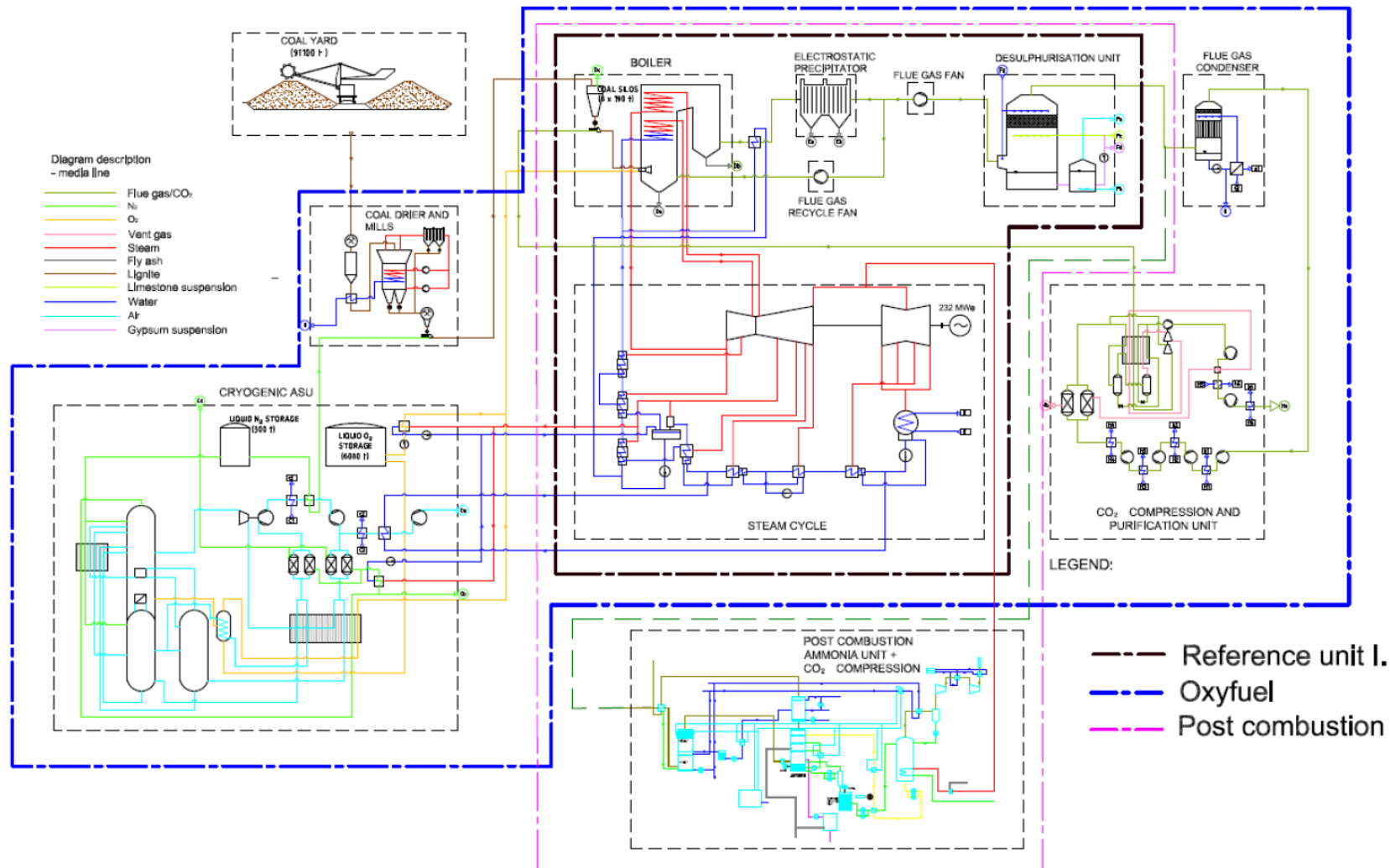




WP1 - INPUT ANALYSIS

Monika VITVAROVA, FME CTU in Prague
4. 11. 2015

Previous study systems diagram

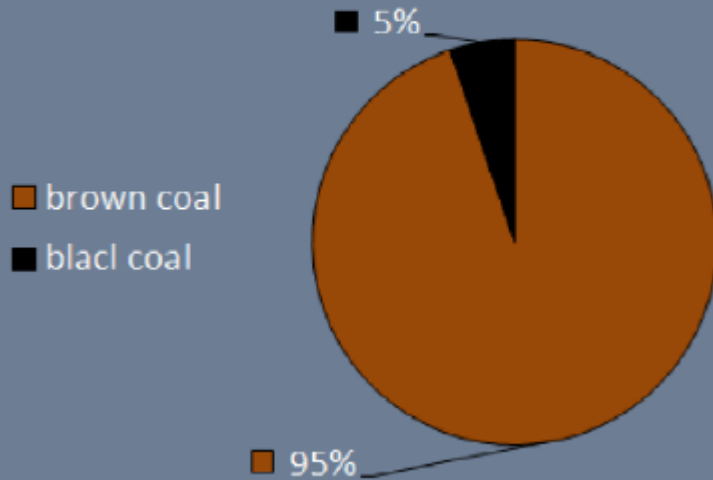


Input data for analysis

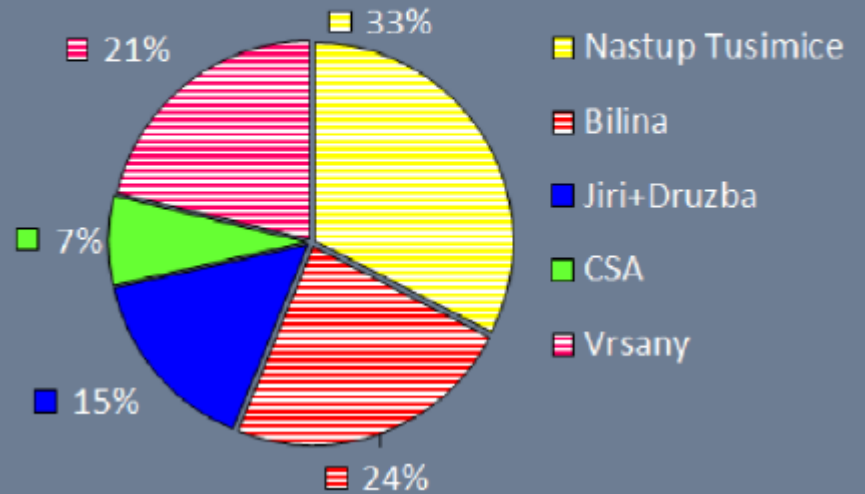
- Brutto Power output (250 MWe)
- Fuel (czech coal – lignite)
- Capture factor (90%)
- CO2 mixture to transport

Czech Coal

Coal mining in Czech Republic in 2013



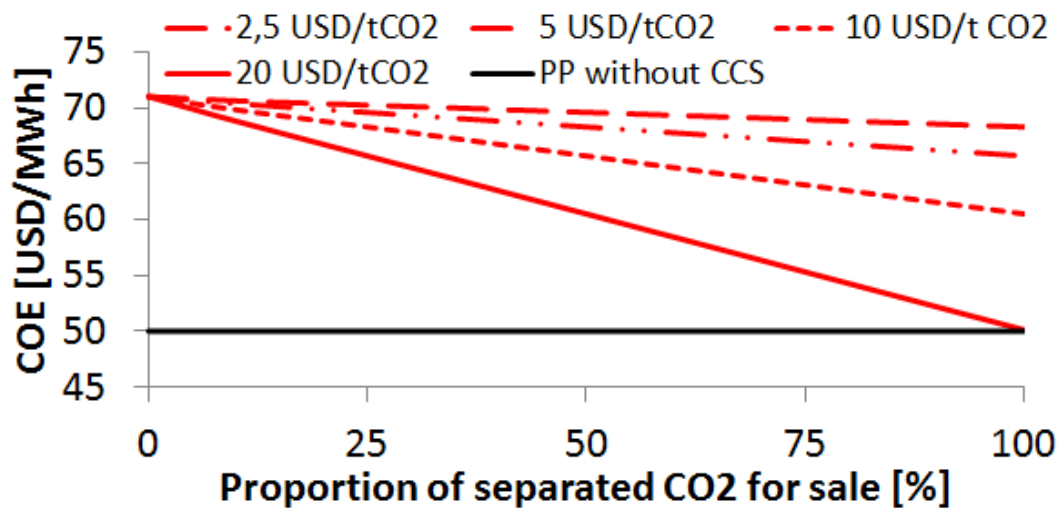
Brown coal mining in Czech Republic in 2013



Options to improve economic efficiency of CCS technology integration

- Generally, the possibilities can be divided into:
 - technical
 - Economic
 - Technical Options => to reducing energy consumption:
 - extensive - reducing the energy consumption of existing technologies
 - intense - the search for new methods of separation
 - Economic opportunities / incentives that could streamline CCS include:
 - reducing the capital intensity of CCS
 - the possibility of producing and selling another product
 - **exploring the possibilities for the use of separated carbon dioxide**

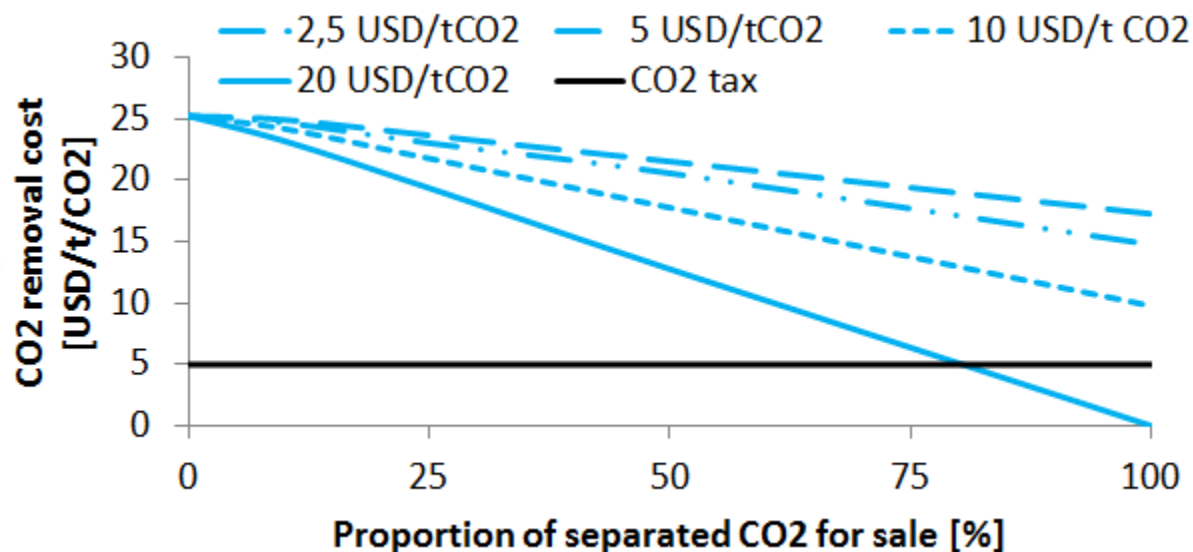
Economic benefit of CO₂ utilization



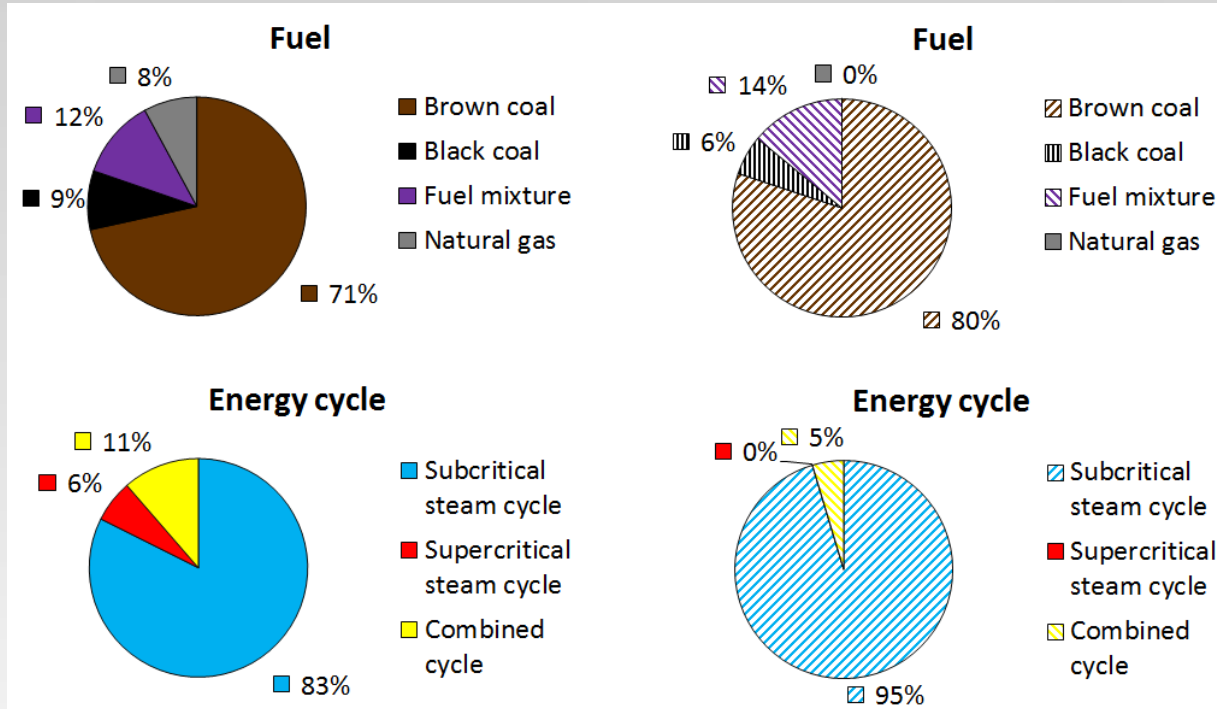
Influence of sale of captured CO₂ to electricity price



Influence of sale of captured CO₂ to CO₂ removal cost

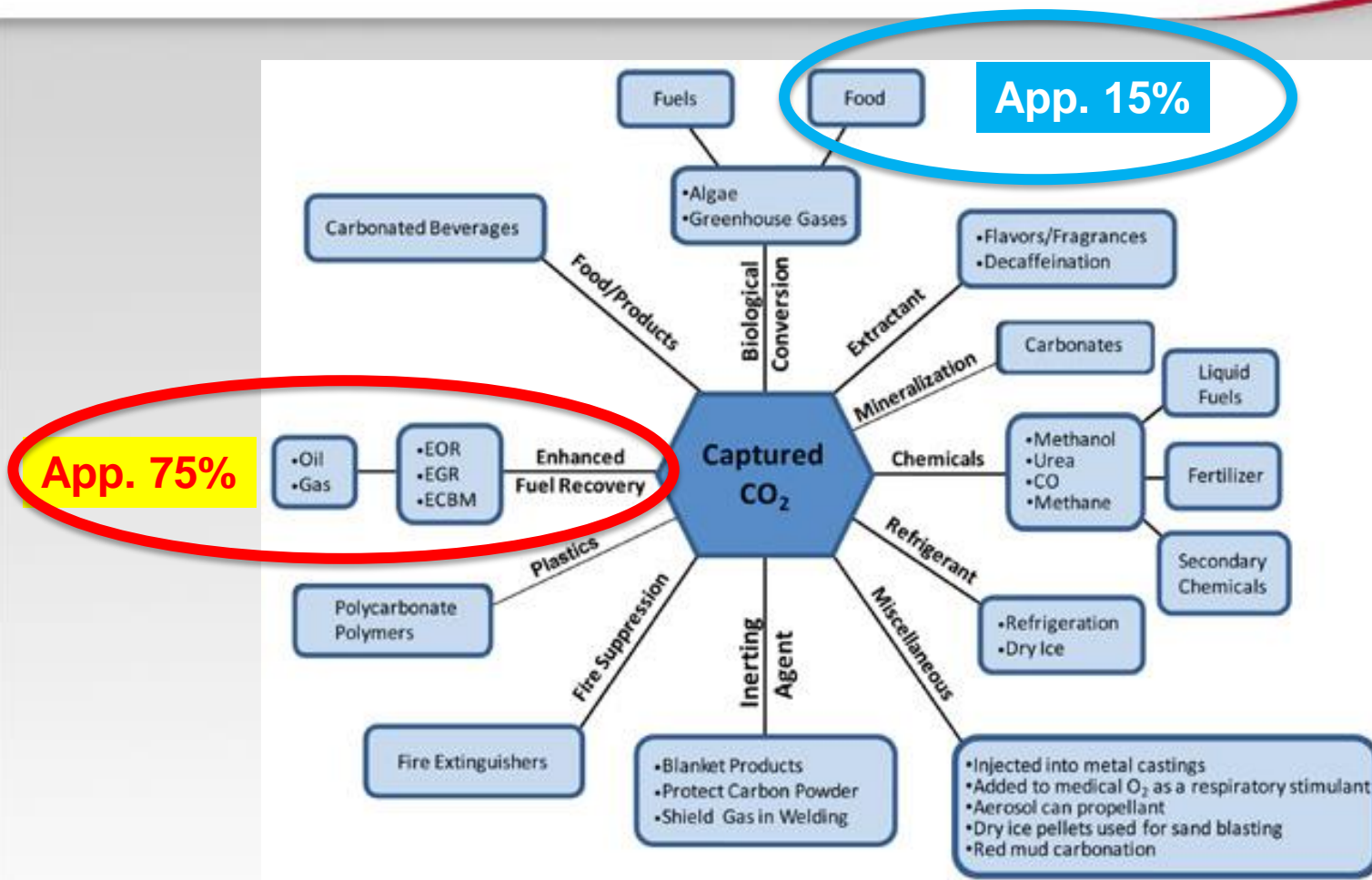


Fossil power plant in Czech Republic



- 49 TWh electricity production from fossil fuel in 2011
- App. **48 mill. tune of CO₂** was avoided in 2011

CO2 utilization - possibilities



CO₂ utilization in Beer production

- Approximately Beer contains 5 grams CO₂ per liter
 - For case
 - 100 % utilization of captured CO₂ from fossil fuel power plants in Czech Republic for beer production industry respond
 - annual production of beer in the amount of 86.4 mill. hecto liter
 - real annual production of beer was the amount of 19 mill. hecto liter in 2013, it is means that Beer production industry has a potential for max. 20 % utilization of captured CO₂ in ideal case



- **Increase production and consumption beer about 450 %**
- **Search / Creation / Bussiness (Research) for new unconventional possibilities for the use of CO₂**

THANK YOU FOR YOU ATTENTION