Ministerstvo životního prostředí
České republiky
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 CO$_2$ 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  
1500 €

Automatic boiler class 4  
2200 €

Gasification boiler  
2000 €

Natural gas boiler /non condensation  
560 €

Natural gas boiler /condensation  
740 €

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