coke and waste is one of the most health damaging pollution sources in the EU

Danish Ecological Council and Deutsche Umwelthilfe work to reduce health and climate damaging air pollution from residential burning in EU. Our project *Clean Heat* is funded by the LIFE program of the EU and by the American climate foundation CWF (Climate Works Foundation).



Pollution from residential burning in the EU:

- Causes 60,000 premature deaths and 60 million sick days every year
- Emits 150 times more soot particles than all power plants
- Can pollute your indoor air to health damaging levels



Toxic pollutants

Residential burning in small stoves and boilers is a dominating source of many toxic air pollutants: Fine particles, soot particles, dioxins, tar compounds and volatile organic compounds. Particles are the main cause of morbidity and premature mortality related to air pollution. Residential burning (mainly wood) causes more than half of the total soot particle emission in the EU.

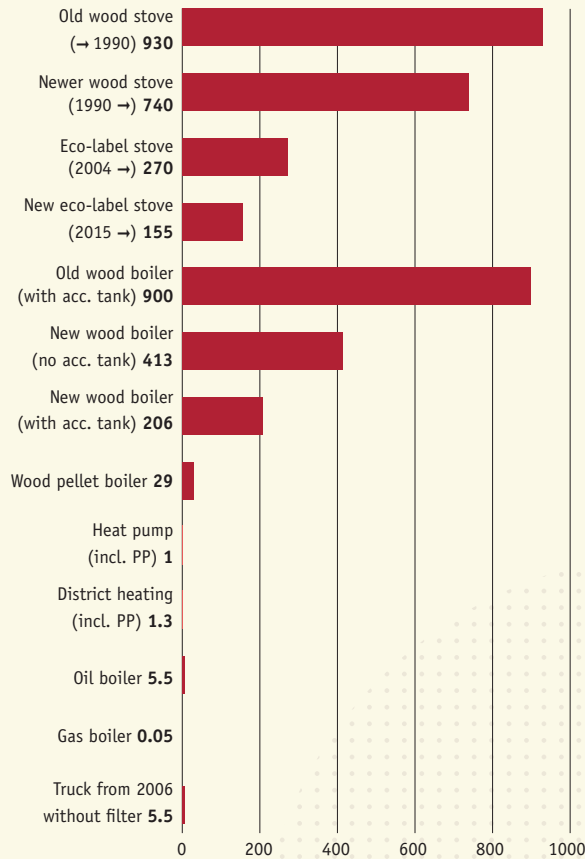
Particle pollution

Residential burning pollutes much more than other heat sources. Even a brand new eco-label stove under optimal operation emits more than 25 times as many particles as a 10 year old truck without particulate filter (per energy unit). Hence, new eco-label stoves pollute less than old stoves but still cause significant air pollution. Residential burning often pollutes ambient air in residential areas to health damaging levels and stoves can directly leak damaging air pollution into your living room.

Use your nose

Detailed measurements of ultrafine particles in 15 residential areas document that there is a clear connection between the smell of smoke and air pollution from wood burning. Even a weak smell typically indicates 5-10 times more air pollution than places without smell in the area. Whereas a heavy smell can indicate more than 50 times increased pollution levels. Air pollution in residential areas can thereby reach same pollution levels as the most polluted streets during rush hour. Use your nose and report to the environmental authorities if you smell smoke in your neighborhood.

Particle emissions (PM_{2.5}) from heat sources
(Danish emission factors; g particles pr. GJ energy)



Particle emission from different heat sources. For comparison is shown the emission from an older truck. For boilers are shown emissions with and without accumulation tank (acc. tank). The emission from district heating and heat pumps includes the emission from power plants (PP).

The cosy atmosphere created by the flames is pleasant but the related health effects are very unpleasant

It does not seem logical that an eco-labelled stove is allowed to pollute 25 times more than a 10 year old truck

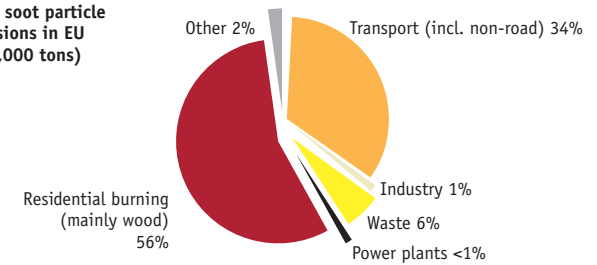
Health damage

It is well known that particle pollution increases the risk of heart diseases, thrombus, serious airway diseases, cancer and thereby premature death. Residential burning causes 60,000 premature deaths every year in the EU. In many residential areas pollution from local burning is the main cause of morbidity and premature mortality related to air pollution. Residential burning poses huge costs on society. Costs we all pay through taxes and increased morbidity.

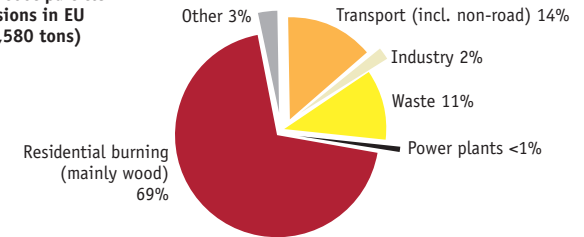
Climate damage

Some people believe that residential wood burning is "good" for the climate. That is wrong. Wood burned as logs in small stoves and boilers emits large quantities of soot particles, which are one of the most important factors that cause global warming after CO₂. It is better to replace traditional residential burning by healthier alternatives.

2015 soot particle emissions in EU (273,000 tons)



2030 soot particle emissions in EU (161,580 tons)



Reference: GAINS model, IIASA

An electrical fireplace provides the same cosy atmosphere without any local pollution



Action needed

If nothing is done the emission of toxic soot particles from residential burning will increase to almost 70% of the total emission in the EU in 2030.

Healthier alternatives

There are plenty of eco-friendly alternatives to traditional residential burning: Better insulation, new windows, district heating and gas in cities, heat pumps or wood pellet boilers in the country side. Thereby particle emission can be reduced by more than 90%. Artificial "wood" stoves with gas or electricity as fuel emit almost no particles and allow people to enjoy the cosy atmosphere connected to the flames. However, conventional gas still contributes to global warming.