



Clean Heat

European project on private wood burning

Overview

- What is Clean Heat about?
- Emissions from residential wood burning
- Air quality within the EU
- Policy recommendations
- What have we done so far?
- Conclusions

What is Clean Heat about? (1)

- Overall objective: Reduction of PM/BC from wood burning/domestic heating
- Information campaign in Germany, Denmark, Hungary, Slovakia and Czech Republic
- Main target groups:
 - Policy makers at all levels (EU, national, local)
 - Existing and potential stove owners/
people affected by air pollution
- Duration: 01/08/15 - 31/01/19
- Project partner:
Environmental Action Germany (DUH) (coordinator)
Danish Ecological Council



What is Clean Heat about? (2)

Residential wood burning in stoves and boilers produces substantial amounts of health damaging particles.

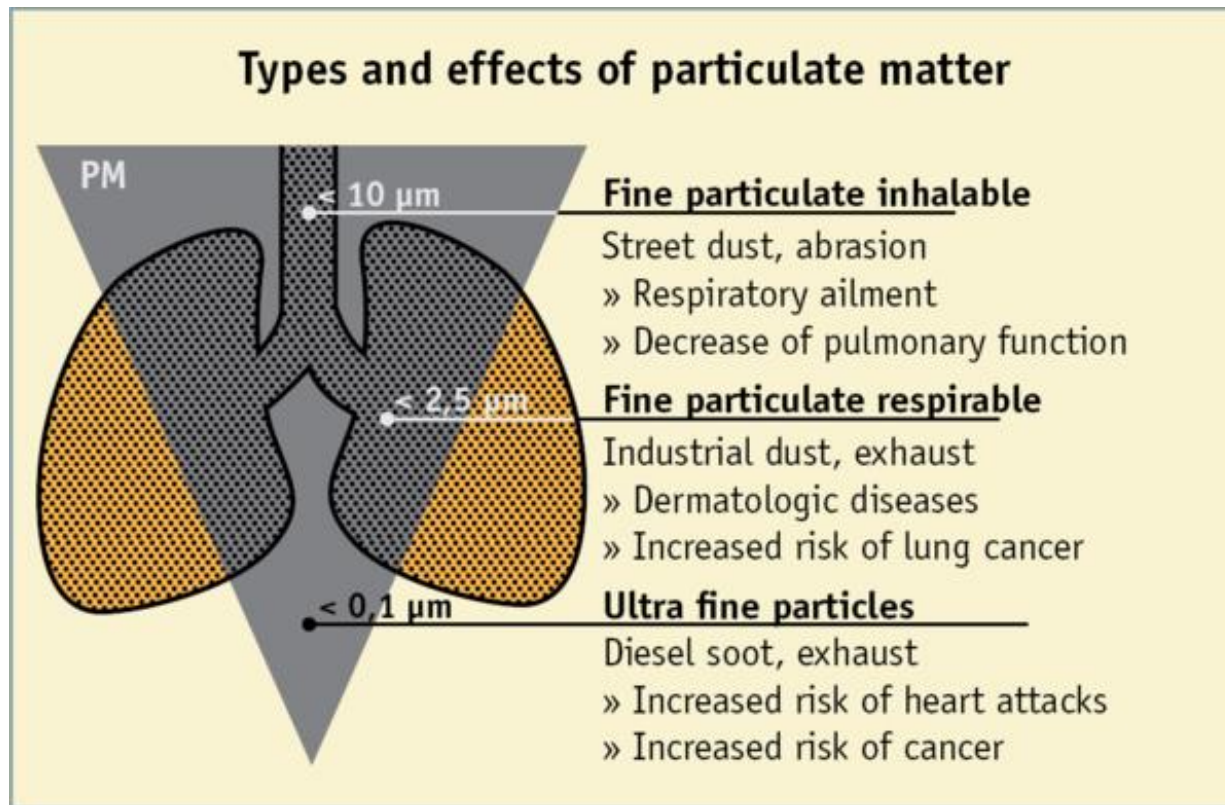
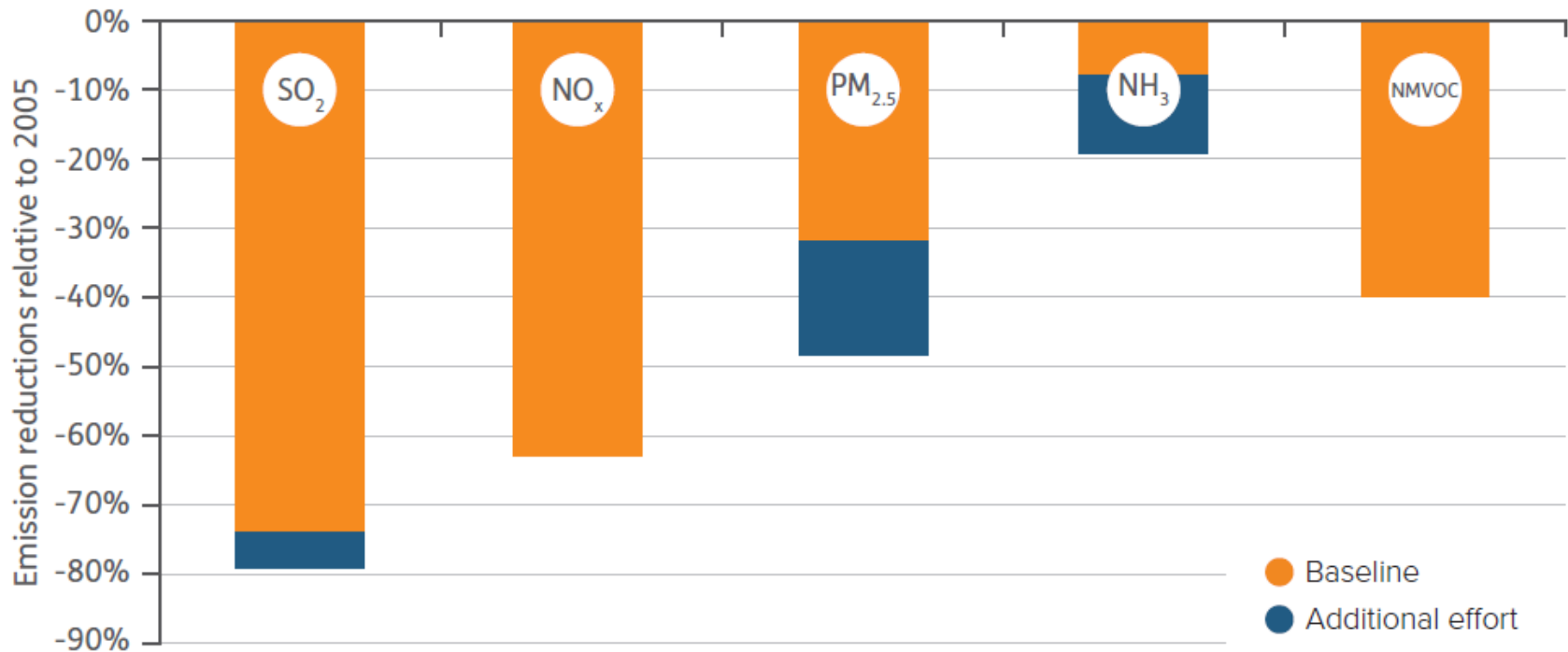


Figure 1: Types and effects of particulate matter | Source: Environmental Action Germany

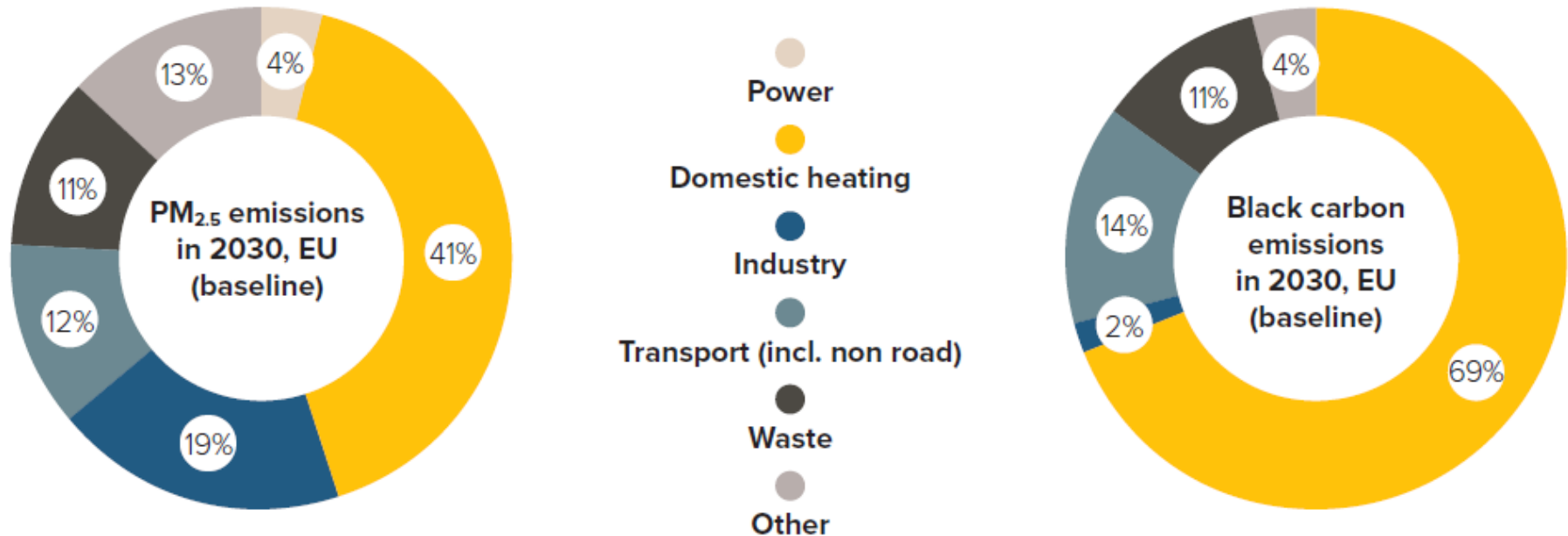
NEC Directive

- **Emissions:** National Emission Ceilings (NERCs, 2016/2284/EU)



Reduction targets for 2030; Figure: European Environmental Bureau (EEB), based on Final agreement on the NEC Directive and IIASA TSAP report #16a

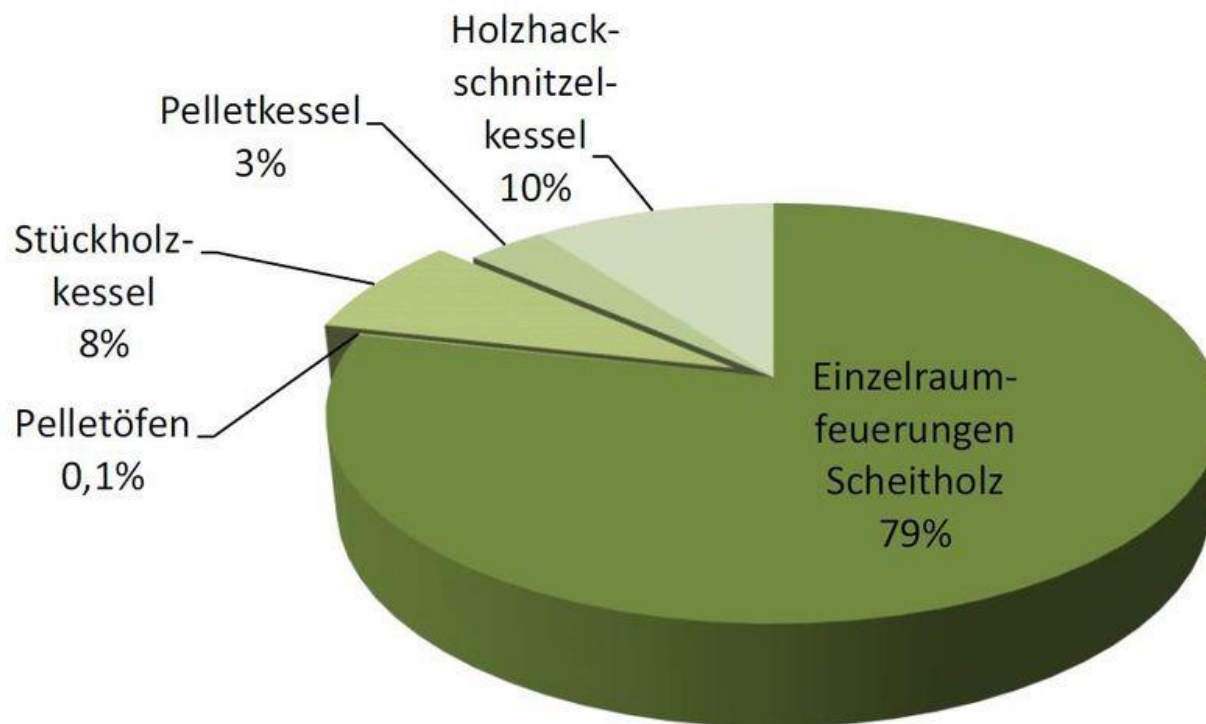
PM and BC emissions in the EU (2030, expected)



Source: European Environmental Bureau (EEB), based on IIASA GAINS model, 2016

- Given the large share, the domestic heating sector will play an important role in the successful implementation of the Directive.

Action needed: Small wood burning appliances



Sources of PM due to wood burning; estimate by DBFZ 2014.

Ambient Air Quality Directive (2008/50/EC)/WHO-recommendations



Schadstoff	Grenzwert	Bezugsdauer	Überschreitungs-tage	WHO-Empfehlungen
PM10	50 µg/m ³	24h	35	3 Ü-Tage
	40 µg/m ³	Jahr	n/a	20 µg/m ³
PM2,5	25 µg/m ³	Jahr	n/a	10 µg/m ³
PAK	1 ng/m ³ (Konzentration von Benzo(a)pyren)	Jahr	n/a	0,12 ng/m ³

Ecodesign: a problem for forerunners

	Ecodesign requirements (in mg/m ³)	Legal requirements in Germany (in mg/m ³)
Local space heaters (firewood stoves), as of 2022	CO 1500 PM 40	CO 1250 PM 40
Local space heaters (pellet stoves), as of 2022	CO 300 PM 20	CO 400 PM 30/20 (with accumulation tank)
Solid fuel boilers, as of 2020	CO ≈360 PM ≈30 (converted to 13% O ₂)	CO 400 PM 20*

**in addition: recurring measurements on site (in-service conformity)*

- No slip in standards (boilers): Stricter national emission limits must be possible!

Policy recommendations (1)

- Better information for consumers: ambitious ecolabels, mandatory proof of origin for firewood and pellets, information campaigns
- Stricter emission limit values for new wood burning appliances, more resources and effective structures for market surveillance
- In highly polluted areas: Ban on installation and on use of solid biomass appliances (with possible exemptions for stoves and boilers with eco-label or comparable low particle emissions like other heat sources)
- Stricter standards for air quality (WHO recommendation)

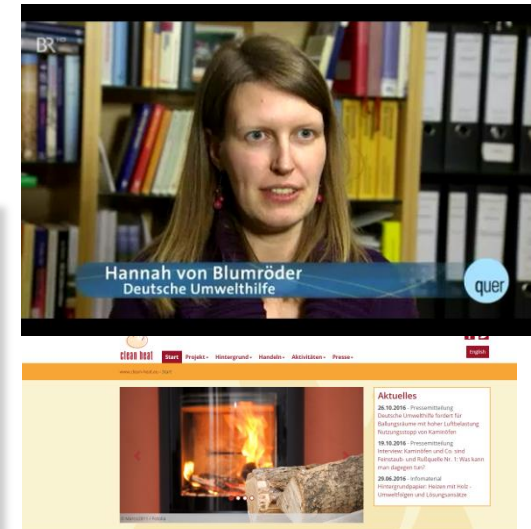
Policy recommendations (2)

- Harmonized and more realistic measurement procedure in the course of type approval of stoves and boilers
- Requirements and economic incentives for energy renovation and insulation of existing buildings
- Funding programmes for solar heat, geothermal energy and pellet appliances

What have we done so far?

Information for policy makers and consumers

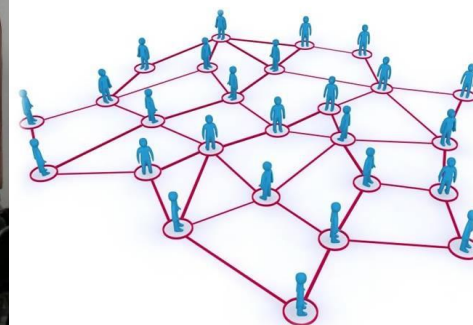
- Different flyer: basic information on emissions and best handling
- More profound: background paper and case study
- Mobile exhibition, short film
- Project Website (www.clean-heat.eu)
- Media work



What have we done so far?

Particle measurements, expert and external events

- Particle measurements in different Member States
- Expert talks
- Workshops in other Member States together with local NGOs
- European network



Conclusions

- Just installing new appliances is not the optimal solution (high emissions of stoves in real life)
- Sustainable alternatives to wood/coal burning and better building efficiency have to be promoted
- Biomass is only a viable alternative if emission reduction technology is considered and if it is used efficiently (mainly large-scale)
- Further action is needed to meet air quality guidelines (WHO) and 2030 target for PM_{2,5} of the revised NEC → Best practices/solutions for improved domestic heating that are available now.

Thank you!

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