Ministerstvo životního prostředí České republiky

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Residential heating - incentive programs in the Czech republic



Small scale combustion current situation

- representing up to 95 % of PAHs emission
- 76 % of primary PM_{2.5}
- 17,5 % of households burning solid fuels
- high share of boilers (space heaters only complementary)
- high age of boilers used
- inappropriate fuel coal and wood in boilers constructed for coke (updraft boilers), improper regulation (lack of accumulation tanks)
- illegal waste burning



Boilers used

620 000 solid fuel boilers as main heating source

- 310 000 simple down-draft boilers (steel)
- 220 000 up-draft boilers (cast-iron)
- 10 000 automatic coal boilers (retort or rotating grate)
- 70 000 gasification (pyrolysis) down-draft boilers
- 10 000 automatic wood-pellets boilers



History of state interventions

- 1980s support of different solutions: gas heating, electric accumulation
- 1993 state and regional subsidies on electric heating (number of households increased from 54 000 in 1991 to 250 000 in 2001)
- since 1990s different support of natural gas (number of households increased from 600 000 in 1991 to 1 400 000 in 2001)
- all of the interventions could be regarded successful, but...



Current problem and reaction

- Increasing costs of electric and natural gas heating lead to the decision either to complement or replace this heating types by solid fuel burning.
- Solid fuel burning still prevails in low-income groups.

Any intervention has to respect the final long-term costs of heating.



Incentives for solid fuel boilers

- Programme "Green Savings" directed towards energy savings and CO₂ reduction, high technical requirements and limitation to biomass pellets and wood burning boilers led to limited acceptance in the most problematic regions.
- Call for assistance in modernization of coal-fired boilers in the specific regions led to establishment of the "common program for replacement of solid-fuel boilers" (2012).



"Common programme"

- Financing 50 % of the Programme's budget from State Environmental Fund, 50 % regional authorities
- Administration 50 % of application administered by the Fund, 50 % by regional authorities
- Supervision and programme settings common directing committee
- Starting in Moravian-Silesian region, now 4 more regions



Common programme

Technical requirements on the new boilers:

in the first phase only automatic coal-fired boilers of class 3 (303-5), lately broadened to

automatic boiler (pellet of coal) of class 3 or higher,

gasification boilers of class 4 with accumulation tank (55 l/kW)

natural gas boilers of defined NO_x parameters



Common programme

Incentives:

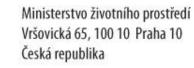
Automatic boiler class 3

Automatic boiler class 4	2200 €
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Gasification boiler	2000 €
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Natura	l gas	boiler	/non	condensation	560 €
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Documentation of the replaced boiler and record of its disposal has to be provided.







Effects

By replacement of 1 updraft coal fired boiler:

reduction of up to 170 kg TSP/y

270 kg NMVOC/y

65 g benzo(a)pyrene/y

Evaluation of real effects is complicated by lack of detailed and statistically evaluated information of the replaced boilers.

In total by now 2500 boilers have been replaced.



Lessons learnt

- "Keep it simple" simple administration is crucial for low-income groups, simple and clear technical requirements
- Respect to a reasonable extent traditional fuels
- Involvement of regional authorities
- Subsidy should go hand in hand with legislation:
 - since 2022 only boilers of class 3 and higher shall be in use
 - since 2016 regular inspections of solid-fuel boilers

