

Burning wood for residential heating must not hinder fight against air pollution

Written by Silvia Anna Bellinzona & Guido Lanzani on 6 April 2016 in Opinion Plus
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Policymakers must focus their attention on developing advanced technologies in the battle against air pollution, argue the Lombardy Regional Environmental Protection Agency's Silvia Anna Bellinzona and Guido Lanzani.



The Po valley in Lombardy, surrounded by mountains up to 4000 metres high has historically suffered high levels of air pollution. Despite improvements over the years, air quality today still does not comply with regulatory standards.

More specifically in Milan, particulate matter levels are above the legal limits for around 100 days per year, in particular during the winter season.

The causes of air pollution are much debated. According to our data, road traffic is one of the main sources of nitrogen oxide (NO_x). It is this road traffic derived NO_x that when mixed with ammonia molecules - which, in the Po valley, originate from the agricultural sector - that contributes to the

formation of particulate matter (PM) in atmosphere.

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Regarding primary PM10 directly emitted as particles, already in solid form, besides traffic, the largest contributor in our territories comes from domestic heating, which is responsible for 45 per cent of the total amount of PM10 emissions in Lombardy (10 million inhabitants, in the middle of the Po Valley). Contrary to what most people believe, the fuel mainly responsible for these emissions is not natural gas, despite the fact that it accounts for the largest part of the residential energy mix and does contribute to NOx emissions.

The vast majority of emissions from the residential heating sector can be attributed to burning wood. In Lombardy, even though wood accounts for just seven percent of the residential energy mix fireplaces and appliances running on wood and wood pellets are responsible for 97 percent of PM10 emissions from this sector.

This is not surprising. It is true that wood has been used for heating since ancient times. However, in order to achieve the same energy output, heating systems relying on wood emit much higher levels of particulate matter than those running on gas fuels such as methane or LPG.

To achieve the same energy output, an old fireplace is 4,000 times more polluting than a methane or LPG appliance.

Modern wood and wood pellet heating appliances certainly are less pollutant than traditional ones, but they still have higher PM10 and harmful benzo(a)pyrene emissions than their gas counterparts.

But would banning wood heating systems help remedy the situation? Wood is an important tool in the fight against climate change. Hence, environmental and climate policies cannot ignore the benefits in terms of climate resilience that this fuel can provide.

However, it is crucial that we ensure that environmental policies only support the most advanced wood appliances on the market. Additionally, introducing less and less polluting wood and wood pellet appliances into the market is also fundamental.

Regulations and subsidies should only be aimed at the development and deployment of increasingly advanced technologies. It is only in this way that wood burning, which can help tackle climate change, will not hinder us in our fight against urban air pollution.

About the author

Dr Silvia Anna Bellinzona is Director of Environmental Monitoring Sector at the Lombardy Regional Environmental Protection Agency.

Dr Guido Lanzani is Head of the Air Quality Office – Environmental Monitoring Sector at the Lombardy Regional Environmental Protection Agency

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