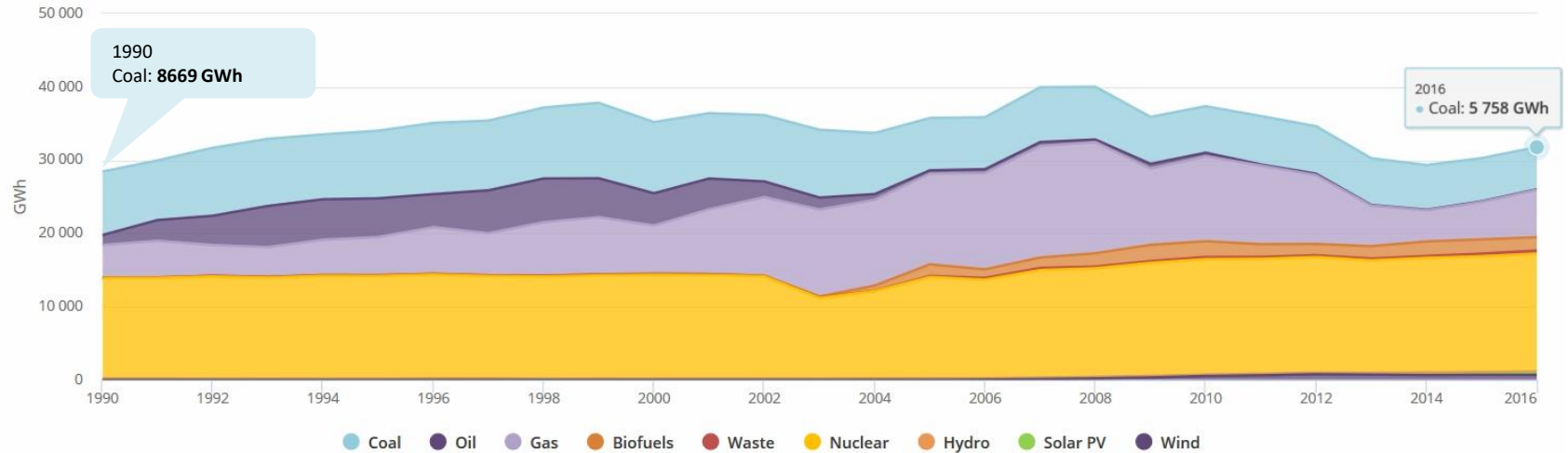


Platform on Coal Region in Transition Hungary

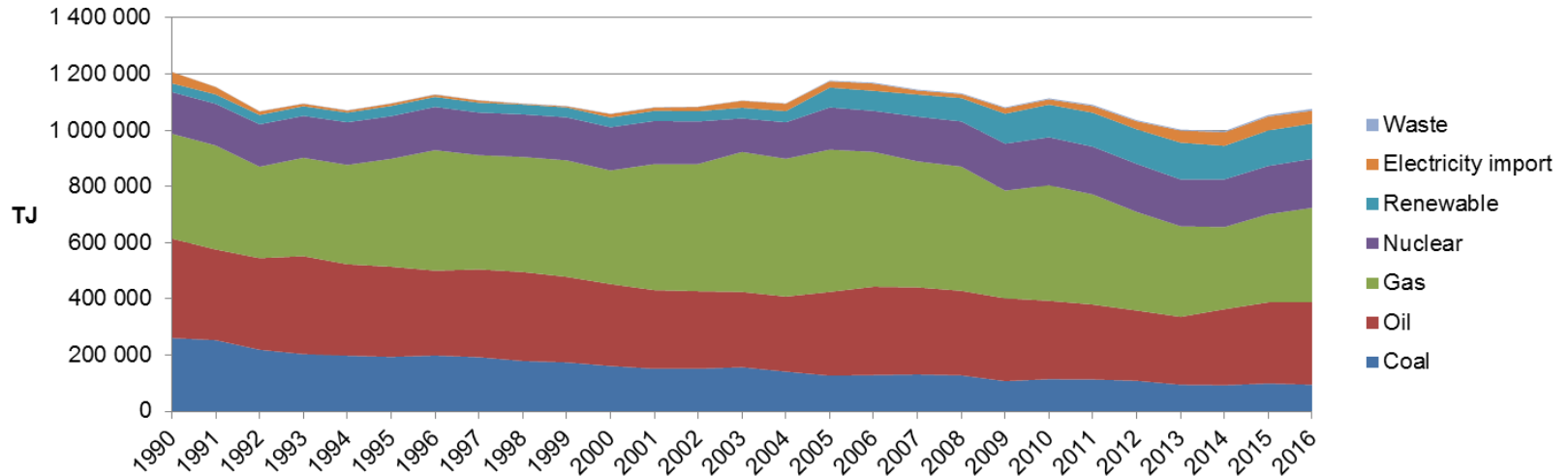
Ministry for Innovation and Technology
2018.

Coal based electricity generation has been decreasing in Hungary

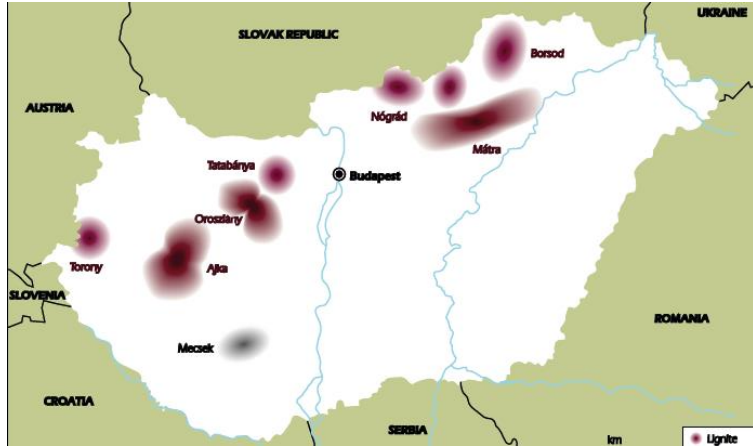


Gross domestic energy consumption by type

The role of coal has significantly changed



Diminishing coal mining



10 coal/lignite basins

Most of them closed

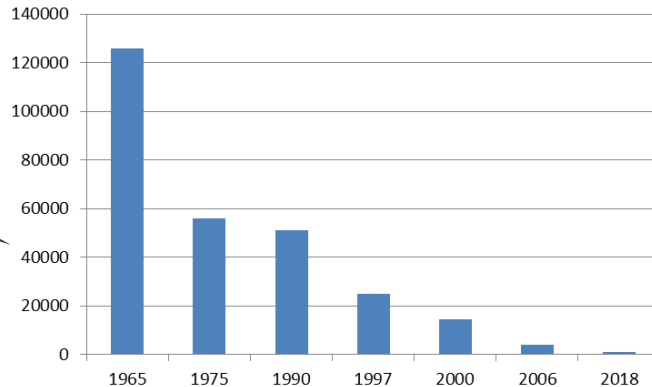
Last underground coal mine was closed
in 2016

Only ONE operating lignite basin
remained for electricity production

Two open-cast lignite mines

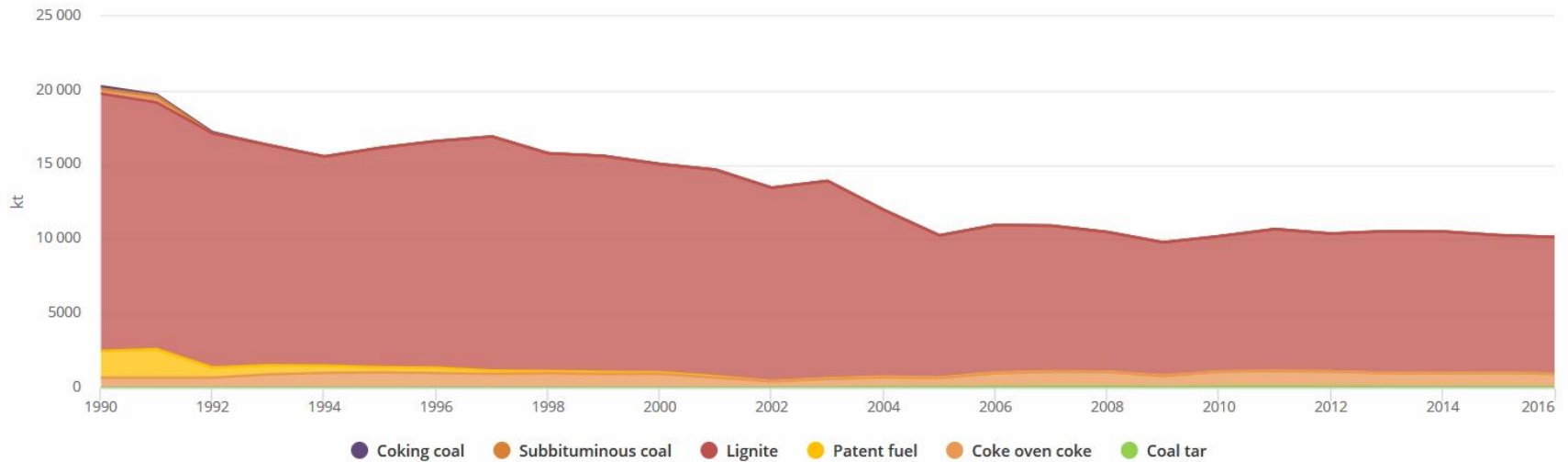
1965: >125 000 miners

2018: < 2 000 miners

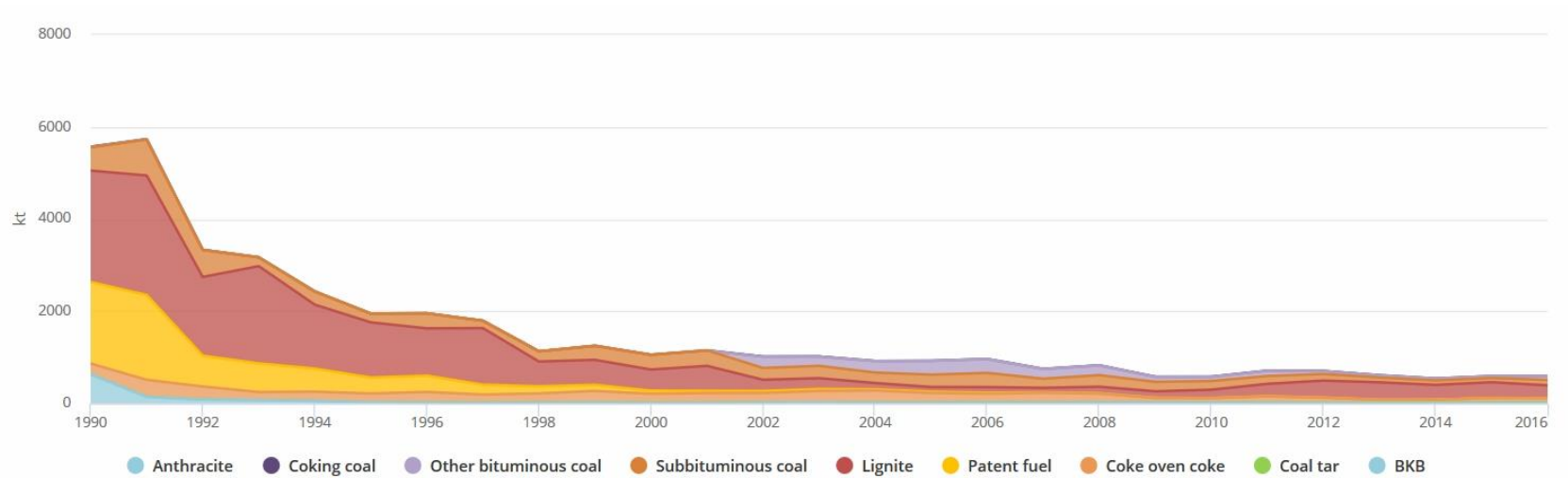


Employment in
coal

Coal production has been gradually decreasing in Hungary

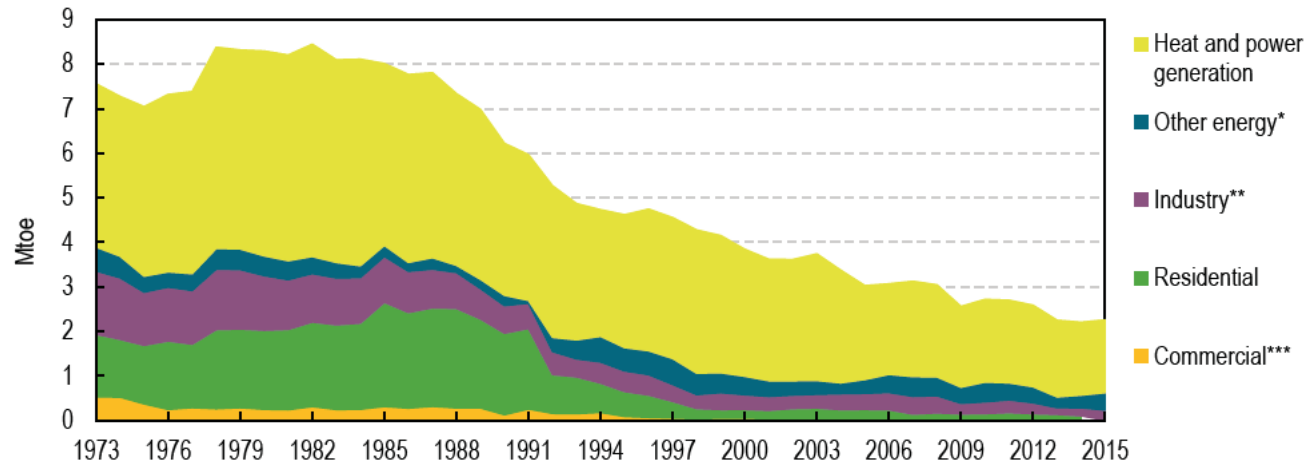


Coal consumption has also fallen



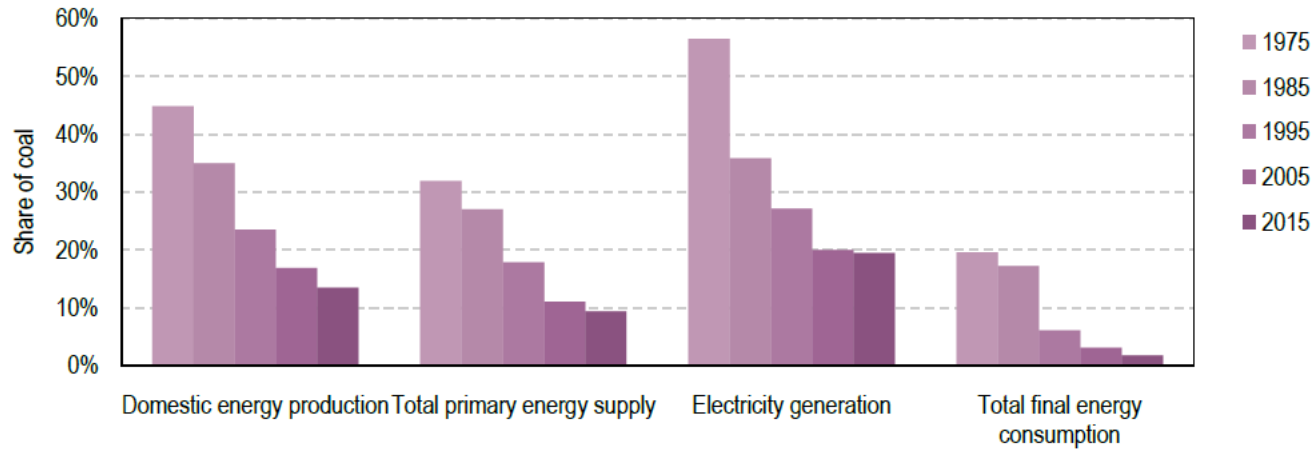
Coal consumption by sector

The role of coal has significantly changed

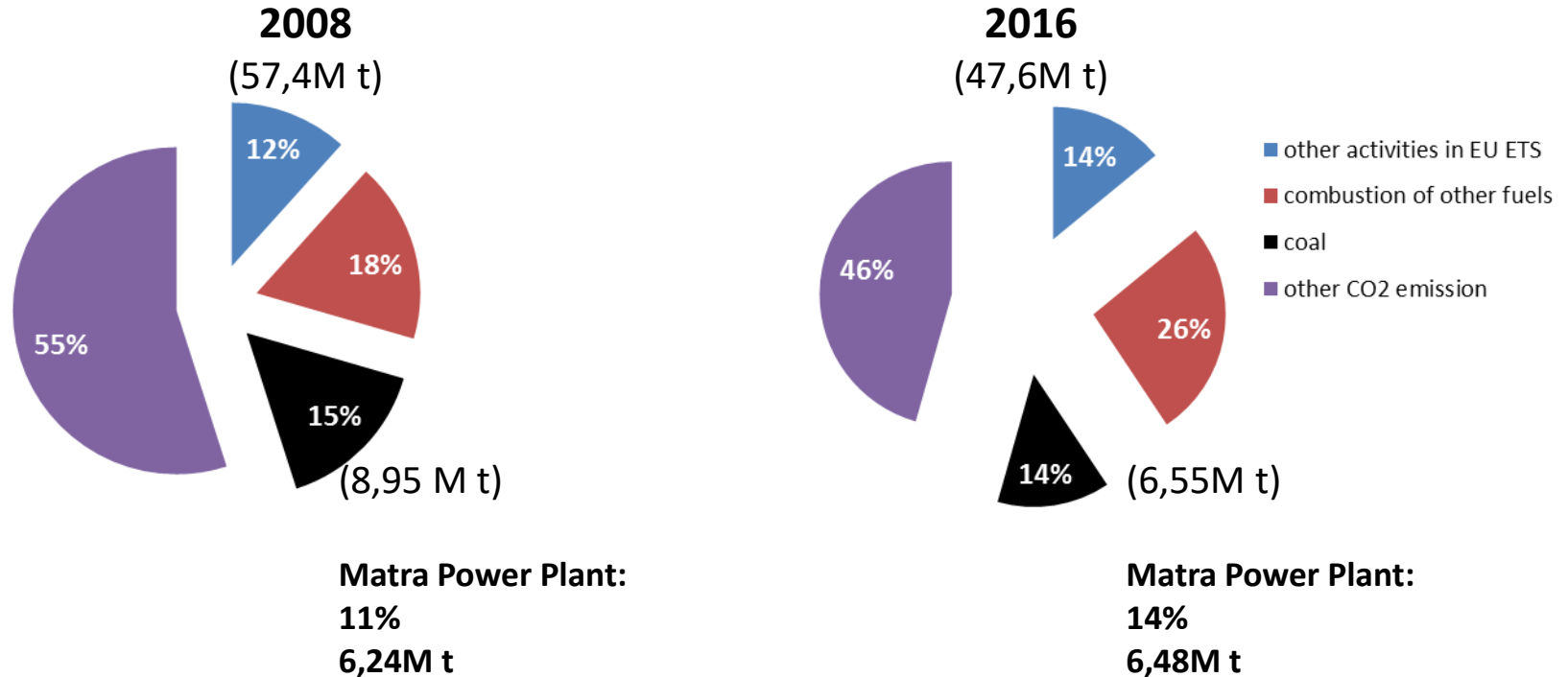


Coal share in different energy supplies (1975-2015)

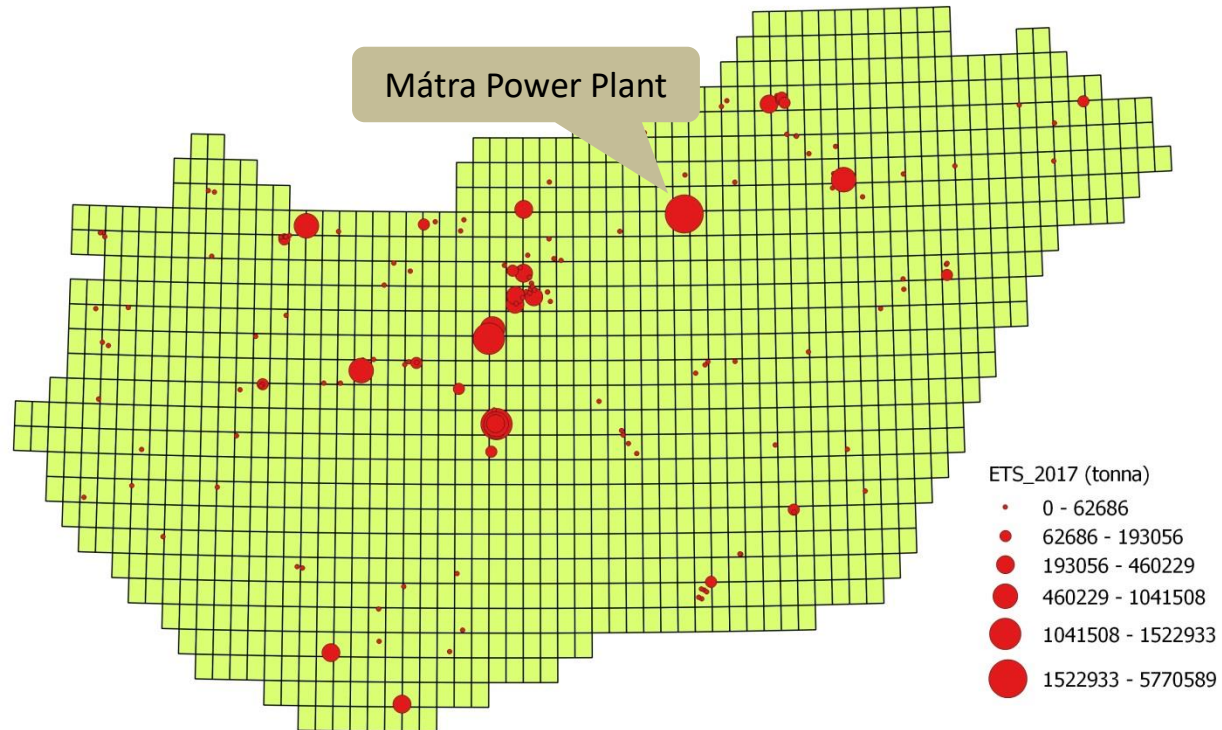
The role of coal has significantly changed



Lignite is responsible for 14% of CO2 emission



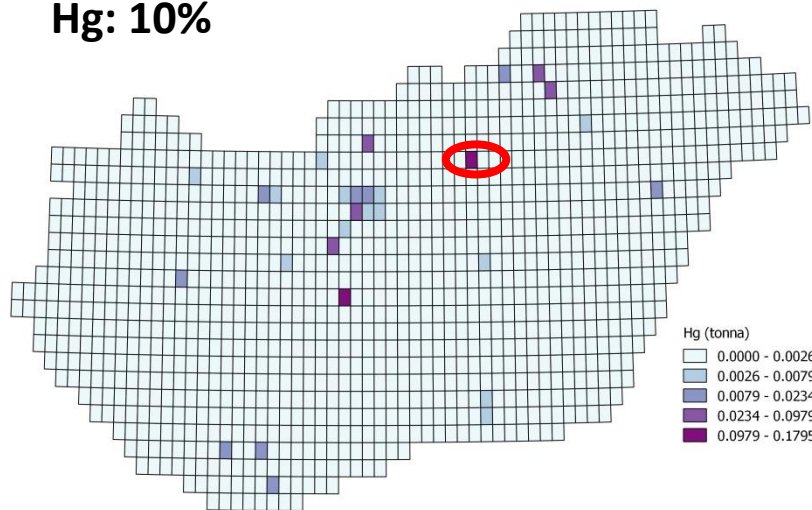
CO2 emission of ETS installations (2017)



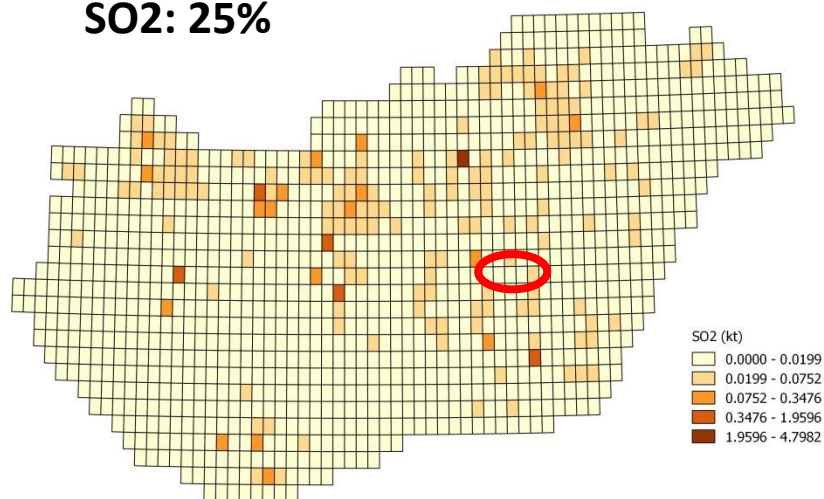


Other pollutions

Hg: 10%

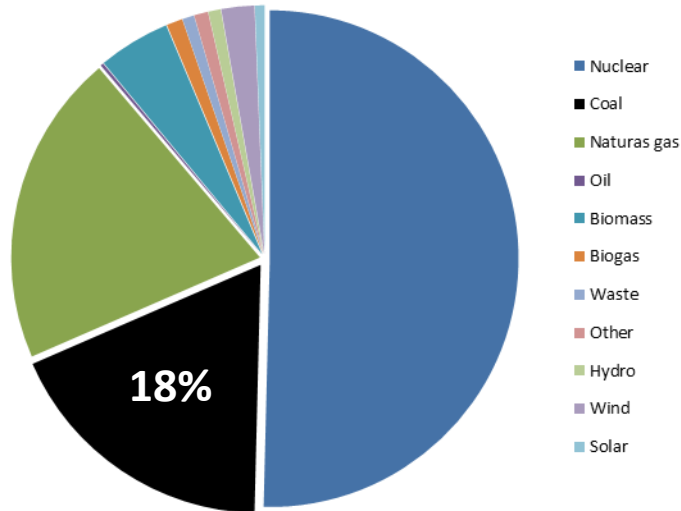


SO2: 25%



Coal is still significant in the electricity mix

Gross electricity production in 2016
(31,8TWh)



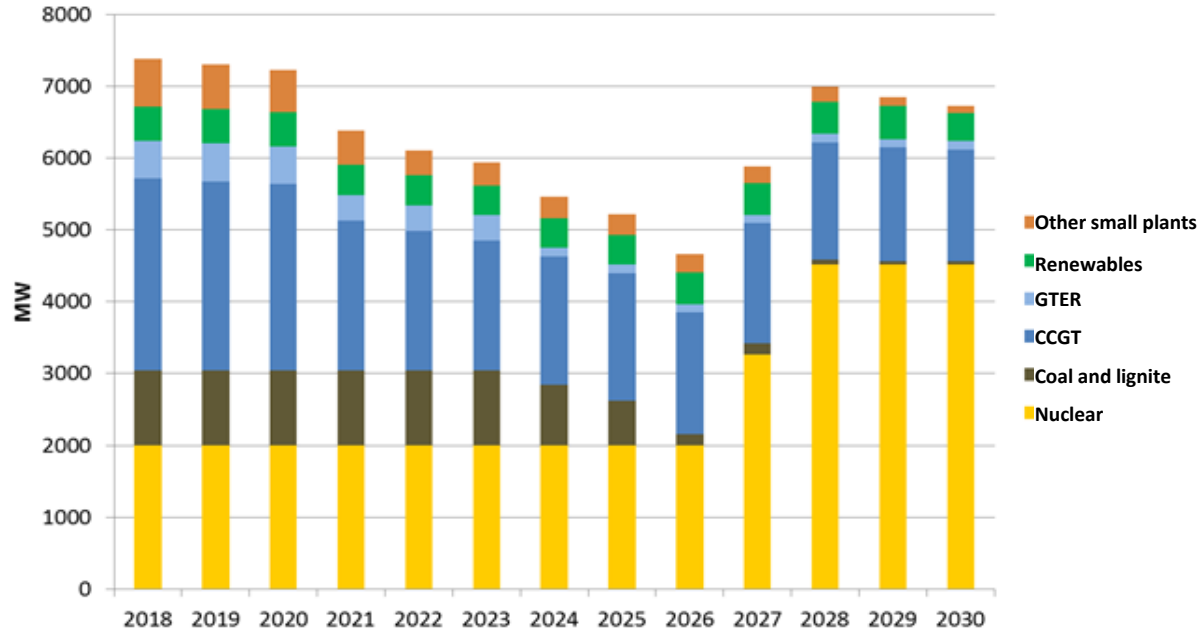
- 18% of gross electricity production
- 5 800 GWh
- Mainly generated in the Mátra Power Plant
- 5 lignite fired units (+ natural gas and RE)
- 884MW
- Operation since 1969



884MW lignite
5 unit + 2 mines
FGD and SNCR
Pulverised lignite combustion
Operating since 1969

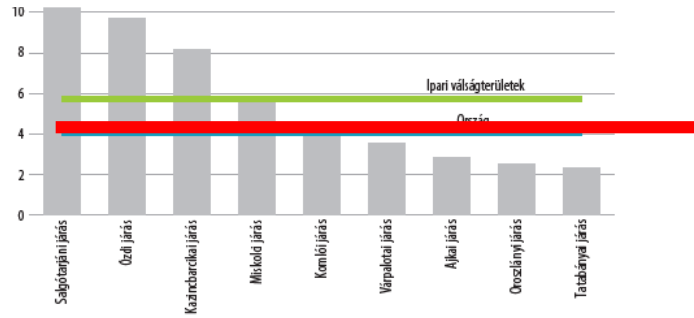
Time to start discussions about transition away from coal

Domestic power capacities without additional investments

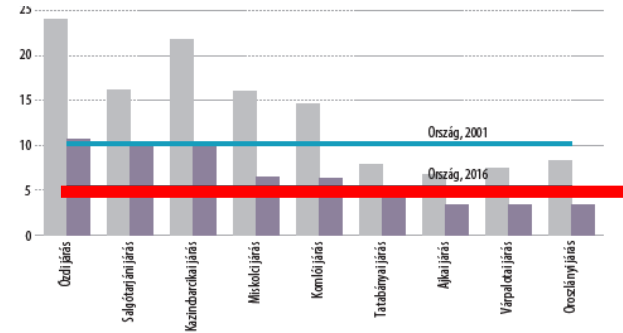


Post coal mining regions are below the average

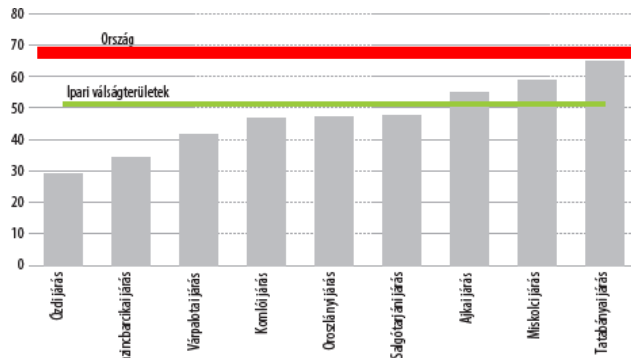
The ratio of registered job seekers (%)



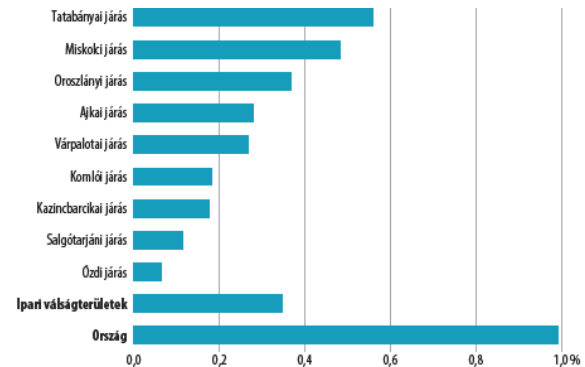
The unemployment rate (%)



Businesses / 1 000 inhabitants



The ratio of new residential buildings (%)



The last remaining coal region – transition planning needed

Bioenergy (co-firing)

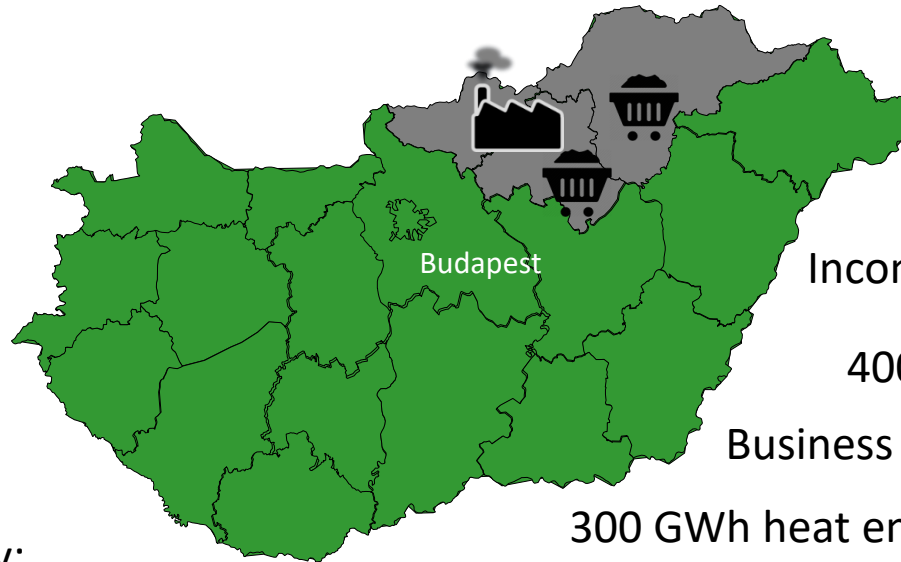
16 MW solar PV on
post-mining site

2*20MW additional
solar PV

Benefits for the industry:

Gypsum, alumina, cement, raw material
for construction, limestone,

Rail freight transport (lignite from mines)



2,100 direct jobs

4,700 indirect jobs

Income for 10,000 households

400,000 tons of biomass

Business tax for 11 municipalities

300 GWh heat energy for 6 industrial
companies

350,000 tons of lignite for residential
heating

The main objective of the transition

Key stakeholders > drive GHG emission reduction > lignite industry > low-carbon transition > in Northern-Hungary

To avoid the risk of sudden and disruptive closure



Regional energy,
socio-economic and
environmental
transition

Distribute benefits

Starting points and regional potential

- High biomass potential (agricultural by-products)
- Existing heat energy demand of the industrial park
- Decentralized pumped-hydro storage opportunities in post-mining sites
- Experience in solar PV project development and operation;
- Large areas of active and post-mining sites available for solar PV and other renewable technologies;
- Developing and expanding industrial park;
- Large energy consumer companies in the vicinity;
- Functioning biomass supply chain and contracted suppliers;
- 10 district-heating systems in the region;
- 100 thousand households dependent on lignite heating in the wider region;
- Three regional education and research centres,

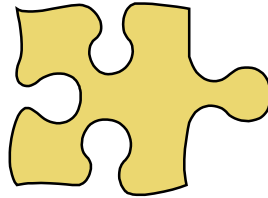


Key stakeholders involved

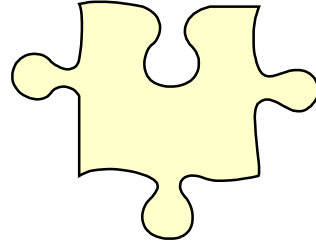
Central government



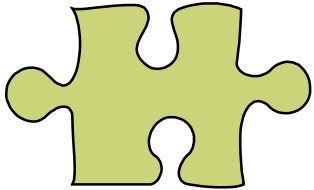
District governments



Local municipalities



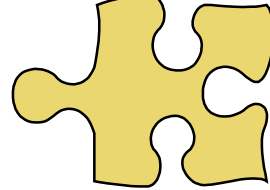
Matra Power Plant



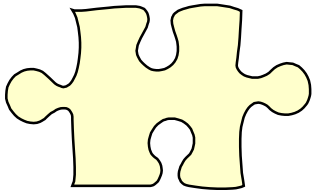
MVM Group



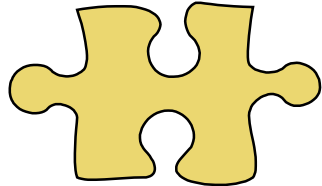
Trade unions



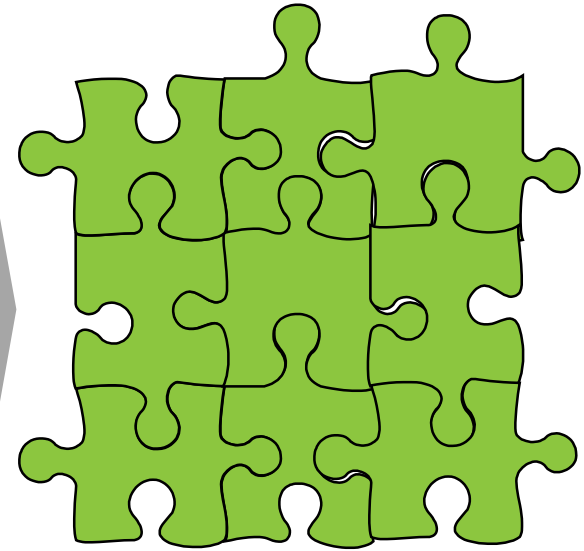
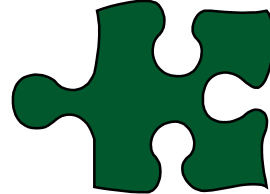
Regulatory Authority



Industry and SMEs



Universities



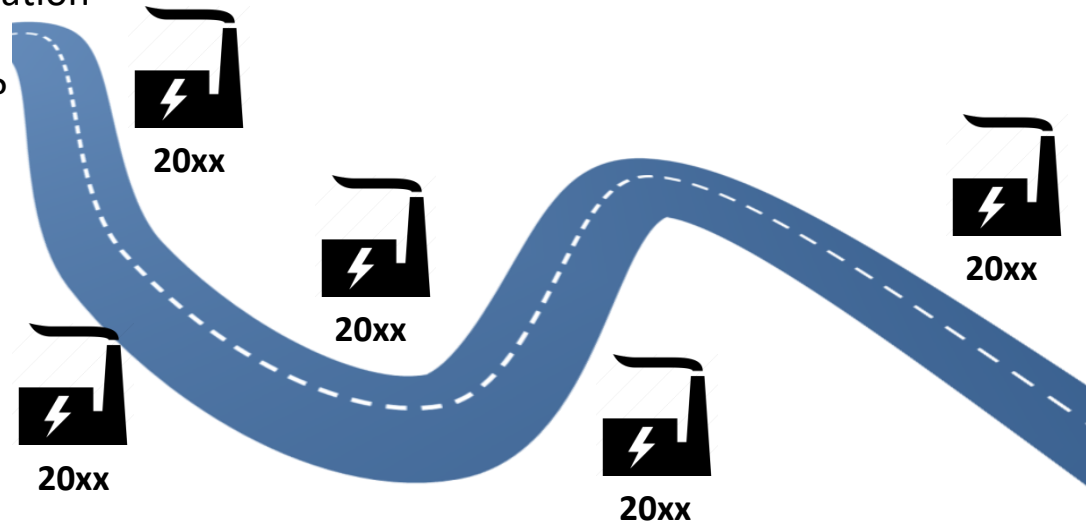
Key proposed actions

- **Pathway** for the transition away from lignite
- **Capacity building** at local, regional and central government level to manage the successful regional and sectorial transition.
- **Promote renewable energy** technologies in post-mining sites to replace lignite based electricity generation.
- **Regional** energy, economic, social and environmental **transition**
- **Magnification** in Central and East European coal regions.

Key proposed actions

Clear pathway and timetable for the transition away from lignite power production and mining.

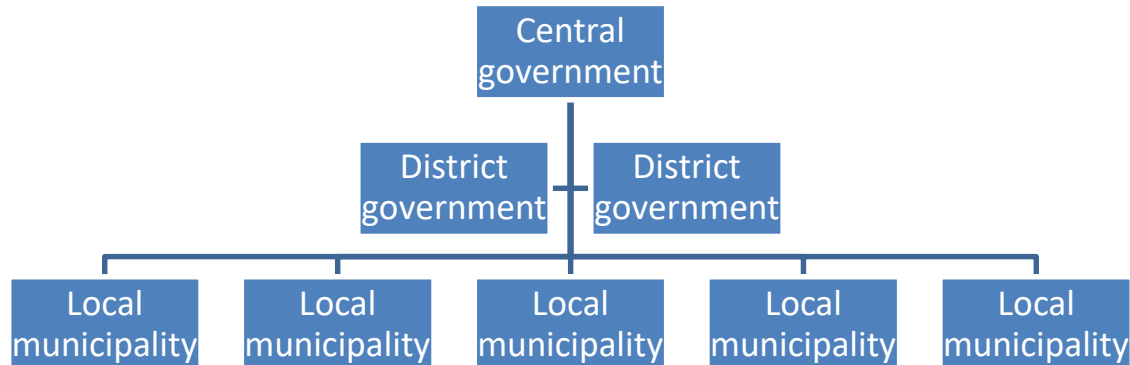
- Timetable for gradual decarbonization transition of 884 MW lignite power capacity by 20xx???
- Responsibilities & obligations (owner, government, authorities, municipalities etc.)
- Identify and mobilize funding sources for the transition



Key proposed actions

Capacity building at local, regional and central government level to manage the successful regional and sectorial transition.

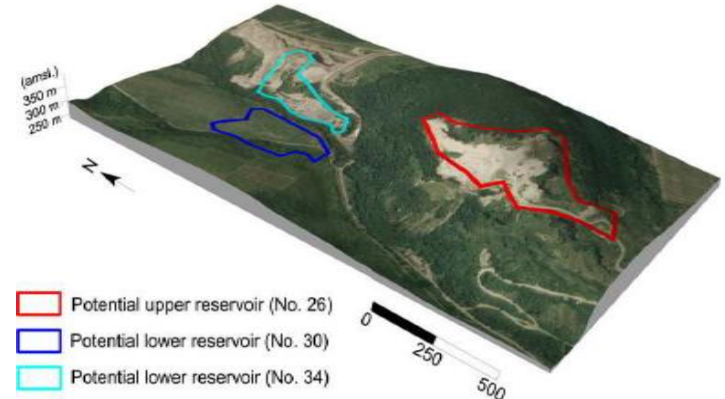
- Lack of human capacity at every level
- Lack of management capacities with transition experience
- Regional and local economic, social, environmental and energy transition management



Key proposed actions

Promotion of renewable energy technologies in post-mining sites to replace lignite based electricity generation.

- Existing experience in developing and operating solar PV on post-mining sites
- Two additional solar PV projects in pipeline
- Good theoretical potential for pumped-hydro storages
- Existing biomass supply chain > new biomass CHP



Key proposed actions

Regional Just Transition: energy, economic, social and environmental transition

- Assess regional labour market and identify real shortage of job positions
- Vocational training courses specifically for green job positions in the region
- Joint programme with education centers, local municipalities and companies to develop education programme to help smart specialization for affected workforce;
- Expand the existing industrial zone around the power plant
- Support entrepreneurs, SMEs and start-ups develop innovating projects;
- Land reclamation with multiple goals:
 - Create space on post-mining sites for active recreation and outdoor sport activities
 - Create space on post-mining sites for water retention

Key proposed actions

Initiate multiplication in Central and East European lignite regions





MINISTRY FOR
INNOVATION AND TECHNOLOGY

Thank you for your kind attention!

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