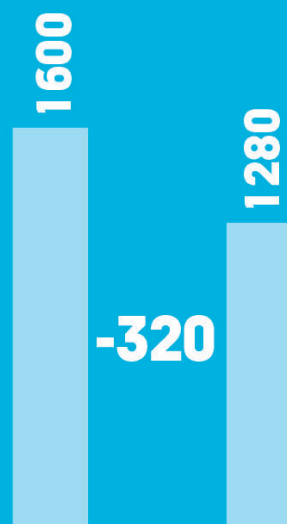


CASE REDUCING RESIDENTIAL WOOD COMBUSTION

Health benefits through harm reduction



If all measures to reduce the harmful effects of residential wood combustion would be implemented by 2030, the number of premature deaths would be reduced by 320 per year.



CASE: REDUCING RESIDENTIAL WOOD COMBUSTION

Fine particles have harmful effects on health. They especially increase the risk of developing pulmonary and cardiovascular diseases and contribute to the worsening of these conditions. They account for 1,600 premature deaths per year. The costs of the negative health effects amount to 1.6 billion euros. Residential wood combustion is a major domestic source of fine particle emissions. If the fine particle emissions caused by residential wood combustion could be reduced by 20% through legislation and information steering, the number of premature deaths would be reduced by 320, saving 320 million euros. The legislative measures and information steering are estimated to cost 80.3 million euros per year. The measures would save money, improve health and enable longer lives.

Improving health by reducing residential wood combustion

The damage costs of air pollutants amount to 2 billion euros per year in Finland. They reduce the number of working days by 500,000 and cause premature deaths.

In Finland, fine particles are the most important environmental factors that affect health. Fine particles have direct allergic, immunological and toxic effects to lungs. In the cardiovascular system and other parts of the body, they also contribute to the onset of cardiovascular diseases. Fine particles cause 1,600 premature deaths per year.

Fine particles are particles with a diameter of 2.5 µm or less. Some of them result from long-range transport of air pollutants. Residential wood combustion is the most significant source of domestic fine particle emissions, especially in detached house areas in cities and urban areas. Seasonal street dust and exhaust fumes also contain fine particles.



One life
Enjoy every day.



The One Life health project strives towards a healthier Finland. The Finnish Brain Association, the Finnish Diabetes Association, the Filha Finnish Lung Health Association, the Organisation for Respiratory Health, the Finnish Association for Mental Health, the Finnish Heart Association, and the Cancer Society of Finland have teamed up to promote people's health and welfare throughout their lives. Duodecim participates in the project as an expert organisation.

It has been estimated that residential wood combustion accounts for 46% of domestic fine particle emissions. The percentage might be even higher in areas with a large number of detached houses, and it is expected to increase by 2030. Fine particle emissions from residential wood combustion should be reduced to lessen their negative health effects.

The measures of the Ecodesign Directive will take effect by 2022, but they should be accompanied by the following measures:

National legislation on sauna stoves from 2022: only modern appliances allowed on the market
Information steering (e.g. cleaner wood burning)
Additional measures for boilers, such as installation of electrostatic precipitators (ESP) and prohibition of manually operated heating systems which do not accumulate heat
(in cities/urban areas)

If all of these measures to reduce the negative effects of residential wood combustion would be implemented by 2030, the fine particle emissions would be reduced by around 20%. The number of premature deaths would go down by 320, meaning 1,280 premature deaths instead of 1,600.

The costs of negative health effects caused by fine particle emissions amount to 1.6 billion euros per year. The above-mentioned measures would save 320 million euros. The measures to reduce the negative health effects would cost 80.3 million euros per year.

Sources:

- http://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/74861/YMra_16_2016.pdf?sequence=1&isAllowed=y
- Savolahti, Kangas, Karppinen, Karvosenoja, Kukkonen, Lanki, Nurmi, Palamarchuk, Paunu, Sofiev, Tiittanen: Ilmansaasteiden haittakustannusmalli Suomelle. Government's analysis, assessment and research activities' publication series 26/2018.
- Savolahti, Karvosenoja, Tissari, Kupiainen, Sippula, Jokiniemi: Black Carbon and fine particle emissions in Finnish residential wood combustion: Emission projections, reduction measures and the impact of combustion practices. Atmospheric Environment 140 (2016) 495-505.
- https://www.hsy.fi/asiantuntijalle/tapahtumat/seminaarit/tutkimusseminaari/Documents/Ilmanlaadun%20tutkimusseminaari%202018/ilmanlaadun_tutkimusseminaari_08112018_sirpa_salo_asikainen_ym.pdf



One life
Enjoy every day.



The One Life health project strives towards a healthier Finland. The Finnish Brain Association, the Finnish Diabetes Association, the Finnish Lung Health Association, the Organisation for Respiratory Health, the Finnish Association for Mental Health, the Finnish Heart Association, and the Cancer Society of Finland have teamed up to promote people's health and welfare throughout their lives. Duodecim participates in the project as an expert organisation.