

# CCS in Gas fired power generation

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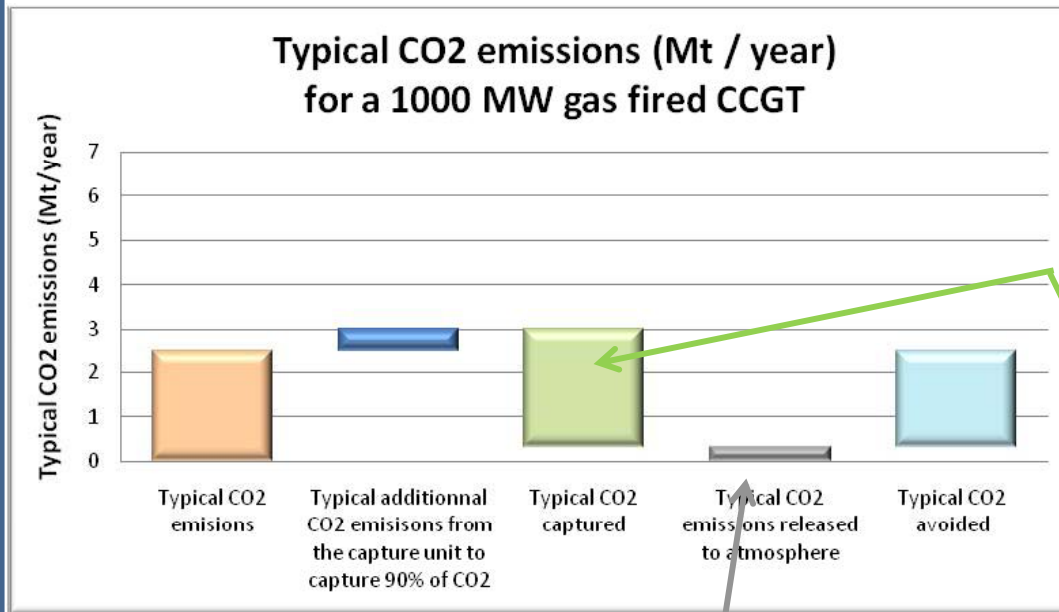
# Gas is a very interesting fuel to limit GHG emissions in power generation

Substituting coal by gas in power generation has a high potential to quickly reduce CO<sub>2</sub> emissions (typical CO<sub>2</sub> emission from a 1000 MW power plant is around 2.5 MtCO<sub>2</sub>/y for gas (CCGT) and 5.4 MtCO<sub>2</sub> for coal (SSCPC))



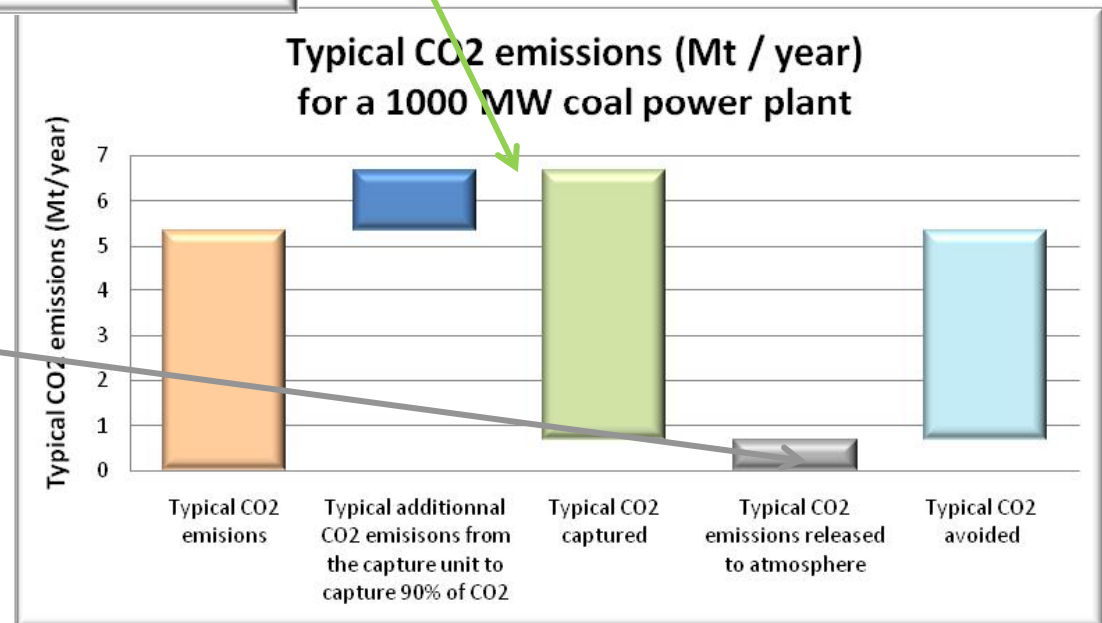
**In the medium term Carbon Capture and Storage could be efficiently applied to gas fired power plant**

# CCS could be efficiently applied to gas fired power plants



CCGTs need less than twice less CO<sub>2</sub> transportation and storage facilities than SCPCs for CCS

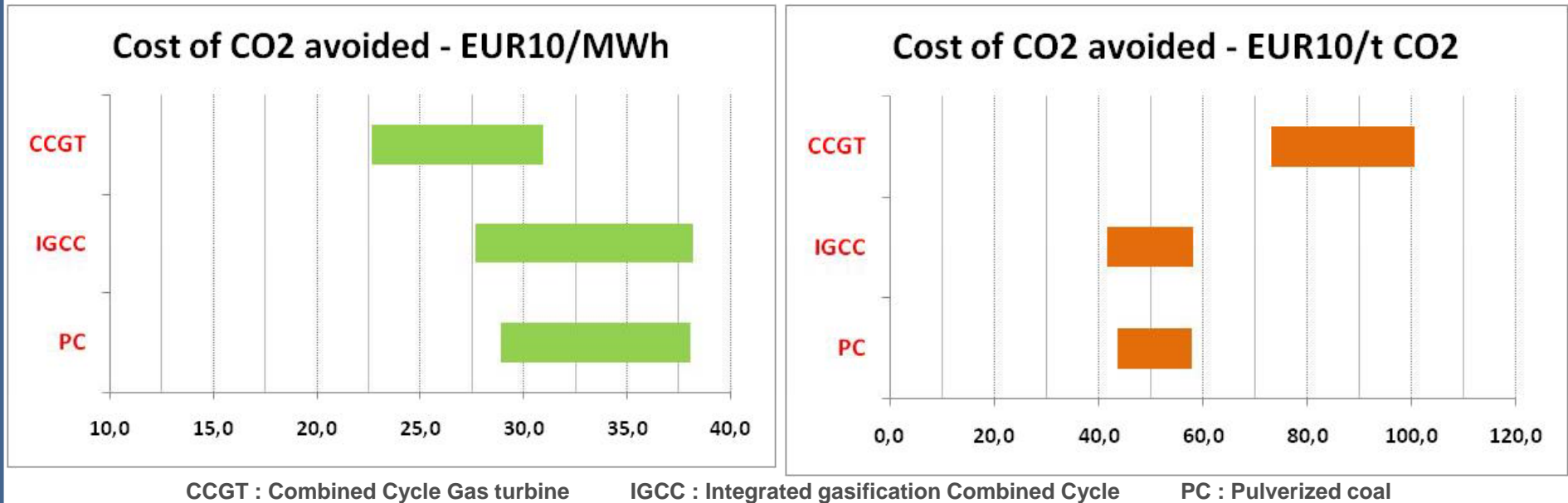
Remaining emissions after implementation of Carbon Capture technology are also twice less with CCGT



- ▶ **CCGTs generate twice less CO2 than SCPCs**
- ▶ **CCGTs need less than twice less CO2 transportation and storage facilities than SCPCs for CCS implementation Carbon Capture and Storage**
- ▶ **Remaining emissions after implementation of Carbon Capture technology are also twice less with CCGTs**

→ **What about CO2 capture costs ?**

# Estimated CO2 avoided costs for a power plant in 2025

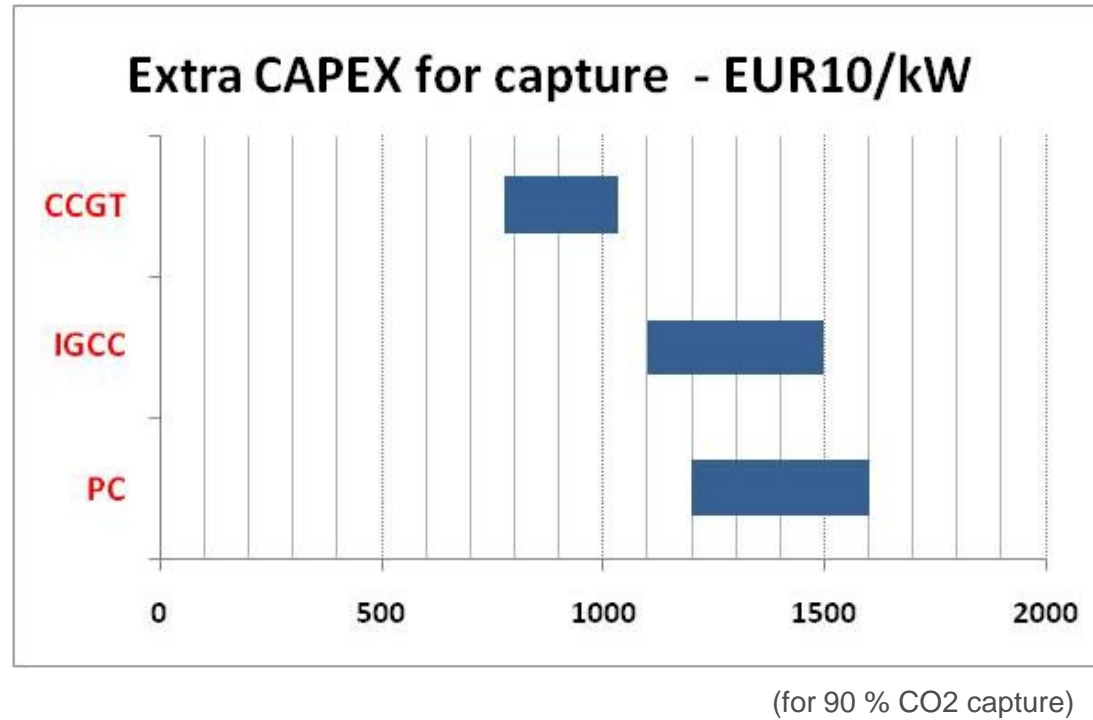


CO2 avoided costs for a 1000 MW power plant



**Cost of CO2 avoided per MWh is lower for a gas CCGT than for a coal SCPC**

# Estimated extra CAPEX for 90 % CO2 Capture in a power plant in 2025



→ Furthermore extra Capex mobilization per KW for capture is lower for a CCGT

# Study confirms the interest of gas as a more environmentally friendly fuel for power generation in short and medium term

- ▶ Substitution of Coal by gas in power generation could bring important and fast decrease in CO2 emissions for the same energy output.
- ▶ Carbon capture and Storage is efficient for gas power generation :
  - Less remaining CO2 emission per KWh
  - Less costly CO2 capture per KWh
  - Less Capex mobilization par KWh
- ▶ Gas also allow a much better use of storage and transport
- ▶ In a future world with more renewable power generation Gas fired power plants have the advantage of a better operational flexibility for load variation.



Interest of CCS in gas fired power plant should not be underestimated in technological road maps

*Thank you*

