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ECONOMIC COMMISSION FOR EUROPE

European Coal Days

Vladimir Budinsky

Chair of UNECE Ad Hoc Group of Experts on Cleaner
Electricity Production from Coal and other Fossil Fuels

Brussels – November 13 th. 2012



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Improving the Efficiency of Coal-Fired Electricity Production – the Prunerov case

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56 member states of UNECE



UNECE Committee for Sustainable Energy

UNECE Ad Hoc Group of Experts on Cleaner Electricity Production from Coal and other Fossil Fuels



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At its last session the UNECE Ad Hoc Group of Experts on Cleaner Electricity Production from Coal and Other Fossil Fuels discussed a very important and sensitive question.

If the goal is to reduce absolute greenhouse gas emissions in a country with a substantial fleet of coal-fired power plants, is it more cost-effective to:

- a) Increase efficiency of these plants by substantial investments into upgrading existing technologies and replacing old units with new plants of the latest generation or**
- b) Invest into renewable energy sources to create adequate supply capacity?**



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The Ad Hoc Group of Experts agreed on a summary statement:

- a. There are available , proven and economic techniques for lowering CO2 and other emissions from existing coal-fired power plants.**
- b. Efficiency improvement have been demonstrated to be more cost effective in terms of CO2 reductions per expenditures then subsidies for some renewable energy sources**
- c. The proof of these statements was presented during the last AHGE session in the form of case studies on conversion efficiency improvements at coal fired power plants in the Czech Republic, Poland, Italy and Bulgaria**
- d. Therefore, the Ad Hoc Group of Experts recommends the ECE member States consider funding mechanisms for efficiency improvements in coal-fired power plants on a cost benefit basis, against their planned expenditures for renewable energy resources**



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The International Energy Agency (IEA) claims that coal has, and will remain to have, an essential role in a global energy mix. Today coal is the least costly and most accessible fuel for some of the most dynamic developing countries, as well as for a developed ones.

In this regard, the IEA forecasts that world coal demand will continue to grow strongly over the coming decades.

This belief is widely shared by many IEA member countries, non-member countries and energy industry experts.

Even if coal's proportion in the energy mix in the developed countries will decline with stronger environmental policies, the absolute coal demand would grow because of the forecast increase in global energy demand by 2030.

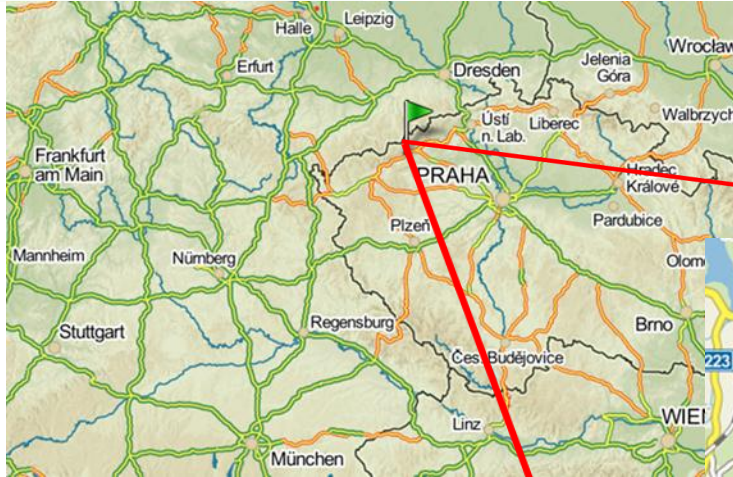


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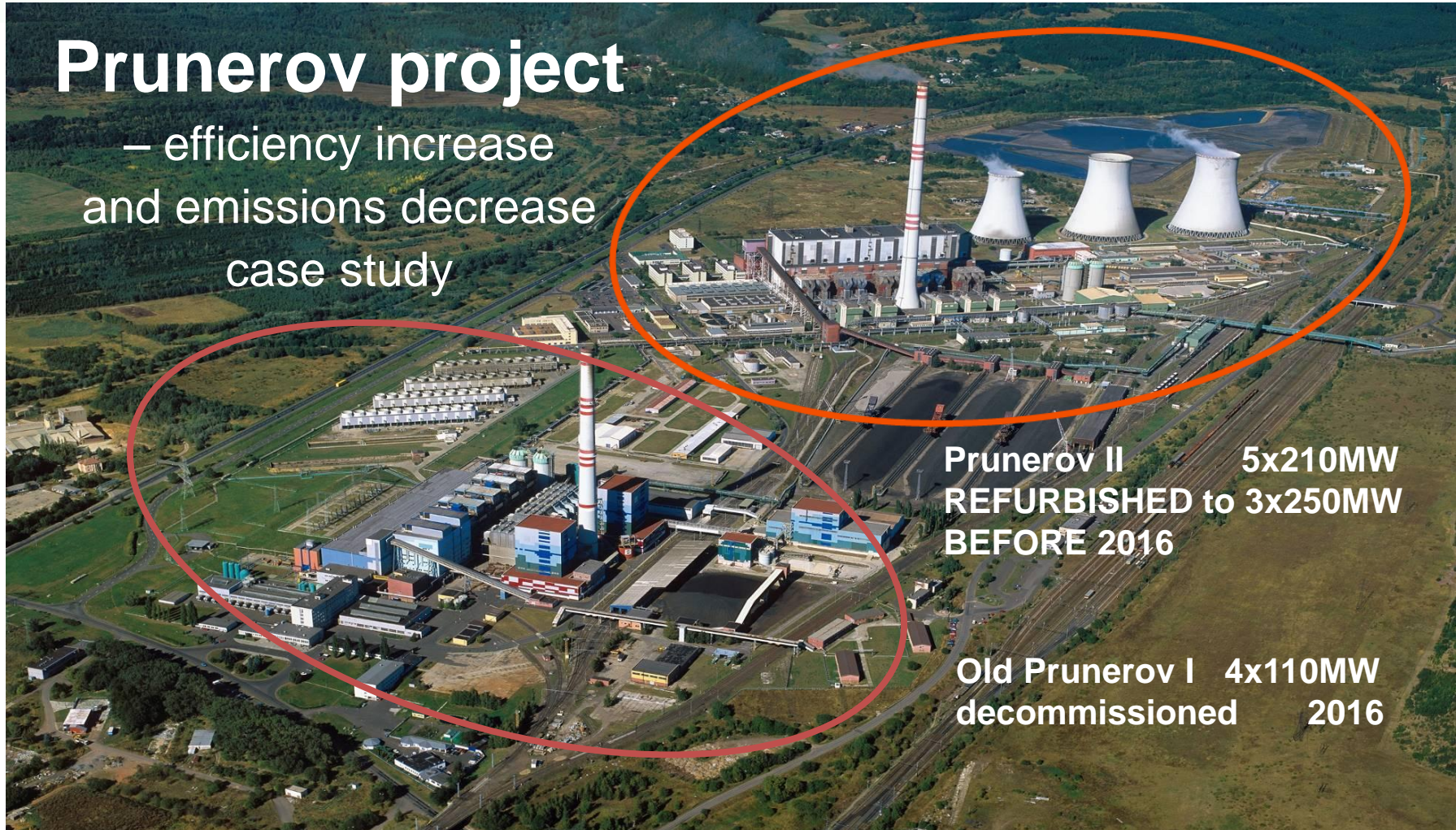
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Prunerov project

– efficiency increase
and emissions decrease
case study



Prunerov II 5x210MW
REFURBISHED to 3x250MW
BEFORE 2016

Old Prunerov I 4x110MW
decommissioned 2016



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Basic info about the project:

- 3 x 250 MWe
- Complex reconstruction (3 units)
- Lifetime extension up to 25y
- Reconstruction started: 09/2012
- Reconstruction will finish: 2014/2015



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Efficiency (power production)	40,00 %
Efficiency (power and heat production)	42,55 %

Emissions [mg/m³]	NO_x	Dust	SO₂	CO
Before the reconstruction	650	80	500	250
After the reconstruction	200	10	150	200



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Existing Prunerov

- **5 x 210 MW = 1050MW**
- + 4 x 110 MW = 1490 MW
- Efficiency 32,8%
- CO2 Emissions 100%
- SO2 Emissions 100%
- NOx Emissions 100%
- Dust Emissions 100%

Future Prunerov

- **3 x 250 MW = 750MW**
- Efficiency 40%
- CO2 Emissions 59%
- SO2 Emissions 31%
- NOx Emissions 36%
- Dust Emissions 33%



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- **Efficiency improvement from 32,8% to 40%**
- **Installed capacity reduced from 1050 MW to 750 MW**
- **Emissions of CO₂ reduced by 41% after refurbishment**
- **Total CO₂ emissions from the complex of power-stations will decrease from 10Mt/y to 4Mt/y, when the decommission of old plant and the refurbishment of the second plant is calculated together**



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www.unece.org/energy

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