



Interlinkages and effective coordination of clean air, climate protection and energy efficiency policies using the abatement cost concept

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Background

Aim: Prioritization of the measures using cost abatement concept

Not only the traditional link energy efficiency vs. CO₂

Tool: Microeconomic modelling

Time: Spring 2011

Region: Moravian-Slezian region

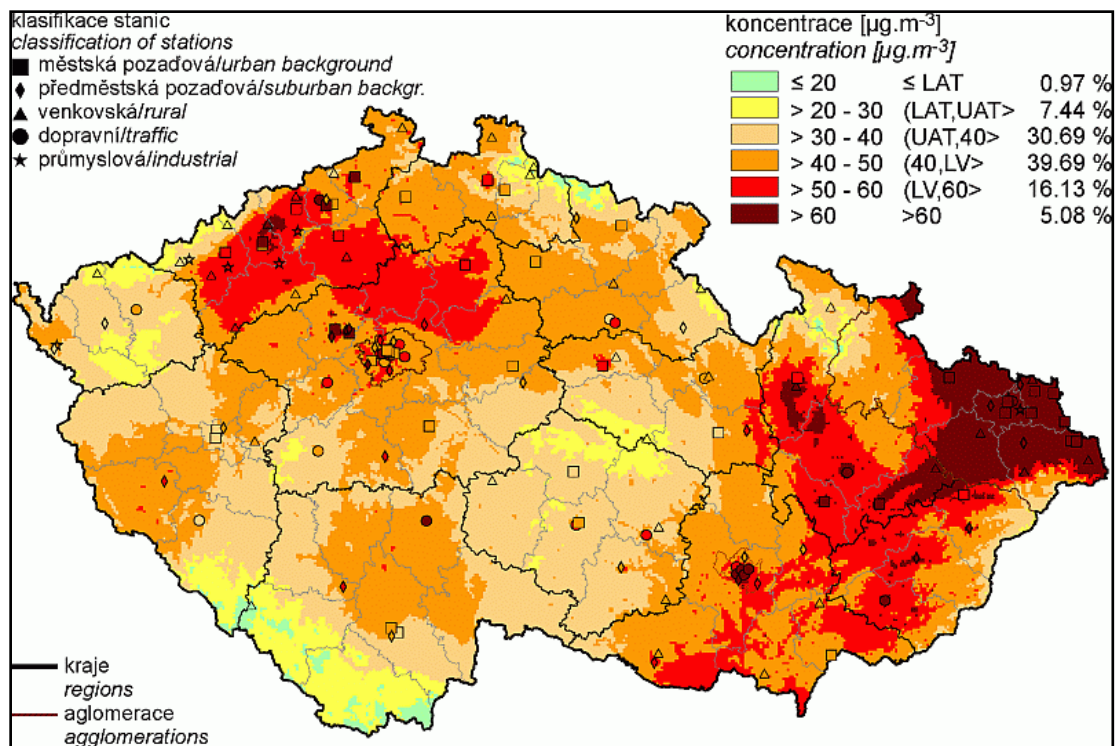


Current spending

Green spending programme: 800 million EUR
(CO₂ focused)

PO2 OPŽP (2007-2013): 720 million EUR
(PM₁₀ focused)

Pic. 1: 36th highest 24-hour PM₁₀ concentrations in the Czech Republic, 2010



Source: CENIA, 2010

Assumptions:



Representative household:

annual heat consumption:

- flat: 42 GJ

- house: 55 GJ

Literature emission factors

Durabilities / depreciation times

No inflation- price for the year 2010



Appendix 1: Local heating measures, ranked by abatement cost amount

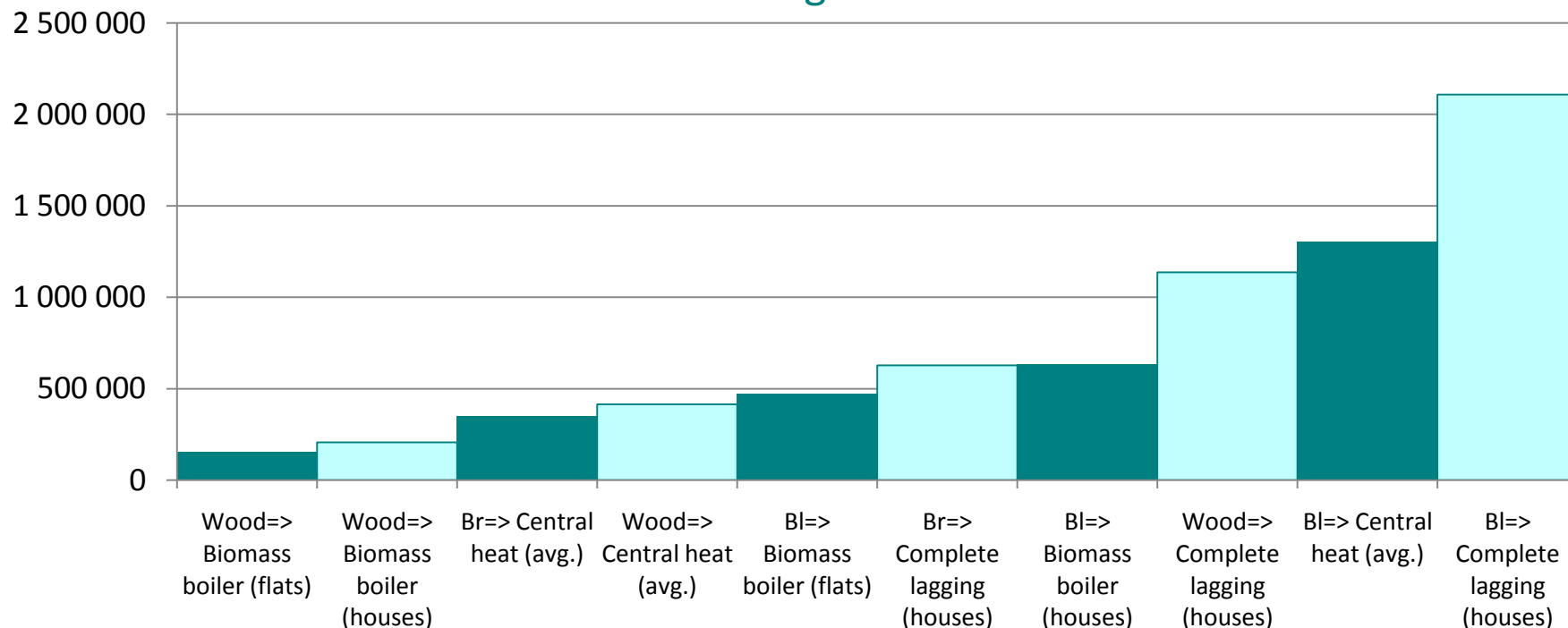
Measure	Type	Previous heating boiler	Emission factor kg/GJ	Emission reduction (t CO ₂)	Purchase price	Abatement cost per tonne of PM
New coal boiler	flat	brown coal	0,21	14,1	22 000	52 098
Biomass boiler	flat	brown coal	0,106	17,8	37 500	70 083
Biomass boiler	house	brown coal	0,106	27,2	77 000	94 192
New coal boiler	house	brown coal	0,21	21,5	65 000	100 752
Biomass boiler	flat	wood	0,106	8,2	37 500	153 337
Biomass boiler	house	wood	0,106	12,5	77 000	206 084
Central heat supply	avg.	brown coal	0,024	20,7	215 686	347 082
Central heat supply	avg.	wood	0,024	17,3	215 686	414 664
Biomass boiler	flat	black coal	0,106	2,6	37 500	472 769
Complete lagging	house	brown coal	0,601	15,1	284 170	628 169
Biomass boiler	house	black coal	0,106	4	77 000	635 401
Complete lagging	house	wood	0,332	8,3	284 170	1 137 138
Central heat supply	avg.	black coal	0,024	5,5	215 686	1 301 927
Complete lagging	house	black coal	0,179	4,5	284 170	2 109 105

Appendix 2: Transportation measures, ranked by abatement cost amount

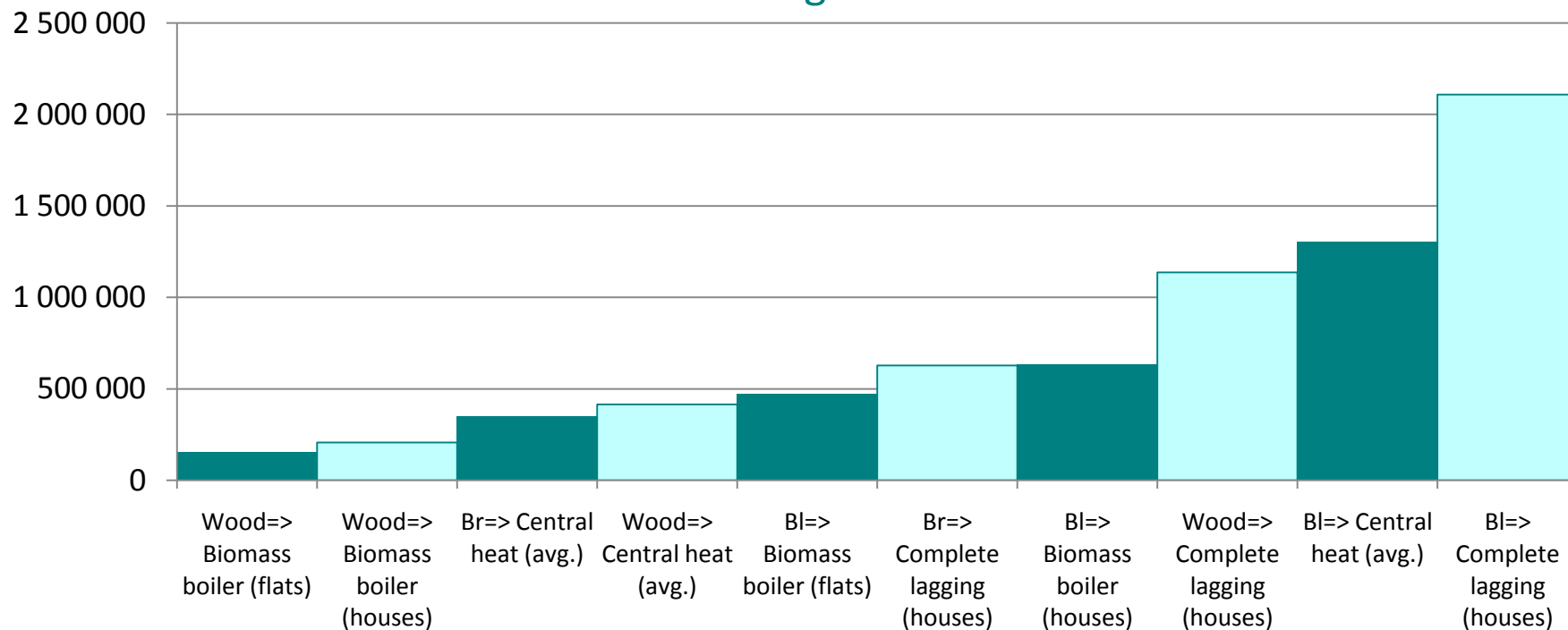
Measure	Annual mileage (km)	Engine emission factor (g/km)	Annual CO ₂ eq. emission (t)	Emis. reduction (t CO ₂ eq./year)	Price increase	Costs of abatement per tonne PM (CZK)
Reference: Old bus (EURO II)	60 000	0,486	29,2			
CNG bus	60 000	0,033	2,0	27,2	5 100 000	12 508 743
Diesel bus (EURO V)	60 000	0,066	4,0	25,2	4 300 000	11 375 661
Electric bus	60 000	0,045	2,7	27,2	10 000 000	30 658 683
Trolley bus	60 000	0,039	2,3	25,2	11 000 000	21 825 397

Local heating measures

Abatement cost per tonne of PM10(CZK/t) among local heating measures



Abatement cost per tonne of PM10(CZK/t) among local heating measures



Absorption capacity?

Recent reserach activity:



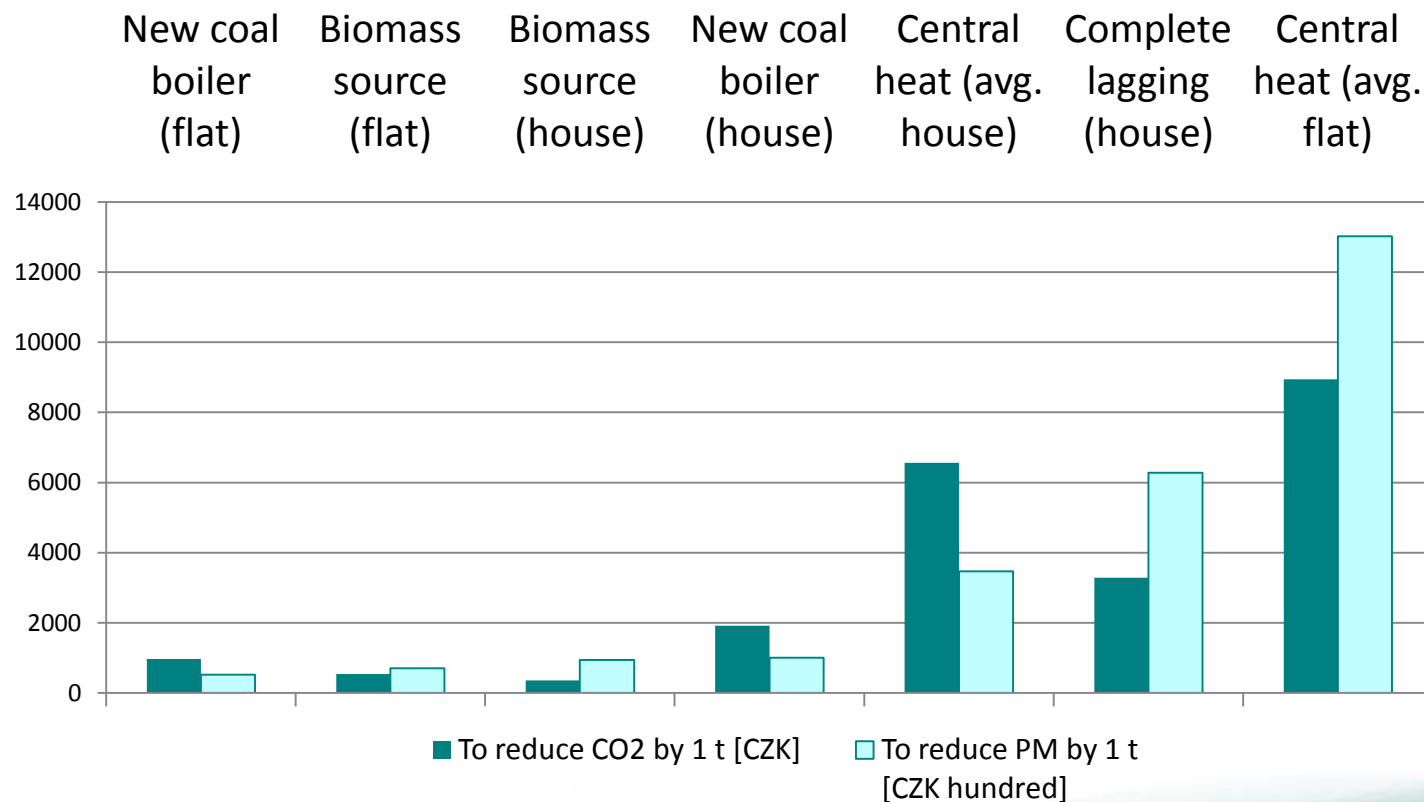
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Synergies among air quality policy and climate change policy

Recent reserach activity:

Synergies among air quality policy and climate change policy

Abatement costs for CO2 a PM10 in HH





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Thank you for your attention

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