



European Sustainable Energy Seminar

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Biomass Use and its Air Pollution

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Presentation is part of Proceedings: [https://inforse.org/europe/seminar_2026 INFORSE-Europe Denmark.htm](https://inforse.org/europe/seminar_2026_INFORSE-Europe_Denmark.htm)



Swedish Society
for Nature Conservation



Latvijas Zaļā kustība
Latvian Green Movement



Naturvernforbundet
Friends of the Earth Norway



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Estonian Green Movement-FoE



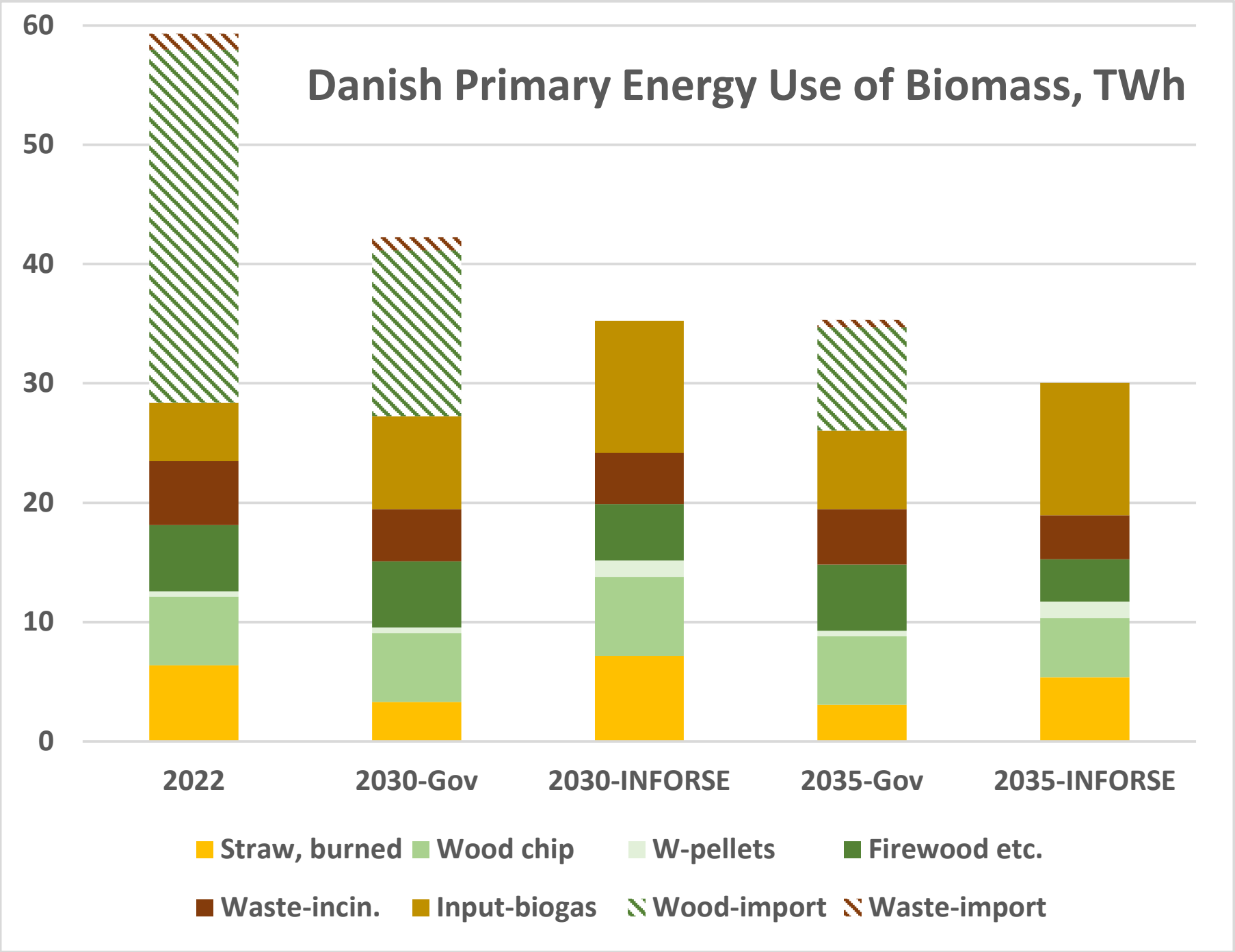
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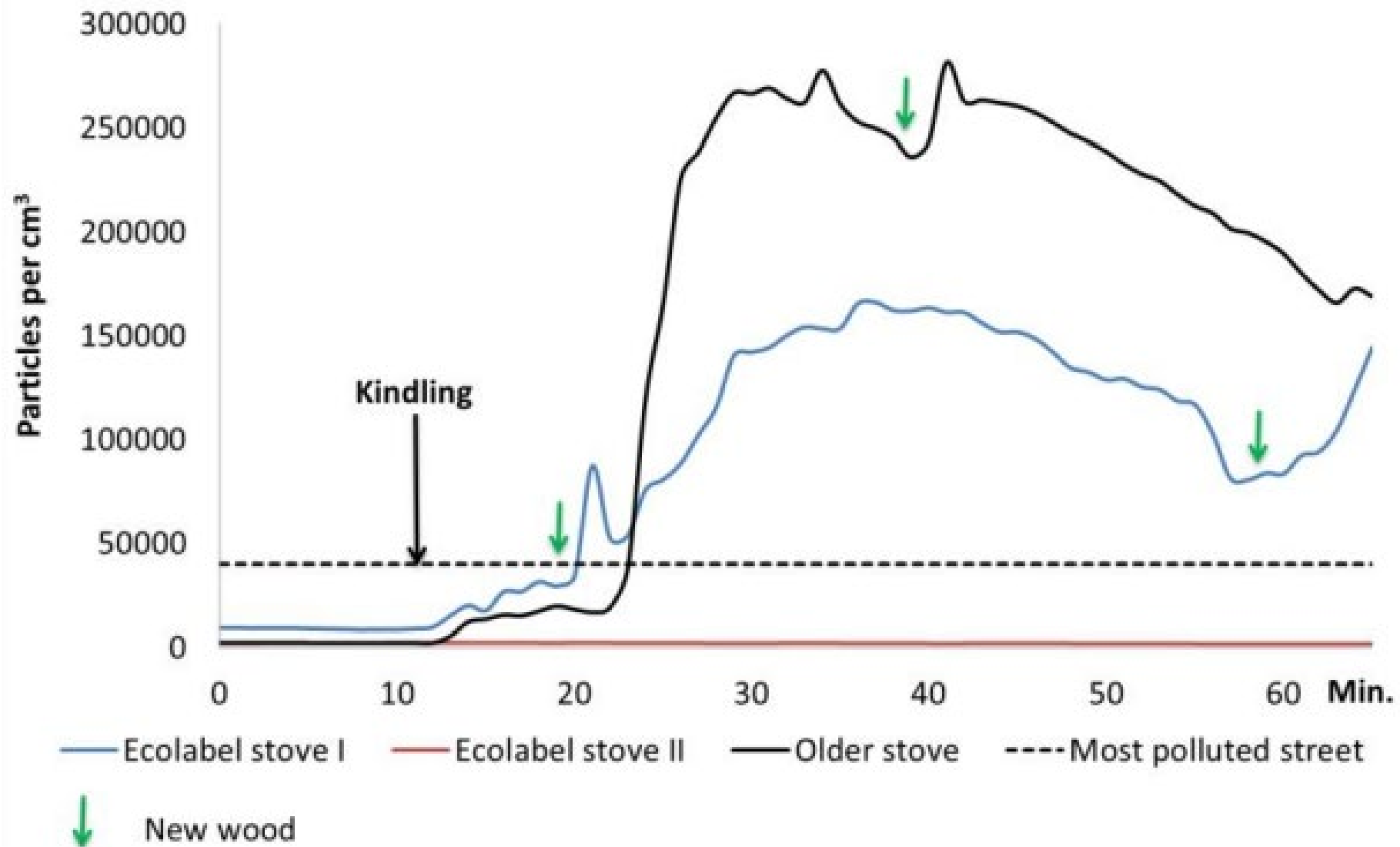
30% of Danish
primary energy
use



Damage to human health attributable to PM

- European Environmental Agency:
 - Air pollution remains the largest [environmental health risk](#) in Europe.
 - Exposure to fine particulate matter, ozone and nitrogen dioxide levels **above the World Health Organization recommendations** cause an estimated **239,000, 70,000 and 48,000 premature deaths**, respectively, in [2022](#). These pollutants are **linked to asthma, heart disease and stroke**.
 - Air pollution emissions have declined in the last two decades, resulting in better air quality. Between 2005 and 2022, the number of deaths in the EU attributable to PM_{2.5} fell by 45%
 - Half of particle emissions are from wood burning in homes

Indoor air pollution from wood stoves



Wood fired oven, improvement: automatic combustion control

- Denmark has 714.000 wood fired ovens for heating, using 9% of domestic heat energy equal to 6% of solid biomass demand.
- They are the biggest source of air pollution (particles) in Denmark
- Old ovens pollute 5 times as much as new ones
- Also good firewood and good use is important to reduce pollution
- Even new ovens need to be used correctly
- Company HVAM has developed an oven with automatic combustion control
- Even good ovens have many micro-particles PM2,5, PM1



Particle filters can remove 70% or more of emissions from wood stove



Subsidies for solid fuel wood use

Current situation:

- Subsidy schemes for biomass SFB in 16 EU countries
- Also subsidies for improved wood stoves in some countries (“Flame Vert” in France and others)
- On average:
 - 45 % of biomass SFBs benefit of subsidies
 - Subsidies cover 22 % of the acquisition costs of a SFB

Proposals

- Require automatic combustion control on wood stoves
- Train users of correct use of wood stoves and boilers and to use good, dry fuel
- Measure the particles in numbers, not only mg/Nm^3
- Introduce pollution classes for wood stoves
- Require catalysts of wood stoves to reduce tar gases
- Require particle filters (electrostatic or bag filters)