



# Ministerstvo životního prostředí České republiky

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# Residential heating - incentive programs in the Czech republic

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# Small scale combustion current situation

- representing up to 95 % of PAHs emission
- 76 % of primary PM<sub>2,5</sub>
- 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<sub>2</sub> 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<sub>x</sub> parameters**



# Common programme

## Incentives:

<b>Automatic boiler class 3</b>	<b>1500 €</b>
<b>Automatic boiler class 4</b>	<b>2200 €</b>
<b>Gasification boiler</b>	<b>2000 €</b>
<b>Natural gas boiler /non condensation</b>	<b>560 €</b>
<b>Natural gas boiler /condensation</b>	<b>740 €</b>

**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**

