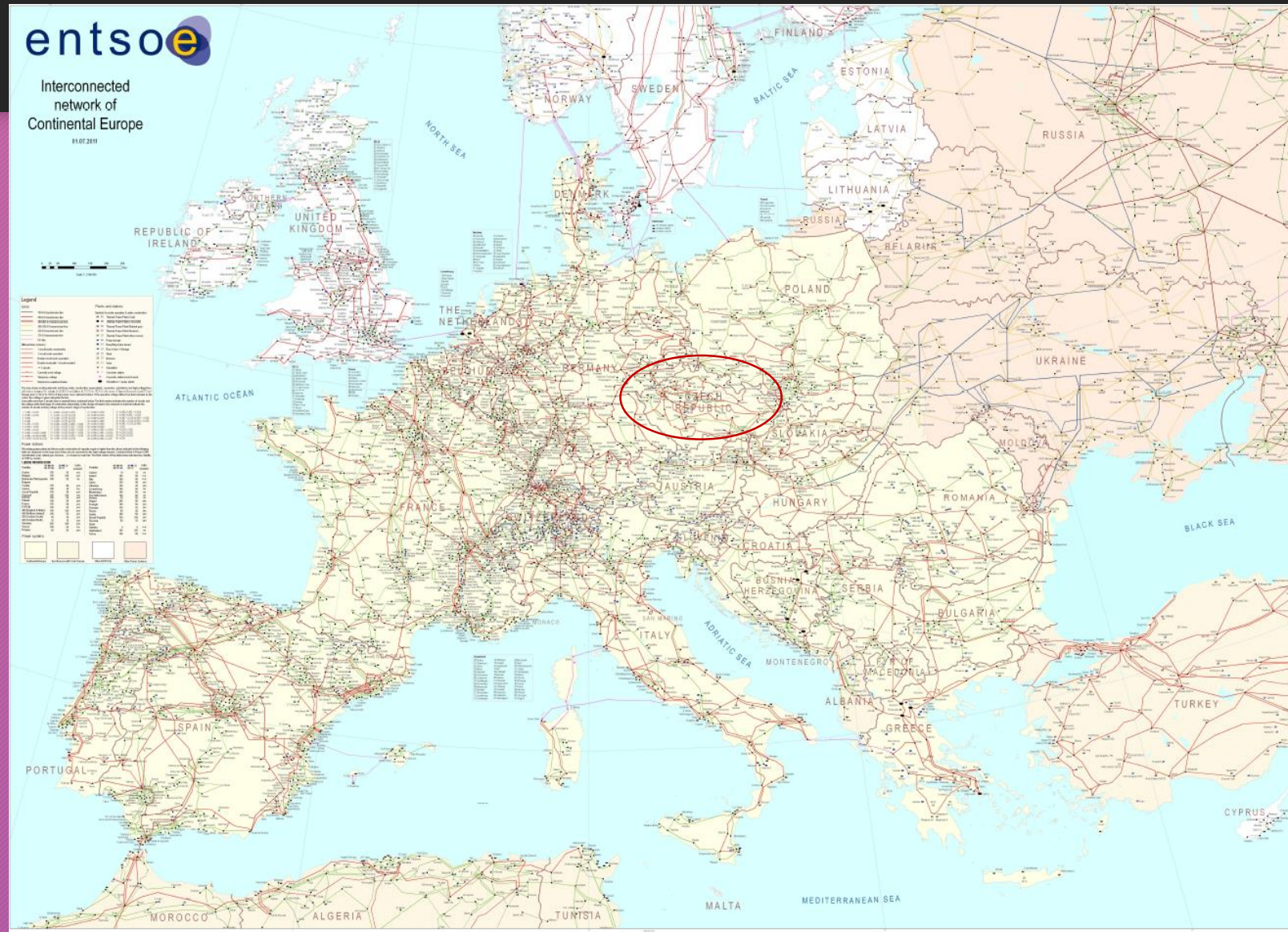


Czech energetics after 2022

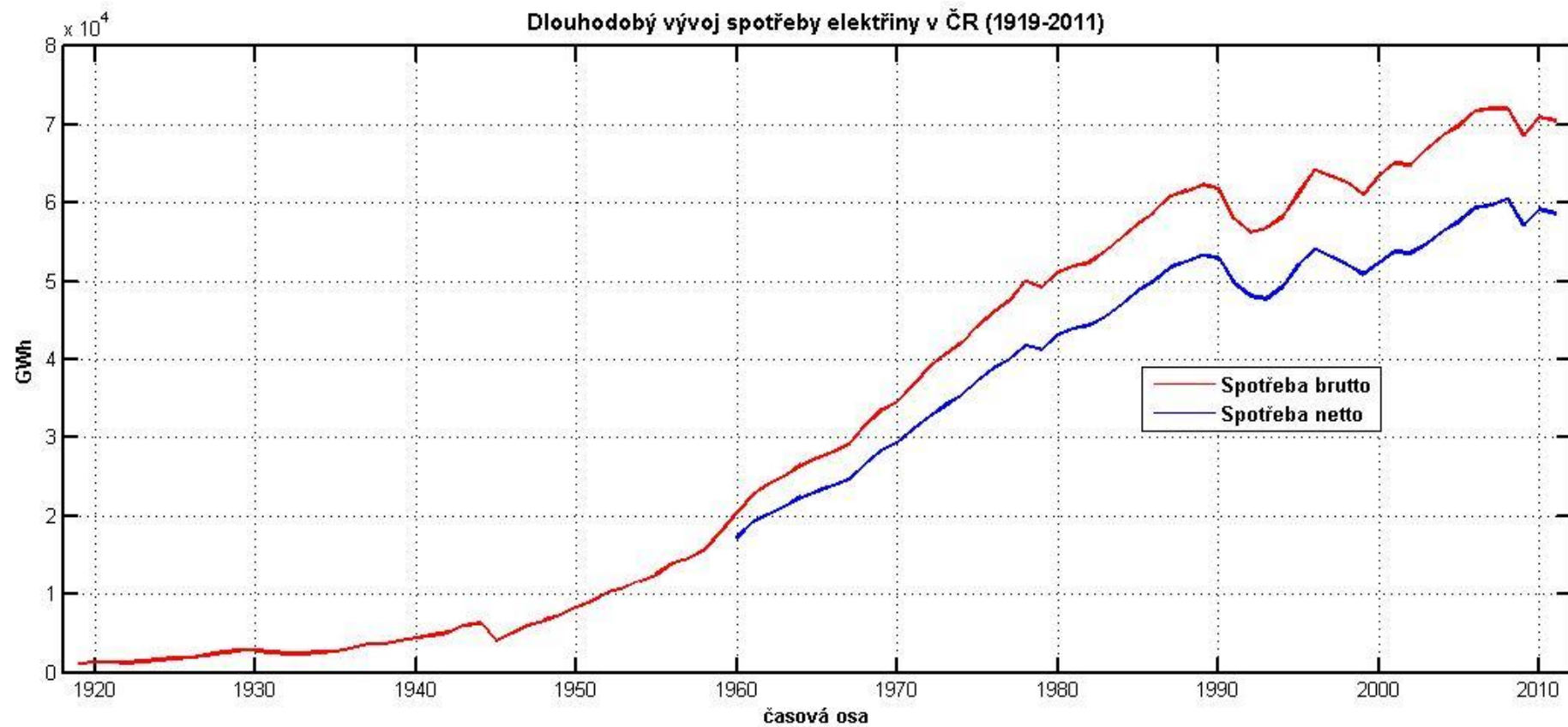
Hynek Beran

Energy Commission of CAS & CTU

CZ in European Grid



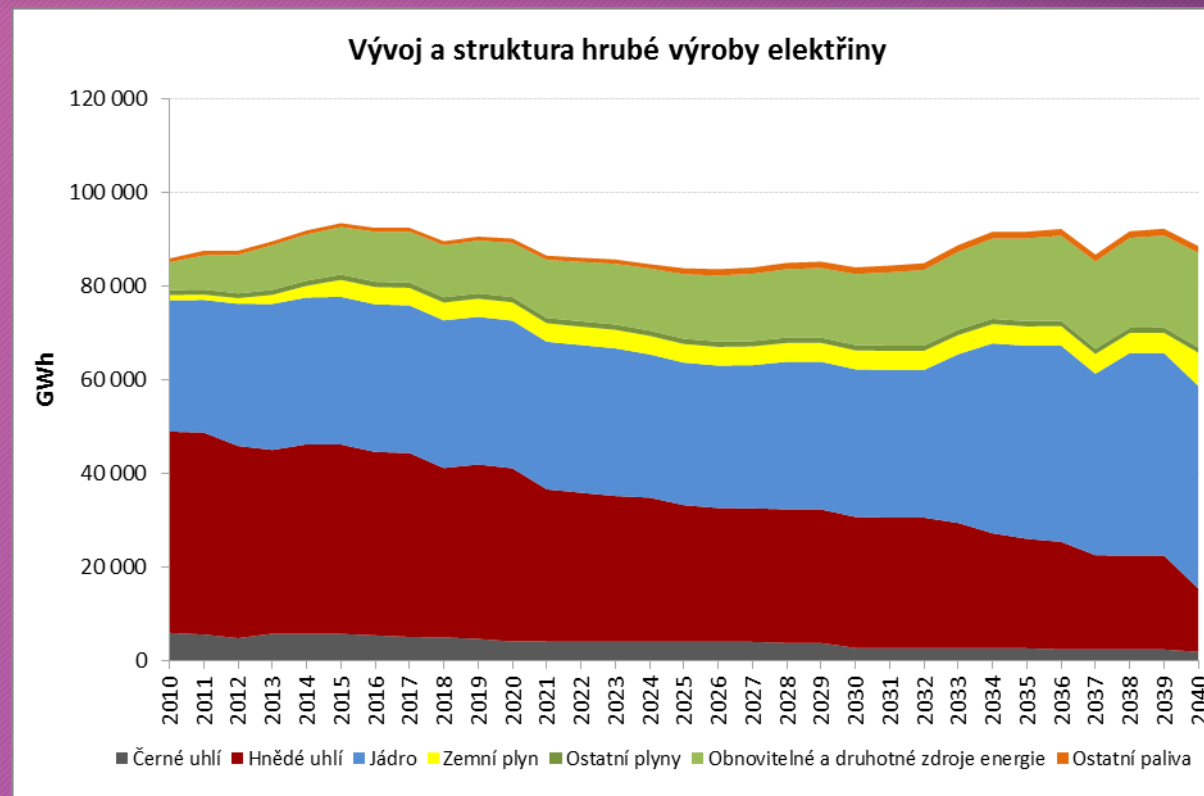
Energy consumption CZ / CS



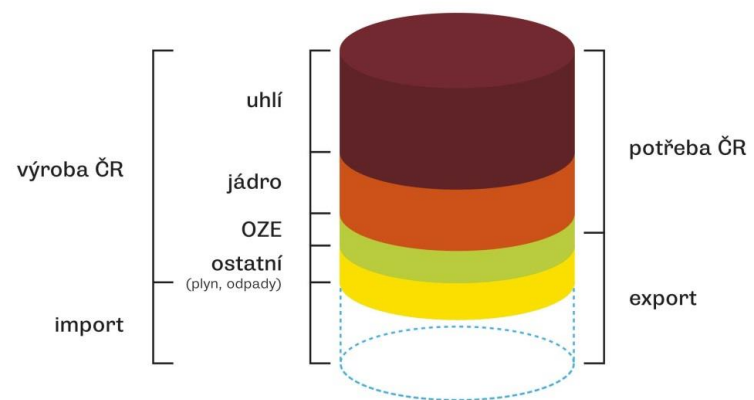
Energy mix CZ (approximate)

- Net consumption 60 TWh
- Export 15 TWh
- Brutto production about 80 TWh
- Nuclear about 1/3
- Renewables about 10%
- Rest LIGNITE (more than half)
- Plus some residuum (gas, waste etc.)

Energy mix CZ

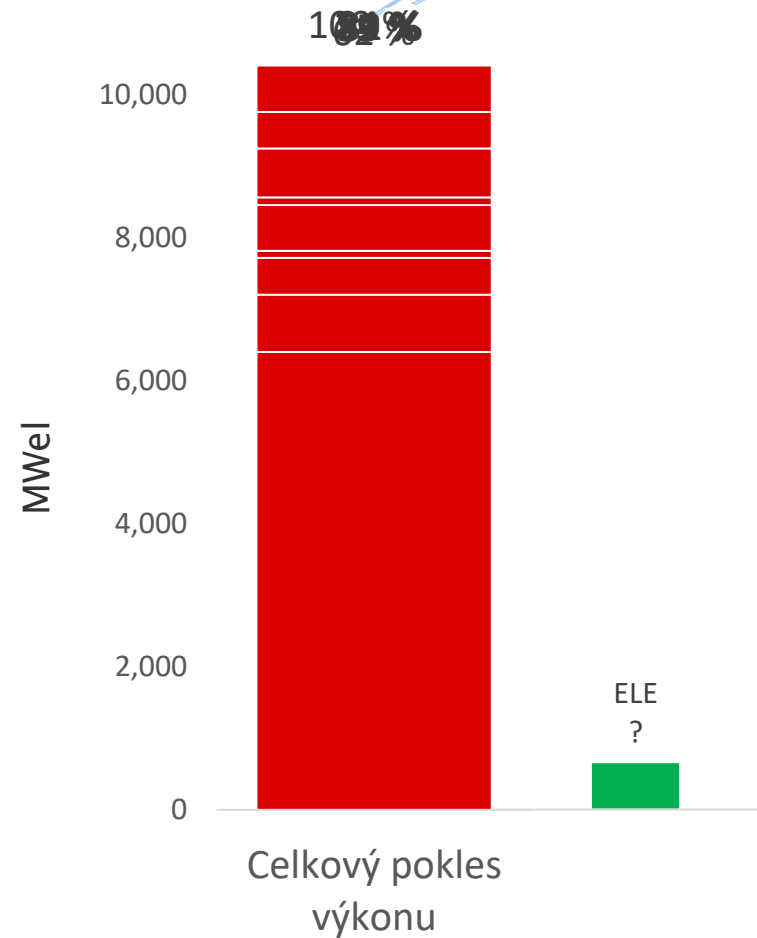
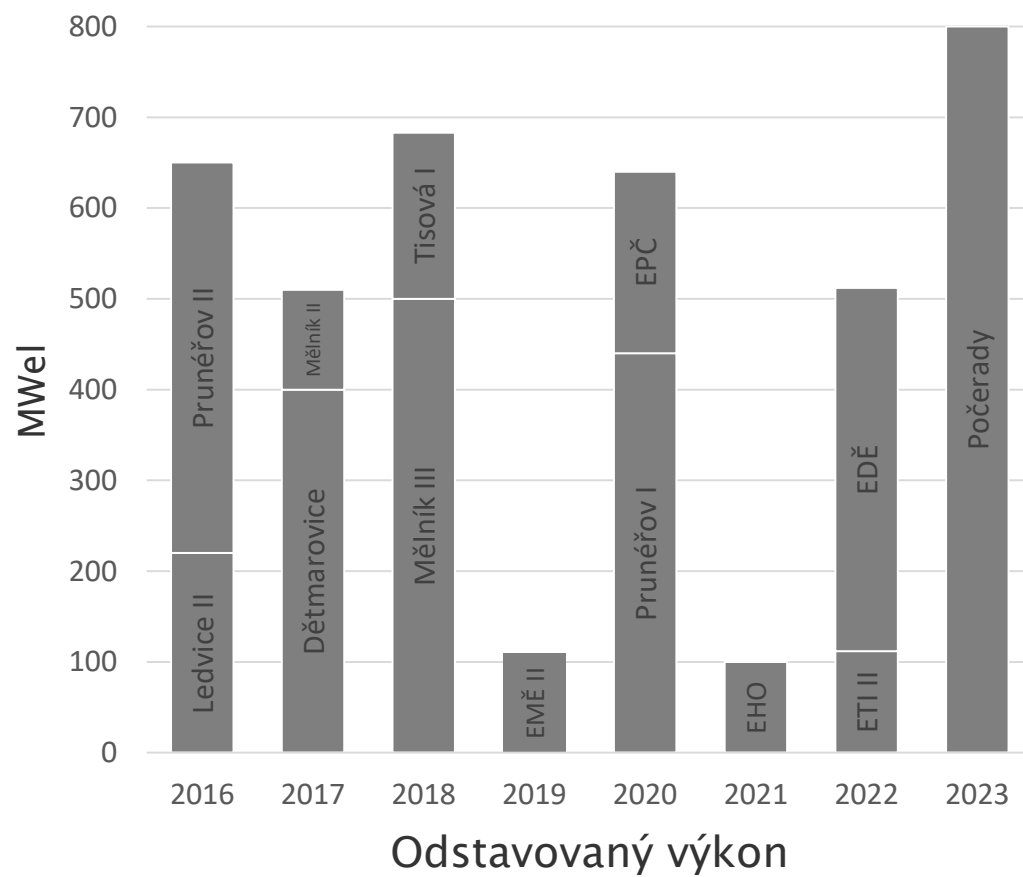


Energy exportation

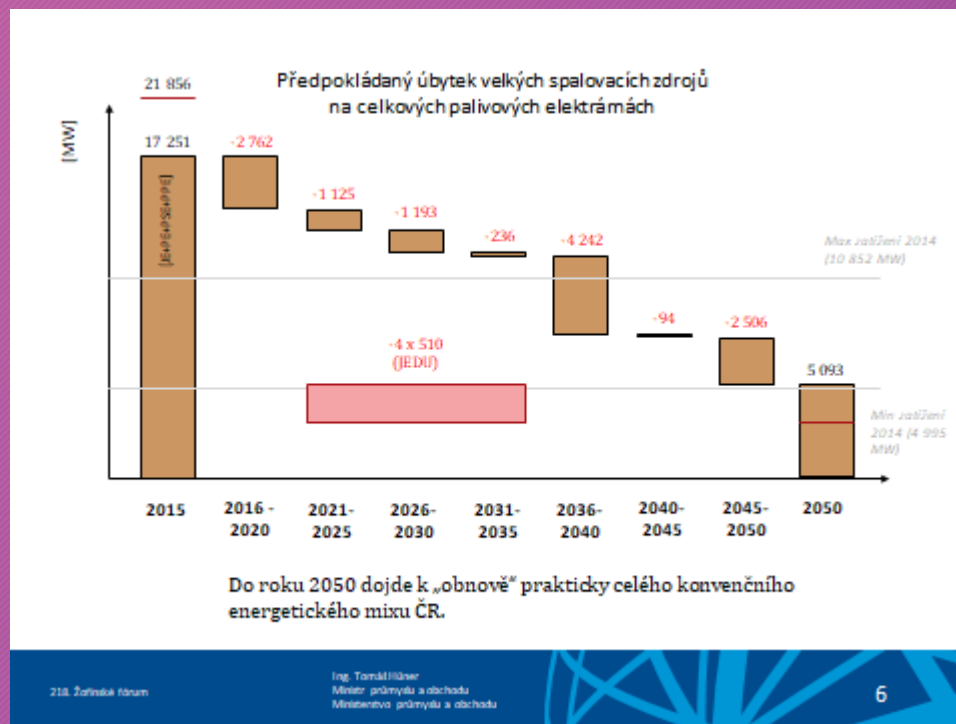


CZ lignite afer 2022

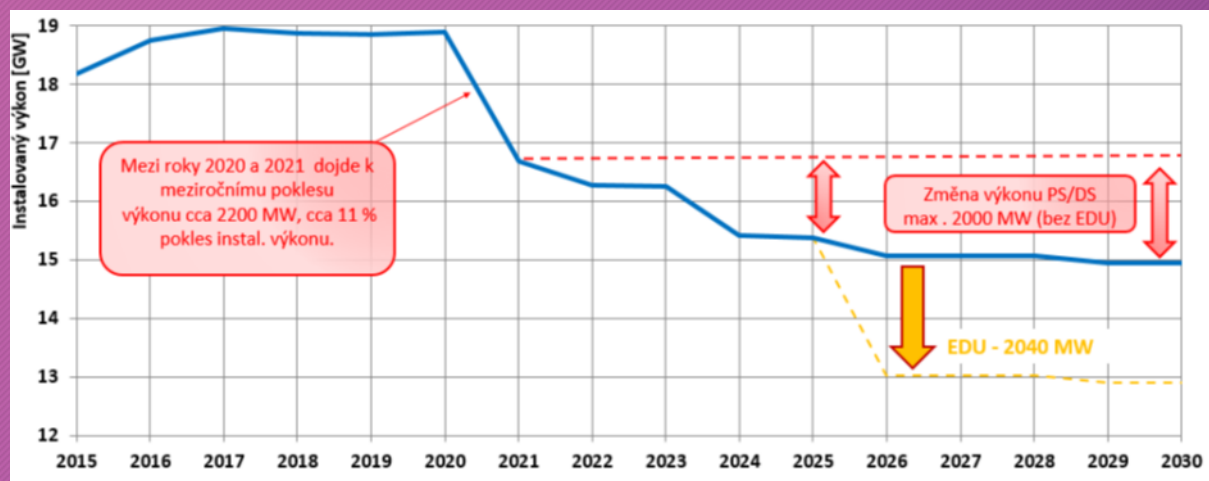
Invicta
BOHEMICA



Lignite in time



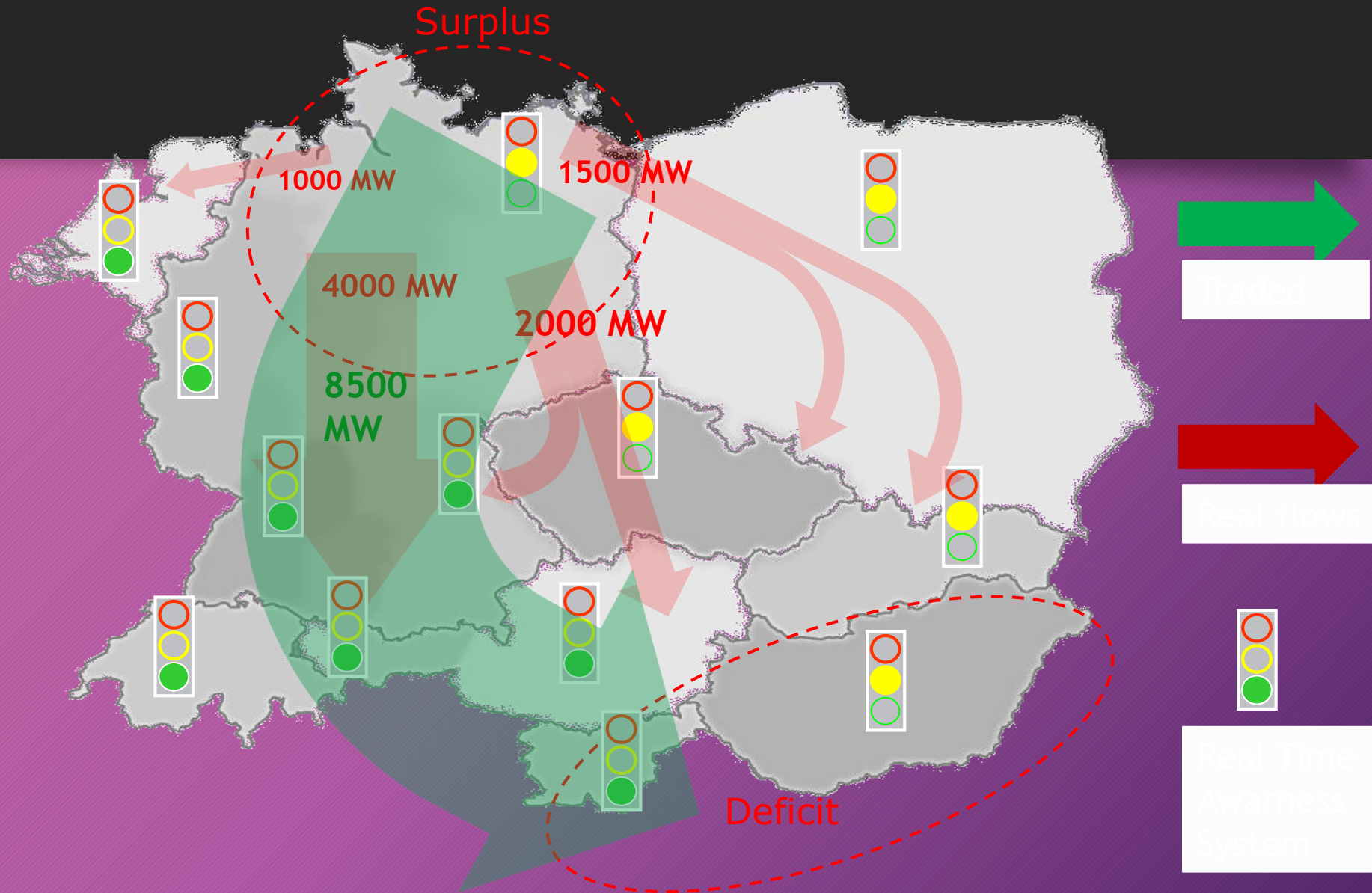
System imbalance after closing nuclear power plant



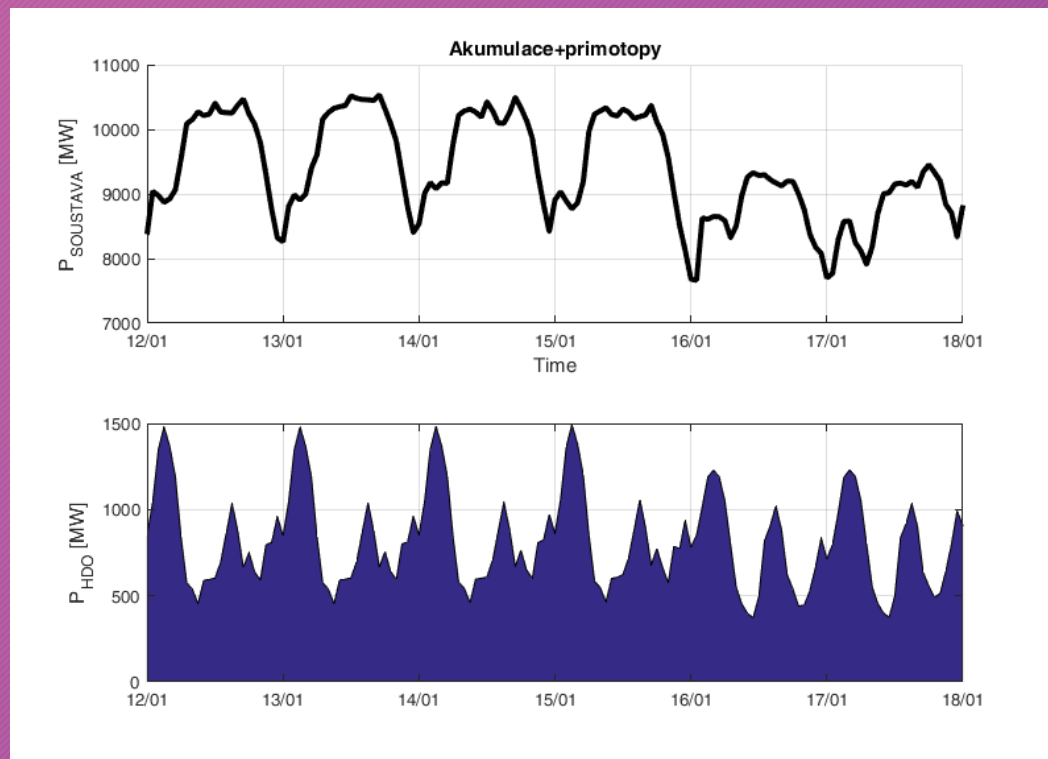
Situation after 2022

- Zero balance: no export
- Unstable intraday balance: surplus at noon, problems can occur during morning and afternoon peak
- No lines in Germany North - South
- Phase shifters on the border active and mounted
- **WE HAVE TO FIND A NEW CONCEPT OF SYSTEM STABILITY IN 2022**

D (wind) - CZ (line) - A (water)



Ripple control load



Electromobility improving DS, improving energy mix (50% lignite is not clean energy)

Škoda Sentinel 1924

52 kW

Velocity 15 to 25 km/hod

Radius 40 km

ABS by reversion steam machine

No power system required



Approaching new energy époque

- Power surplus from the last regime will be finished
- We will have partial intraday surplus (in CZ mostly PV and German windy flows)
- More flexibility in the distribution system will be required
- Partial security of supply based on island system performance (smart home, smart city, smart national or regional system)
- Many new challenges for stability and control calculations, many practical tasks to be implemented within 3 years!