

“Programs for Transition towards Energy Efficient Heating as a Measure for Clean Air”

Skopje, North Macedonia Experience

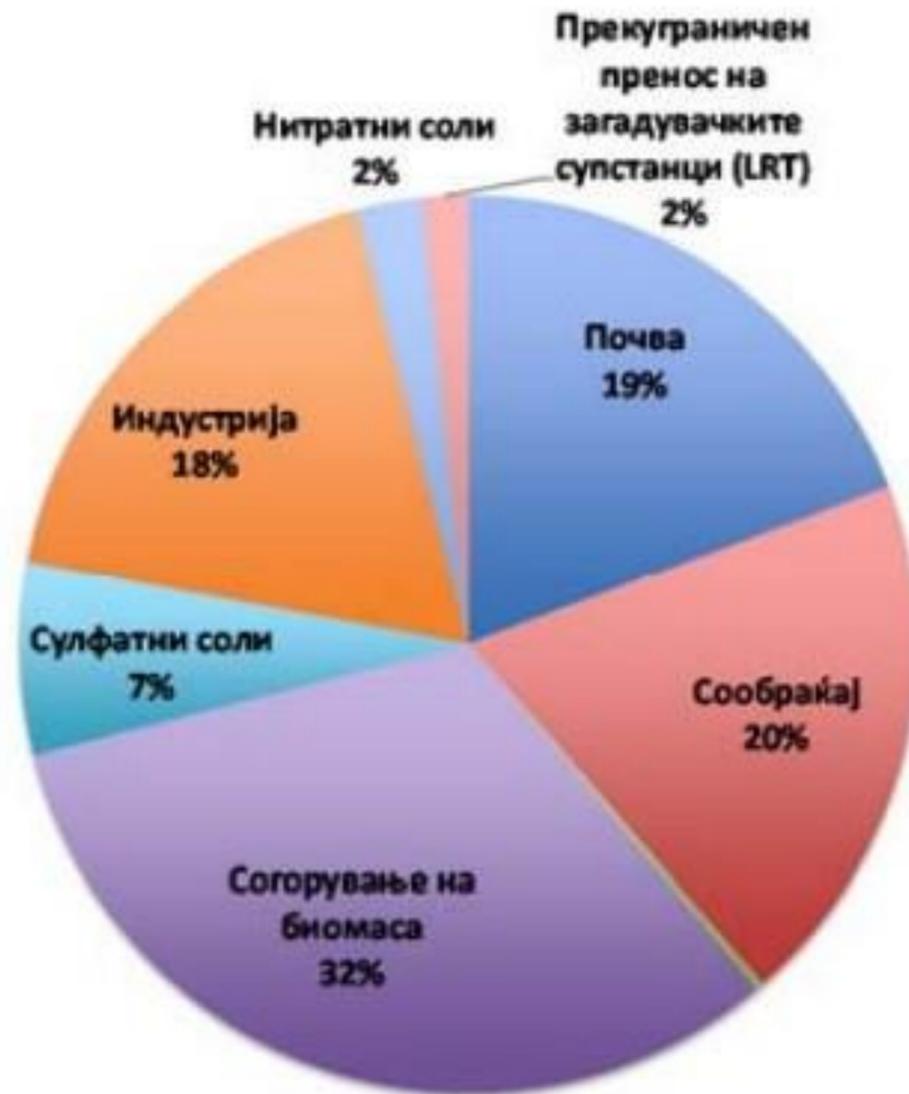
Davor Pehchevski



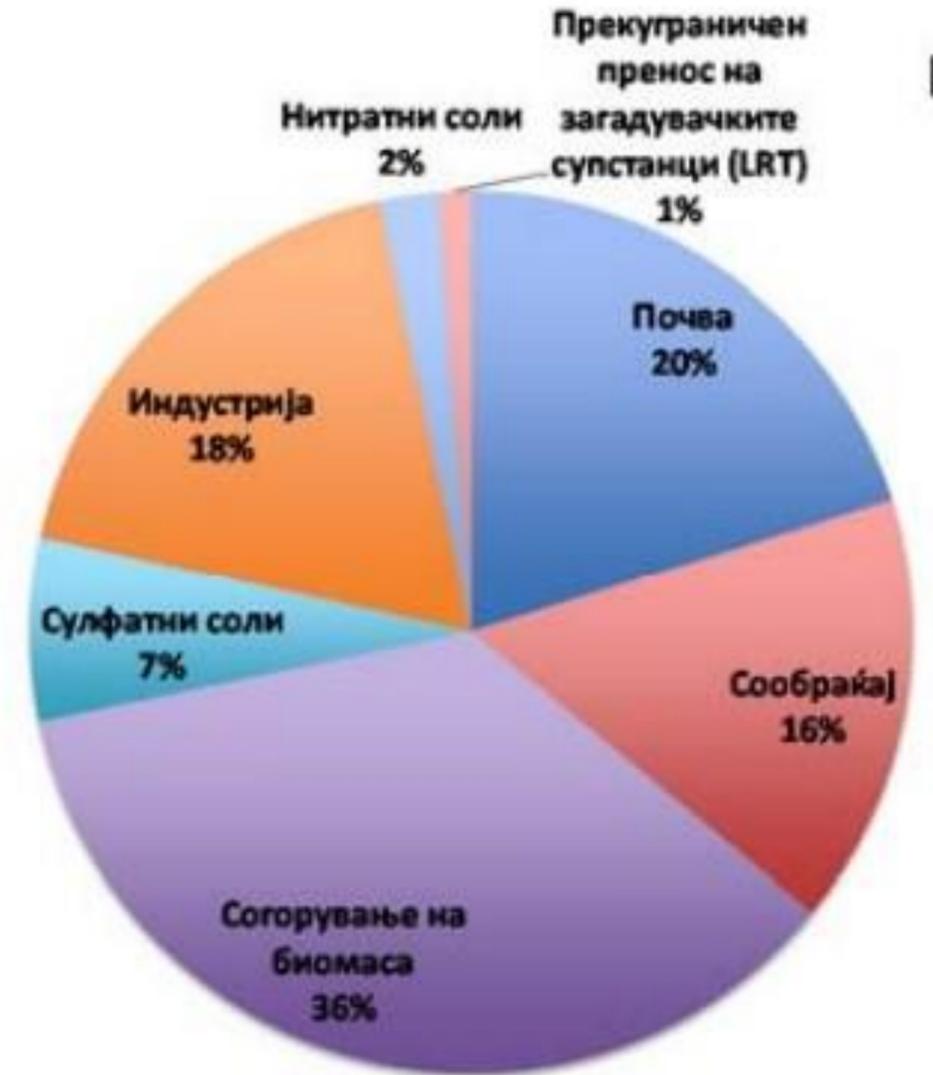
Sources of air pollution in Skopje agglomeration

Study from 2014 in collaboration with Finnish Meteorological Institute

PM10

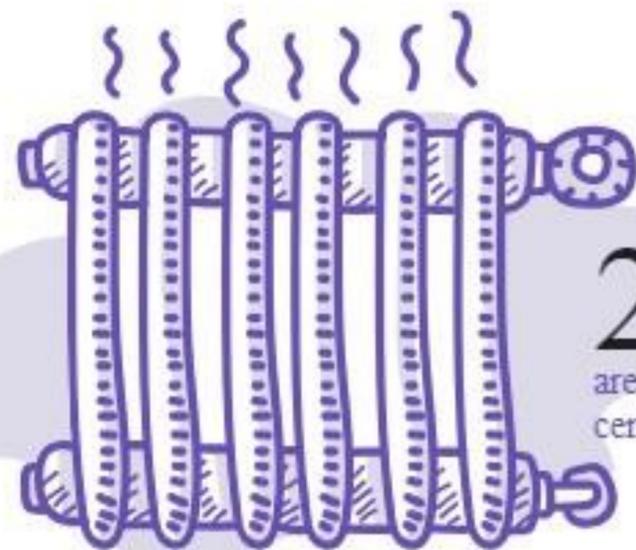


PM 2.5



Household heating practices in Skopje – UNDP survey

<https://www.skopjesezagreva.mk/>



21%
are connected to the
central-heating system

45%
heat their houses
with wood



Over 90% of homes do not have any thermic insulation on their facades and roofs.

Wood heating prevails in 30% of urban areas and 85% of rural areas households. However, most of these households use old stoves and other heating devices which are not only inefficient, but also highly polluting.

Households with income lower than 9.000 denars (150 EUR) heat only 25-33% of their home.

Over 76% of households that use wood for heating heat 50% or less of their homes.

40% of the respondents stated that their choice of heating system is based on the monthly heating bill.

Only 1% of the respondents made a decision based on whether a heating system is polluting.

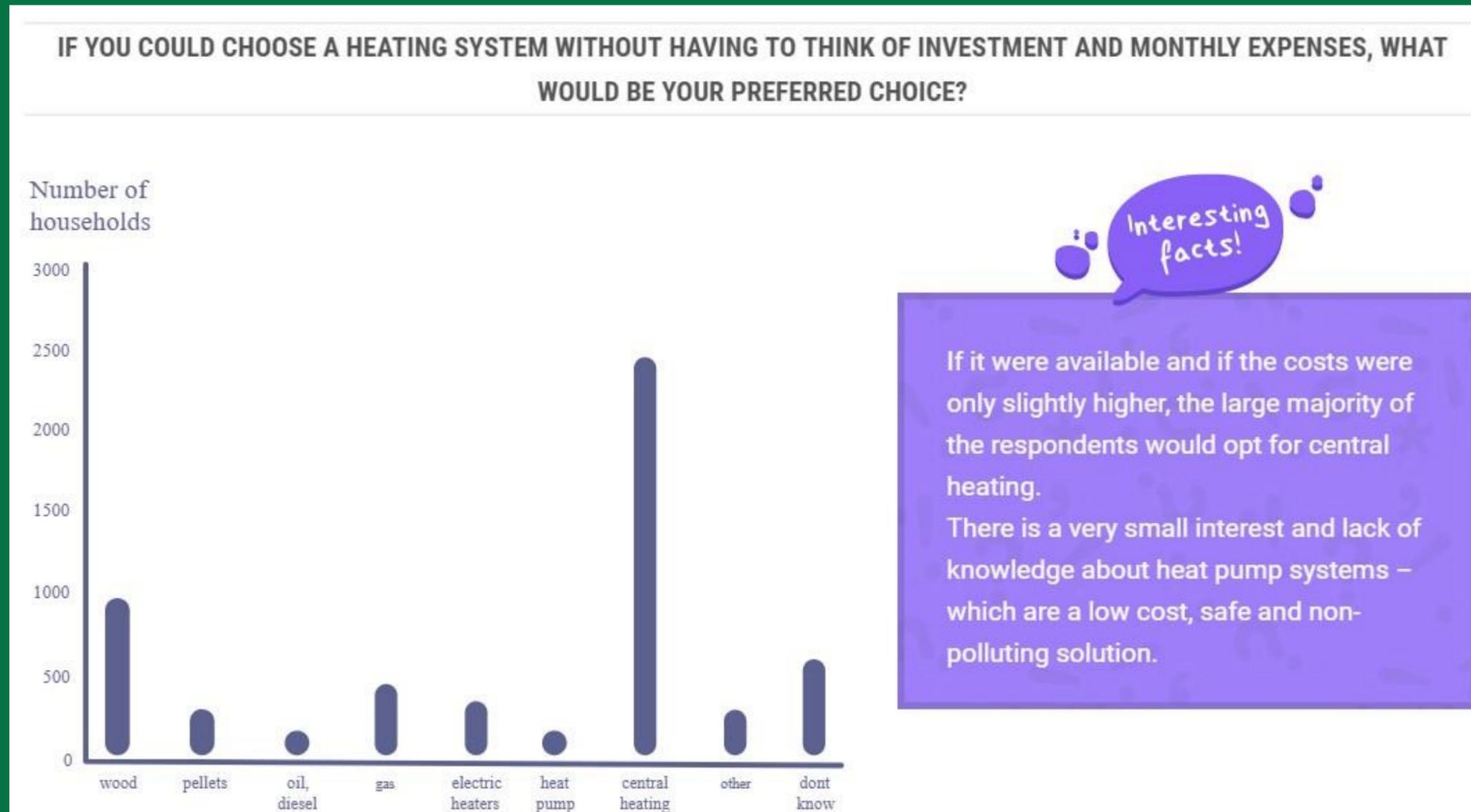
Household heating practices in Skopje – UNDP survey

2017-2025 Roadmap for Reducing Local Air Pollution Caused by Household Heating

1. Improve homes' energy efficiency

2. Change the way of heating

3. Increased coverage by central heating



National Plan for Clean Air 2018 - 2020

First national middle-term strategy and dedicated budget to tackle air pollution

ПЛАН ЗА
ЧИСТ ВОЗДУХ



НАМАЛУВАЊЕ НА АЕРОЗАГАДУВАЊЕТО

СТРАТЕШКА ПРОГРАМА НА ВЛАДАТА



1. Improved monitoring of air quality
2. Increased capacities of environmental inspectors
3. Raising public awareness
4. Reduction of emissions from household heating
5. Urban greenery
6. Waste management
7. Reduction of emissions from transport sector
8. Reduction of emissions from industry

National Plan for Clean Air 2018 - 2020

Reduction of emissions from household heating

1. 10 000 more households in Skopje connected to the central heating network;
2. VAT for central heating services reduced from 18% to 5%;
3. 20 000 households will replace old stoves with high-efficient wood or pellet boilers;
4. 20 000 households will start using inverter AC units for heating (and cooling);
5. 10 000 households will improve energy efficiency in their homes;
6. 3 000 households will be connected to the natural gas system;
7. 2 000 households from socially vulnerable categories will change the heating practices through a newly established support mechanism;
8. Prohibited sale of coal for heating purposes.

National Plan for Clean Air 2018 - 2020

Reduction of emissions from household heating

After intervention from the civil society sector two additional measures were added in the programme for implementation of the plan:

- Changing the heating systems in public institutions, schools, student housings etc. from mazut, oil and coal to central heating or other low polluting systems.
- Subsidies for heat pumps as more efficient and less polluting than any wood or pellet boilers.

The main shortcoming of the plan is not including support measures for installation of PV/Ts – Photovoltaic thermal hybrid solar collectors.



Challenges for implementation of the Plan

First come – first served?

This was the main system of distributing subsidies for efficient heating systems so far. The main reason – people sometimes sell the new boilers.

Problem: This way the energy poor families, that are also bigger polluters, are not targeted with the support measures. Only families that can afford to buy new boilers are then partially reimbursed by the municipality.

Possible solution: Give boilers to targeted energy poor families for extended use over several years before they gain ownership.



Challenges for implementation of the Plan

New does not always mean efficient!

By giving out subsidies for several years now, the government supported the expansion of the pellet boiler selling businesses.

Problem: The market is flooded with cheap boilers and heaters that are not always compliant with energy efficiency and emissions standards.

Possible solution: Adopt bylaws that would regulate the minimum quality standards for stoves and boiler, but also for firewood and pellets.



Challenges for implementation of the Plan

What can we expect from the VAT reduction?

Judging by the UNDP survey, a price drop in central heating services should invite more people to move back to this type of household heating. However, additional measures might be required to convince consumers.

Problems: Low energy efficiency of buildings does not allow for full utilization of the benefits from central heating. Expensive additional equipment to regulate the temperature.

Possible solution: The central heating company should provide discounts or even some free equipment for new connections to the system. The energy efficiency measures from the Plan need to build additional momentum in apartment buildings.



Challenges for implementation of the Plan

Are gas connections even a solution?

For one household to switch from other cooking and heating devices to gas powered devices, it needs to invest more than EUR 5-6000 and to change the entire infrastructure of the house.

Problem: While main gas corridors are already under construction around the country, new buildings and houses are not built with gas infrastructure.

Possible solution: Changes in the urban planning even before the main gas corridors are finished to allow for faster transition. Additional coordination between institutions is needed to improve the implementation of this measure.



Challenges for implementation of the Plan

Inspection, inspection, inspection...

The state and municipal inspectorates lack the financial and human resources to conduct regular inspections. Moreover, the current legal framework does not allow inspections of individual households.

Problem: The implementation of the support measures and emissions from households can not be monitored.

Possible solution: The City of Skopje is already implementing a project for training of chimney sweepers. Additionally, they can be trained to monitor the performance of individual household heating systems.



Thank you for your attention

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