

26th World Gas Conference

1 – 5 June 2015 – Paris, France



TS. PGC A 1

CCS development and gas vs coal
for power generation

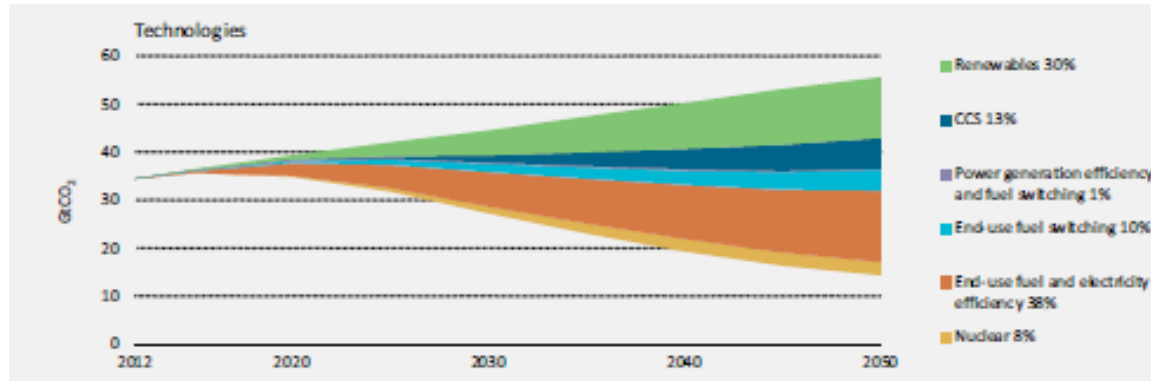
Dominique Copin CCS coordinator

Total



CCS AND CLIMATE CHANGE MITIGATION

Contribution of technology area to global cumulative CO₂ emissions reductions between 6DS and 2DS



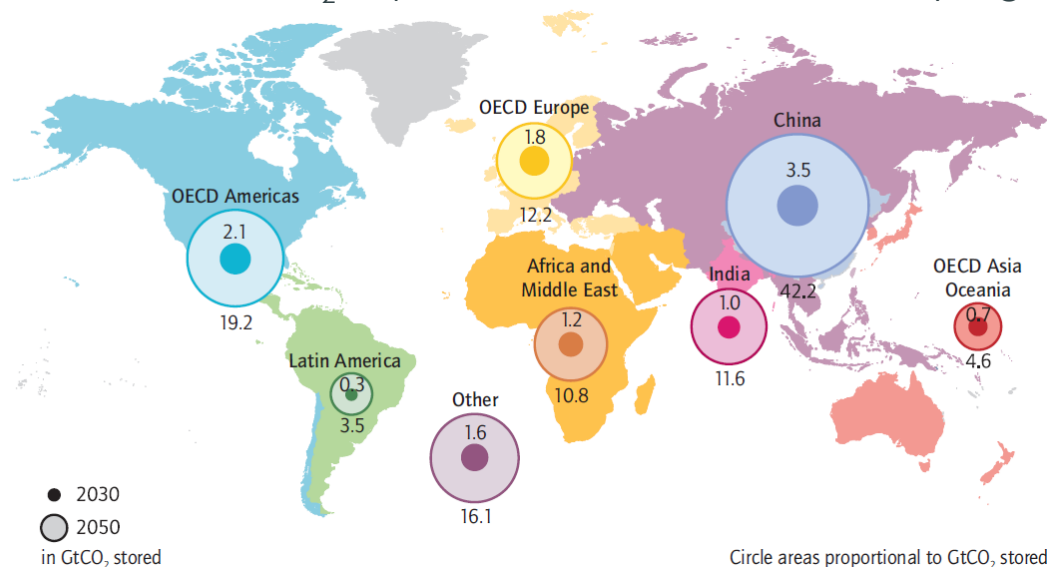
Source IEA Energy Technology Perspectives 2015

CCS: a potential significant contributor to climate change mitigation

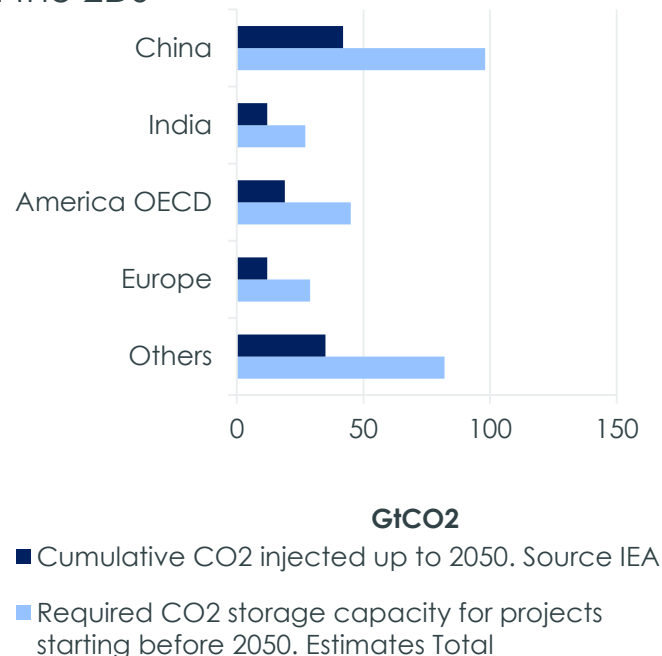
Power generation: ~ 40% of CCS developments

STORAGE CAPACITY

IEA: cumulative CO₂ captured 2015-30 and to 2050, by region in the 2DS

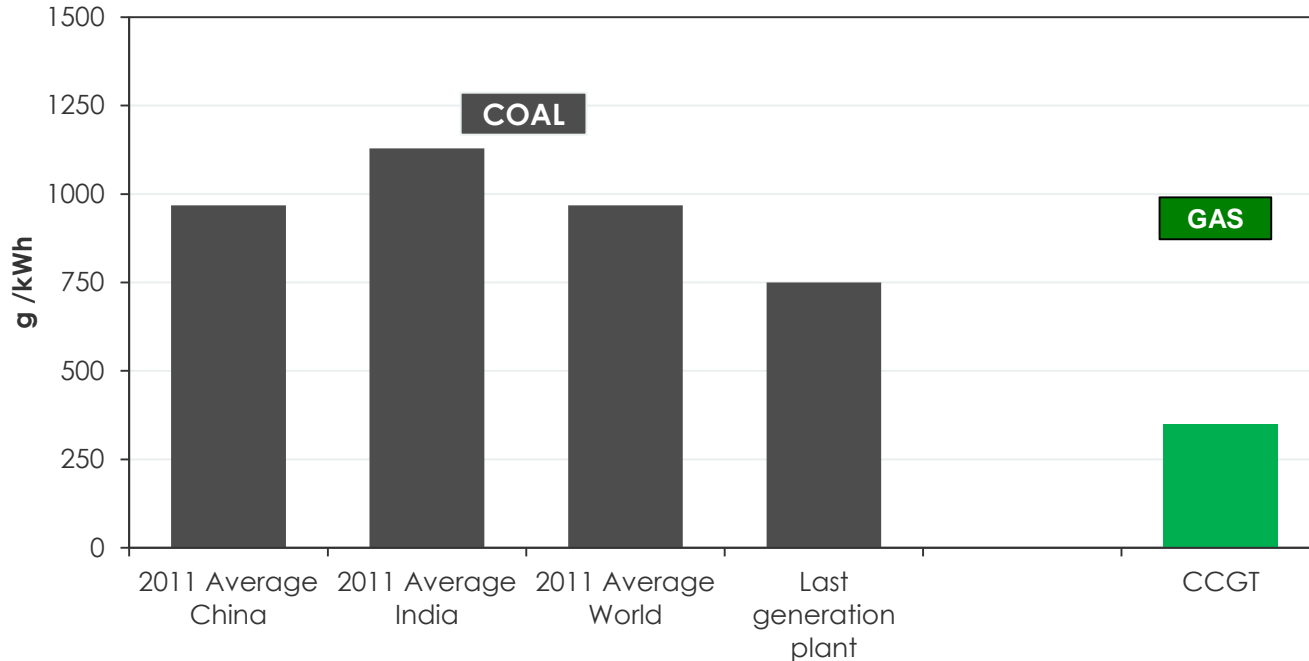


Source IEA :
CCS Technology roadmap 2013



Will there be enough storage capacity in all the large emitting areas ?

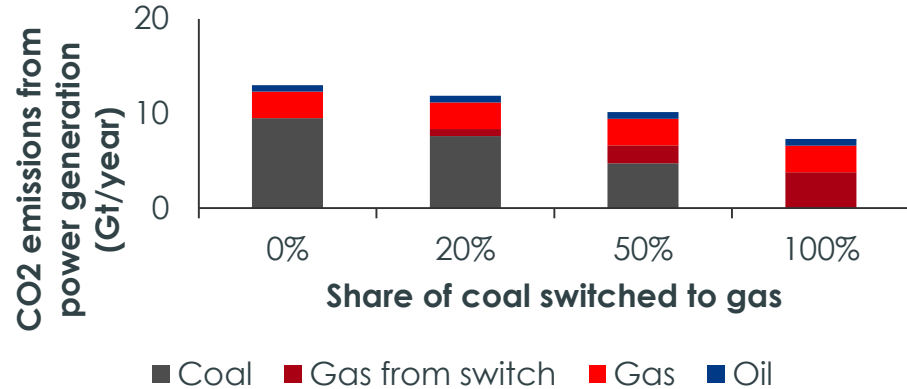
EMISSIONS DUE TO POWER GENERATION: GAS VERSUS COAL



Source IEA CO₂ emission from fuel combustion 2013, Total estimates

Emissions from gas power generators are significantly lower than from coal

THE POTENTIAL WORLDWIDE IMPACT OF A SWITCH FROM COAL TO GAS FOR POWER GENERATION

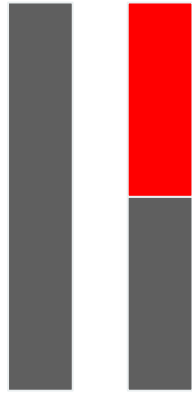


Source IEA, Total estimates

The total theoretical worldwide impact on CO₂ emissions of a full switch from coal to gas for power generation would be around minus 5 GtCO₂/year

CO2 EMISSIONS REDUCTION IN CASE OF INSUFFICIENT STORAGE CAPACITY

Case 1
no CO₂ storage capacity



(option1)(option2)

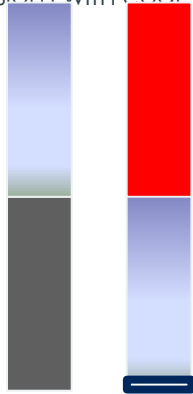
(option1): coal



Net CO₂ emissions

Reduction achieved by switching from coal to gas

Case 2
CO₂ storage capacity
equivalent to half the gross
emissions with coal

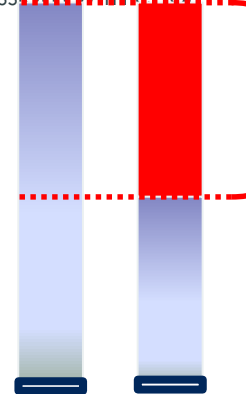


(option1)(option2)

(option2): switch to gas



Case 3
CO₂ storage capacity
equivalent to gross
emissions with coal



(option1)(option2)

CO₂ storage capacity available beyond the needs of this unit

Zero net CO₂ emissions

Reduction achieved by CCS

Switching to gas and installing CCS on gas: a winning strategy

CONCLUSIONS

- The merits of a strategy based on switching from coal to gas are potentially very significant
- Assessment of regional storage capacity is essential to evaluate the impact of a CCS strategy in the context of coal- or gas-fired power generation.