

HOW DO WE GET AIR THAT'S
FIT FOR BREATHING? I

THE EQUILIBRIUM
INSTITUTE'S PROPOSALS FOR
IMPROVING AIR QUALITY –
HEATING AND BUILDING
SECTOR



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Executive summary

- An estimated 12,000-13,000 people die each year as a result of air pollution. Our goal is to save these lives and to improve the quality of life for Hungarians, to increase the number of years they get to enjoy in good health. It is also important to point out that air pollution is to a large extent an issue of poverty: We need to ensure that the poor do not become the victims in the struggle for clean air.
- The most important air pollutants are particulate matters and nitrogen-oxides. Since a large portion of these are generated by residential heating, this should also be one of our main areas of focus in the effort to combat air pollution.
- The production and use in heating of lignite needs to be banned. To support the poor who use solid fuels for heating, we need to provide wood that is produced in sustainable forestry. The funding provided for socially-assisted firewood should not be conditional on the number of residents who live in the given municipality.
- In the case of households that have access to gas heating but opt instead for heating with solid fuels for financial reasons, the state should temporarily offer some form of support to help them return to gas heating.
- By itself, banning polluting fuels is not enough. The poorest in society need assistance in accessing the right fuels and in funding energy efficient investments, for instance in the form of grants to support the purchase of new boilers.

- Each year, 3% of the buildings need to undergo deep renovation, which means that the modernisation of the given building needs to result in energy savings of at least 60%.
- Every instrument available should be used to support energy efficiency upgrades, but only if they result in the appropriate levels of energy savings. In addition to increasing the funding for these purposes, we also need innovative forms of funding, above all invoice-based funding and pre-financing for energy-saving investments.

I. What is the problem?

- **Hungary has the fifth-lowest life expectancy at birth in the European Union. The average lifespan of a Hungarian citizen is almost five years shorter than that of the average European citizen. We are also nearly three years behind the average in terms of the expected health years that Hungarians get to enjoy after the age of 65.**
- **Our bad health indicators** are not the result of some unchangeable Hungarian quality. **The reasons are readily apparent** – they stem from our lifestyle, living patterns, the way our communities are organised and the health hazards in our lives.
- **Air pollution** is one of the main causes of public health harms in Hungary. **Hungarians lose roughly two health years** because of air pollution – this is the third worst statistic in the European Union. **At least 12,000-13,000 people die in Hungary every year because of air pollution, while further tens of thousands of people suffer serious health damage.**
- **We could save these people by reducing air pollution**, and as a result citizens' average quality of life, their health condition and life satisfaction would increase massively, not to mention the significant improvements we can expect from the reduced pressure on the healthcare system.

In the following, we will start by identifying the primary sources of air pollution in Hungary, and then we will put forward recommendations on **how we could save over 10,000 Hungarians each year.**

II. The main sources and causes of air pollution

- In addition to nitrogen oxides, which mainly stem from transportation, the **main sources of air pollution in Hungary are particulate matters**, the totality of various solid matters, which are generally categorised as such based on the size of the particles (**PM_{2,5}, PM₁₀**).
- The finer the particles, the deeper they make it into the human body and the greater the **health damage** they cause (pulmonary, cardiovascular disease, allergy, asthma, lung cancer and developmental disorders). There has been a significant decline in the quantity of PM_{2,5} and PM₁₀ in Hungary in recent years. Still, both values continue to be far above the relevant limit values for health. **In Hungary, the proportion of particulate matter above the limit values for health is among the highest among the EU member states – the situation is worse only in Poland and Bulgaria.**
- An overwhelming proportion of particulate matter emissions stem from **residential heating: they are generated by the use of wood and coal for heating**. Industrial emissions, by contrast, play a less prominent role in air pollution than is widely believed. This owes to the air quality management measures taken in the past decade. Agriculture continues to be a major source of emissions. However, **when it comes to limiting emissions from agriculture, it would be sufficient to consistently implement the Action Plan outlined in the National Air Pollution Reduction Program.**
- That is exactly why aside from transportation (which we address in a separate policy brief), the regulation of **heating and the modernisation of our buildings** jointly make up the most important area in the struggle against

air pollution. Correspondingly, our recommendations focus on these two areas.

1. What is the problem with the heating sector?

- **Close to 40% of homes in Hungary use only firewood or mostly firewood for their heating.** The fuels these households use are often not properly dried and not obtained from legal sources. The problem is further exacerbated by the extremely **harmful practices of waste-burning** and garden bonfires (based on a statute adopted in the summer of 2020, the latter has been banned since January 2021; but a decree dated December 2020 has delayed the entry into effect of the national ban until the pandemic-related state of emergency remains effective).
- **In 3% of households, the residents use coal for heating,** predominantly the **extraordinarily polluting lignite, which is also very ineffective as a heating fuel.** Due to the surge in the price of firewood, **lignite use has quadrupled in the past decade.** Moreover, users often tend to opt for lignite even in situations when the less polluting but more expensive gas has been introduced into their homes as an alternative heating source.
- **As part of the social policy-based heating fuel subsidy, municipalities with fewer than 5,000 residents can apply for funding from the central budget to assist those residents who heat their homes with solid fuels.** As part of this policy, subsidies are also extended for the purchase of the extremely pollutive lignite. Moreover, **solid fuels are used for heating not only in smaller municipalities but also by households in larger rural towns as well as in the capital** – these households, too, need assistance.
- The two main reasons behind the low quality of fuels are **energy poverty** and **lack of information** about proper heating fuel usage and the harmful health

impact of inadequate heating fuels. At the same time, however, the impact of the use of such fuels affects everyone.

2. What is the problem with the building sector?

- From the perspective of energy efficiency, a significant portion of the Hungarian building stock is outdated (e.g., it is not properly insulated, the heating used is not modern, etc.). In 2018, 12% of nitrogen-oxide emissions, 85% of PM_{2,5} emissions and 67% of PM₁₀ emissions came from this sector. That is why this area offers **the best opportunities for reducing the emission of pollutants**. The reduction of heating-related emissions can be best attained by increasing the energy efficiency of buildings.
- **Replacing boilers, heat insulations, doors and windows, as well as installing solar panels** could substantially improve air quality in Hungary. **This is an expensive process, however, and the costs scare many people away from implementing such upgrades**. Moreover, the subsidy system for the modernisation of buildings is too fragmented and inefficient.
- **The governmental policy of cutting utility costs** has helped many families avoid energy poverty, **which is a positive achievement worth preserving**. **In its current, indiscriminate form, however** (it applies to both poor and rich), **it is wasteful and harmful**. It is also unfair and ties up too many financial resources that could be put to better use elsewhere. Ultimately, therefore, it jeopardises the safety of the energy supply and stands in the way of modernisation investments that save energy; in fact, it incentivises higher energy consumption.
- New buildings already need to comply with the strictest energy efficiency standards (they need to be so-called nearly zero-energy buildings), but the

renovations and expansions of existing buildings are not subject to such rigorous regulations.

III. The recommendations of the Equilibrium Institute

1. Heating sector

- **Lignite**, which is both highly pollutive and offers low heating values, **must be banned immediately**. Its extraction must be stopped and any targeted welfare subsidies aimed at supporting the purchase of lignite must be ended – the poorest need to be assisted in other ways instead.
- The **social assistance for firewood purchases** is a good instrument for reducing heating poverty, but **its limitation to municipalities with 5,000 residents or less must end** – in other words the assistance should not be conditional on the size of the municipality. As a result of the proposed policy change, persons in need who reside in larger municipalities would also have access to this particular form of assistance. Those who use solid fuels should be given access to **properly dried wood from sustainable forestry**.
- Simply barring the poor from using fuels that are the worst pollutants is not the right solution – **more resources should be made available for funding energy efficient investments that do not require the beneficiaries to come up with a co-payment**, such as for example non-refundable grants to support replacing old doors and windows or outdated boilers.

- In places where heating gas is available **but users nevertheless opt for solid fuels to save money, the return to gas heating should be supported – strictly with temporary measures only, however.** Gas, too, is a heating method that contributes strongly to pollution, so in the long run it must also be phased out. But it still less polluting than lignite, for example, so it is a lesser evil by some measure.
- State institutions must act **systematically (though stricter sanctions and inspections regimes) against the generation of heating energy through burning waste as well as the use of lignite for heating (once the latter has been banned).**
- From a social policy perspective, the **utility price cut policy was justified** in that it provides an effective tool against energy poverty – **but only if it is used in a targeted manner, with a consistent application of the principle of need-based assistance.**
- The **ban on the extremely pollutive garden bonfires** must be upheld and needs to be put into effect immediately; any violations must be harshly sanctioned. Citizens need to be informed of alternative and less harmful ways to dispose of green waste. A part of the associated awareness-raising could be the introduction of small incentives, such as **providing residents with free bags for collecting green waste as well as composting bins.**

2. Building sector

- Air pollution concerns us all, which is why supporting energy modernisation investments is an issue of public interest. We need to **reduce co-payments** when it comes to energy-saving investments to make their financing easier.

- In order to ensure that the entire Hungarian building stock becomes carbon neutral by 2050, **3%** (as opposed to the current 0.1%) **of the buildings require deep renovations each year. Deep renovation means that the energy need of the buildings in question is reduced by at least 60%.** To achieve this, sufficient funds must be channelled into the building sector to ensure that there is enough money available for the deep renovation of some 100,000-120,000 buildings each year (depending on the future changes in the building stock).
- Whoever is willing to perform such renovations **should be supported in that endeavour – but only if the investment yields a sufficiently high level of efficiency improvements.** In addition to provision of subsidies, **the energy efficiency requirements that apply to the renovation and expansion of existing buildings must become stricter.** Situations in which modernisations are performed either in the wrong order or abandoned midway must be prevented (the so-called “lock-in effect”): To this end, **any subsidies for building upgrades must be conditional on an expert opinion by an engineer** which verifies that the given intervention is sufficiently effective and will be performed in a manner that provides for proper energy efficiency and the right chronological order to realise the energy efficiency targets.
- To increase energy efficiency, the **extent of the modernisation subsidies must be adjusted to reflect the attainable energy savings level.** All this **must be funded through the EU’s Emissions Trading System and future operative programs.**
- In addition to increasing the funds available, **there is also a need for innovative forms of financing:**
 - **Invoice-based funding:** The public service provider offers to pay upfront either the whole or part of the cost of the residential

modernisation, which the beneficiary repays in instalments that are invoiced as part of their monthly utility bill.

- **Third-party financing** for the energy efficient modernisation of commercial and public buildings; an energy service company (ESCO) provides pre-financing for the modernisation of commercial and public buildings, and then the consumer repays the price during later years as a fixed proportion of the savings realised thanks to the investment.

- **Preferential loans and non-refundable grants must be connected.** A so-called one-stop-shop system must be introduced, the essence of which is that subsidies and credits are administered in one place, which simultaneously reduces administrative overheads and improves efficiency.

Since the problems discussed above are all linked to energy poverty, on the whole it is vital to ensure that the **poor do not become the losers of the efforts to combat air pollution.**

The Equilibrium Institute's air quality recommendations concerning the heating and building sector

Area	Recommendation
Heating sector	Lignite must be banned!
Heating sector	Public subsidies for the purchase of firewood should be available in municipalities with over 5,000 residents as well!
Heating sector	When it comes to public subsidies for the purchase of firewood, such assistance should be limited to the purchase of properly dried wood from sustainable forestry!
Heating sector	Solid fuels should not be used for heating in homes in which gas has been introduced!
Heating sector	More funding needs to be made available to subsidise non-refundable grants to replace doors, windows and boilers!
Heating sector	Stricter sanctions and inspections need to be introduced to combat the use of waste burning for heating purposes and the use of lignite for heating – following the ban of the latter!
Heating sector	Socially sensitive and targeted utility cost reduction!
Heating sector	The ban on garden bonfires must be implemented and applied immediately!
Building sector	Three percent of the Hungarian building stock must undergo deep renovation each year!
Building sector	Innovative pre-financing needs to be used to assist and stimulate the renovation of residential, commercial and public buildings!
Building sector	The amounts of the subsidies offered by the state for energy-saving investments need to be adjusted to reflect the level of energy savings that can be realised with the given investment!

Building sector	In addition to the provision of subsidies, the energy requirements that apply to building renovations and expansions must become stricter, too!
Building sector	The systems for awarding and administering preferential loans and non-refundable grants must be connected with one another!
Heating sector and building sector	On the whole, it is important to ensure that the poor do not become the losers of the efforts to combat air pollution!