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10.2.2021

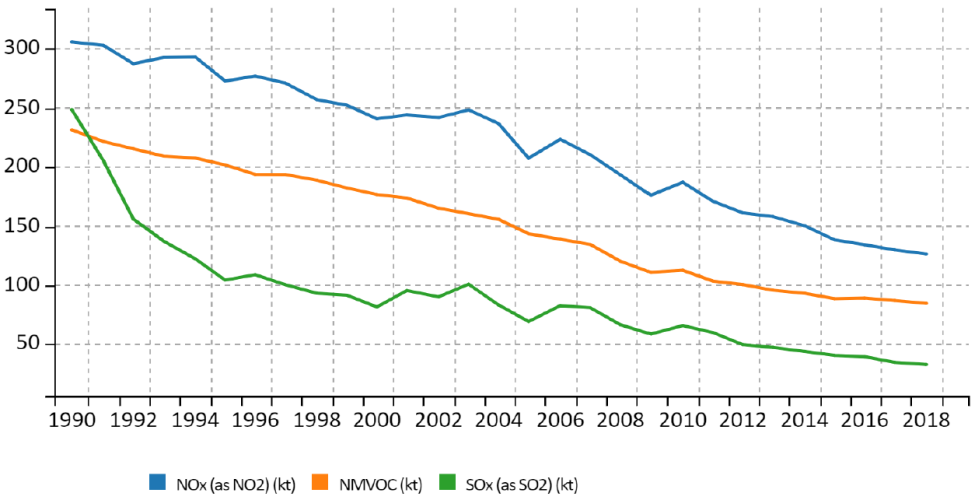
The respond of the Finnish Energy to the EU Action Plan "Towards a Zero Pollution Ambition for air, water and soil"

Finnish Energy is a branch organisation for the industrial and labour market policy of the energy sector. It represents companies that produce, procure, distribute and sell electricity, gas, district heat and district cooling and related services.

The energy sector has significantly contributed to the positive emissions trends

The polluting emissions have reduced remarkable over the last decades in Finland. The pictures 1-4 show the trends of the main emissions since 1990.

The public and industrial energy production has contributed to the decline of emissions by many technological advancements. The investments to the environmental technology have been forced by the combustion plant specific directives already decades before IED. The major share of the decline in the total SOx emissions has been done by installation of desulphurisation plants and changes in fuels types and qualities. The DeNOx and DeDust technologies in the combustion plants have declined nitrogen oxide and particle emissions and simultaneously heavy metal emissions.



Picture 1. Total emissions of NOx, NMVOC and SOx in Finland in 1990-2018

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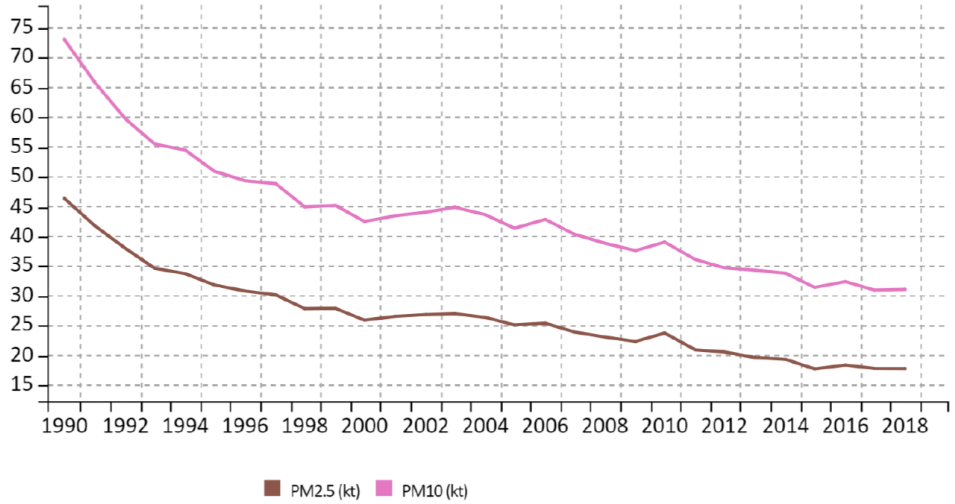
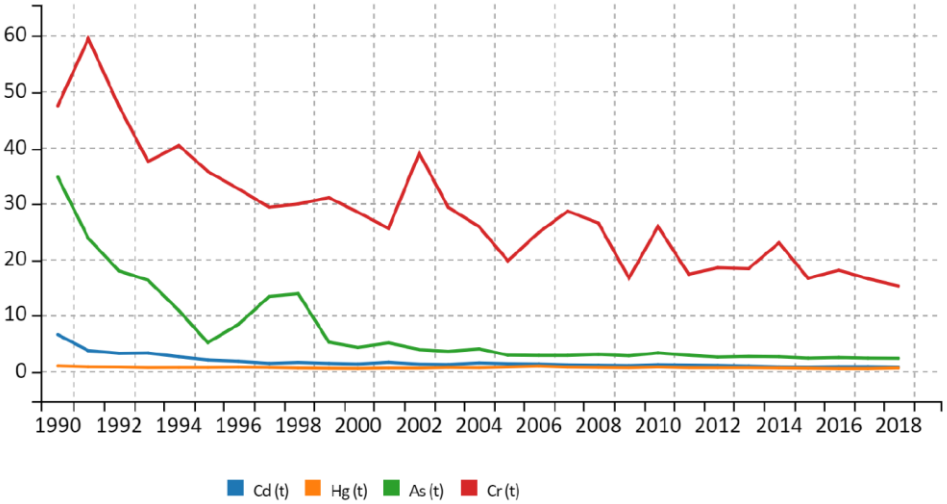
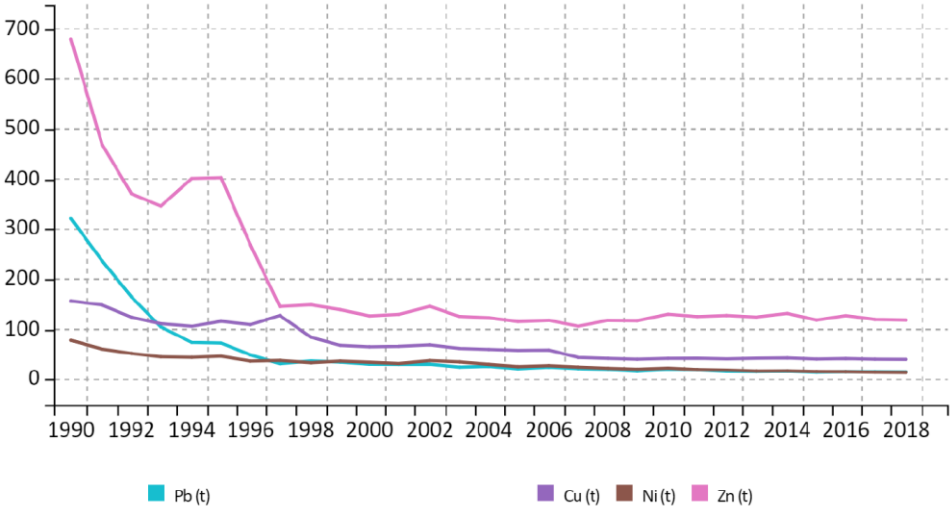


Picture 2. Total emissions of particles in Finland in 1990-2018



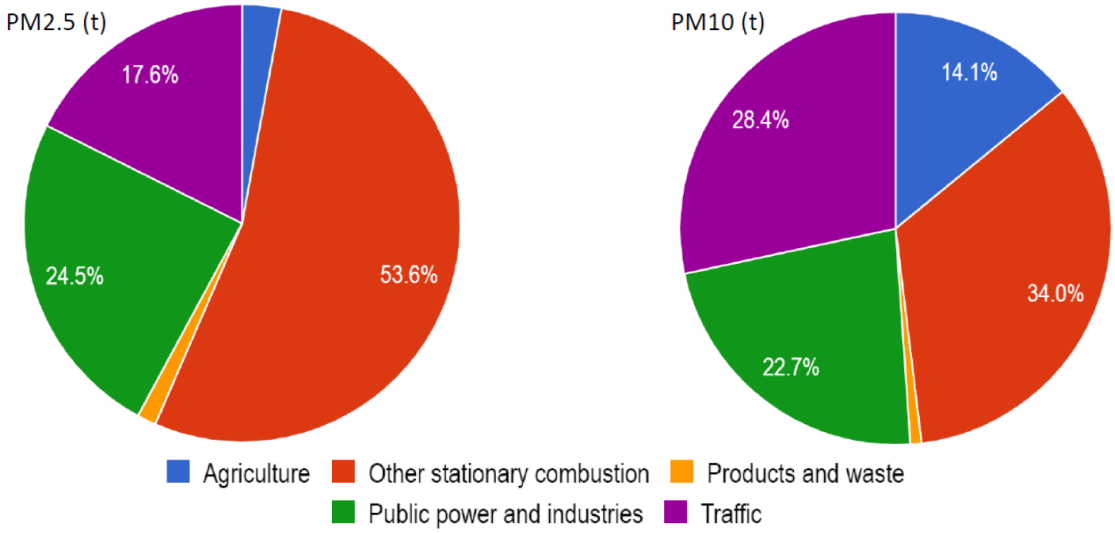
Picture 3. Total emissions of some heavy metals in Finland in 1990-2018



Picture 4. Total emissions of some heavy metals in Finland in 1990-2018

In Finland the air quality is generally good and the air quality standards are practically met year round all over the country. The main factors still affecting air quality and causing occasional exceedings of some limit values are road traffic in the congested urban traffic environments, street dust and small-scale domestic burning of wood.

Today the majority of the adverse health effects of air pollutants are caused by fine particulate matter PM2.5 (National Air Pollution Control Programme 2030, Ministry of the Environmental, 2019). In 2018 only the minor share of the particle emissions originated from the energy and industry sector as shown in picture 5. In addition the fine particulate matter emissions emerging close to breathing height are the air pollutant emissions most harmful to human health. In 2019 the remarkable share (42 %) of the NOx emissions were caused by the traffic.



Picture 5. The particulate matter emission sources in 2018 in Finland.

In Finnish context the way to effectively still improve the air quality and avoid adverse effects is to focus on the domestic small-scale wood burning and traffic.

The energy sector is still reducing the emission levels - the further emission reduction requirements are not justified

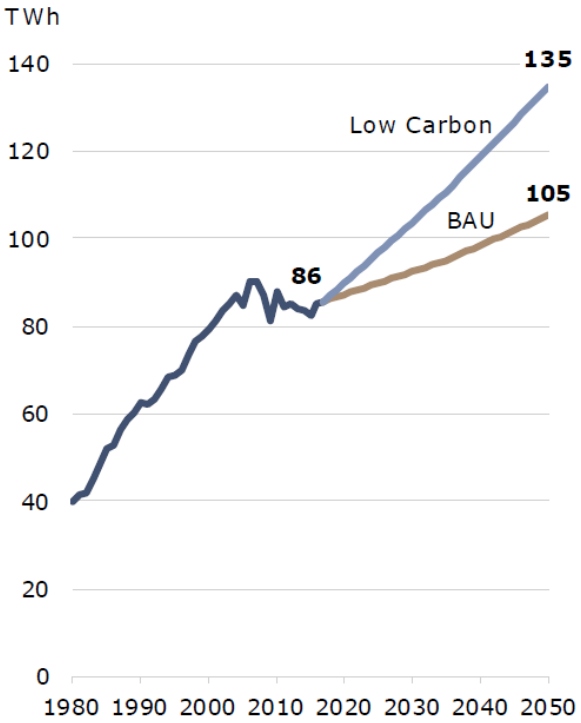
The full implementation of the IED is not yet occurred due to the time-extension flexibilities such as Transitional National Plan as well as Limited Life Time and District Heating derogations (articles 32, 33 and 35). Also the BAT Conclusions for the combustion plants (Large Combustion Plants and Waste Incineration Plants) are not yet in force. The medium combustion directive sets stricter emission limits for the existing boilers (below 50 MW) since 2025 or 2030. Therefore the emission levels of the combustion plants are already regulated to be lowered. As an example, the emission limits for NO_X have tightened from 600 mg/Nm^3 (LCP Directive, 2001) to 250 mg/Nm^3 (IED, 2010) and further 50-180 mg/Nm^3 (LCP-BAT, 2017) concerning typical large bio-burned boiler.

In general the The “Zero Pollution" target must be seen only as the trend-setting vision. ***All the requirements must be based on the cost efficiency principle*** – there is no idea to literally target to zero emissions – ***the costs of lowering emission levels will eventually be strongly disproportionate compared to the benefits***. The combustion plants have already strongly contributed to reduction of the emissions - and will still invest on environmental technology according the existing legislation.

The investments should be addressed to electrification and on non-burning technologies

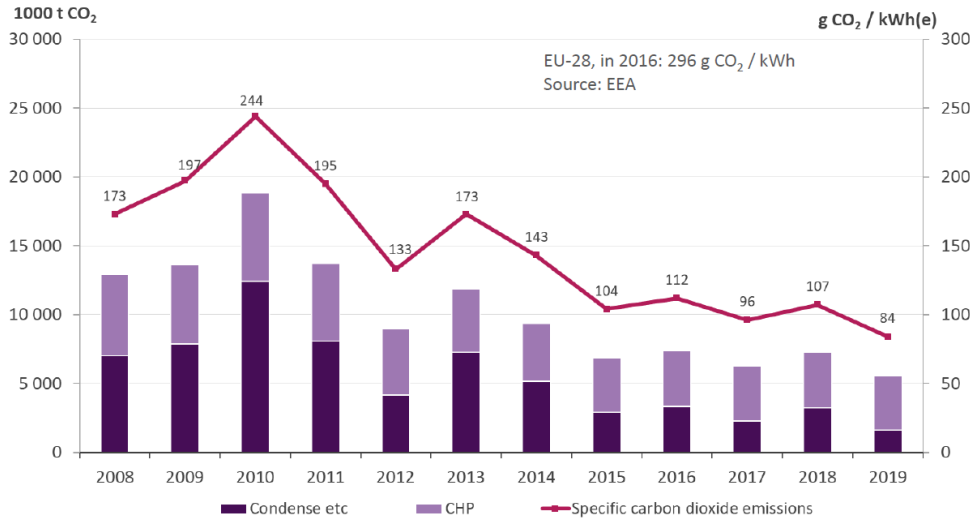
The massive investments are needed for electricity and district heating systems as the whole when reaching the carbon neutrality. Decarbonisation by electrification of industries, transportation and heating will increase the electricity demand remarkable. The electricity

demand is also likely to be increased because of the production of new renewable fuels (eg. liquid and gaseous fuels) in coming decades. The demand of electricity has been estimated to increase in Finland until 2050 as shown in picture 6.



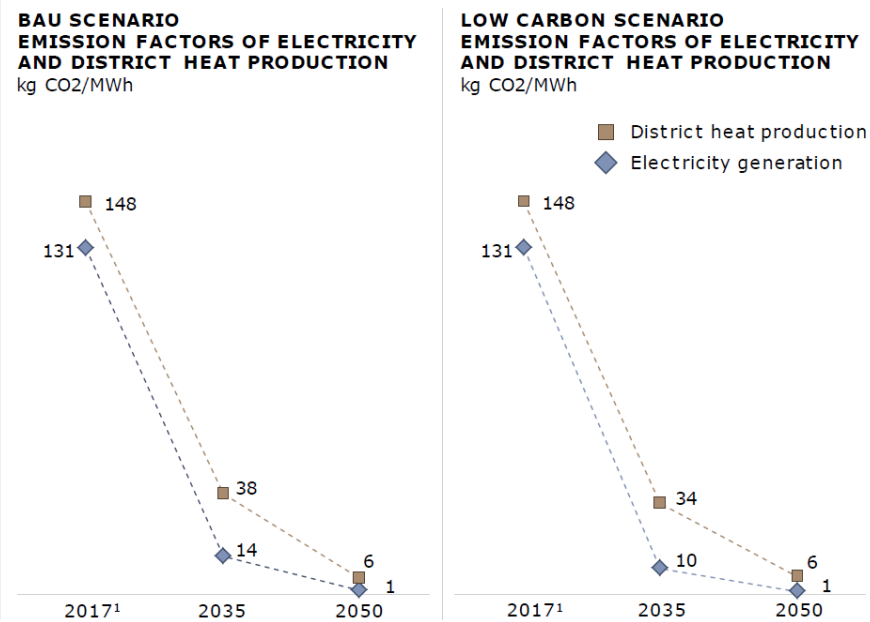
Picture 6. Possible development trajectories for electricity demand in Finland.

The energy sector is changing dramatically today and in the coming decades. The mitigation of the climate change and thus the reduction of the GHG emissions are key driver for the sector. The CO_2 emissions of the power generation in Finland has reduced dramatically. The emission was 19.0 million tons in 2010, 5.5 million tons in 2019 and 4.1 million tons in 2020. The reduction of the total and specific emissions is the result of the decreasing use of fossil fuels and increase of renewables. The emissions of the district heating are also reducing for same reasons and for deployment of the new heat production and recovery technology.



Picture 7. CO_2 -emissions of Power Generation in Finland 2008-2019

In the coming decades the focus of the investments is on the non-burning production technologies and on the strengthening of the distribution and storage systems for electricity and heat. The production will nearly carbon neural by 2035 and further by 2050 as indicated in picture 8. This vision does not support the idea to further invest on the environmental technology of the combustion plants, but rather support transition to new technology.



Picture 8. Power and district heating production reach nearly carbon neutrality by 2035 and 2050 in Finland

Summary

The dramatic change in energy sector is happening as climate issue driven. The electrification and carbon neutral production will not only reduce GHG emission, but also other polluting emissions. The reduction of pollution will take place in the energy sector, but also broadly in other sectors.

Zero pollution ambition should not cause unnecessary costs to this transition. The focus should not put on the further emission reduction in the combustion plants. The role and the use of combustion is already decreasing. This phasing out of burning should be allowed to happen along with climate policy. The ETS, a market-based instrument, is the appropriate tool for the mitigation of CO_2 emissions, and simultaneously other emissions, originated from the industrial and energy activities.

Yours sincerely,

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