>> FOSSIL FORWARD

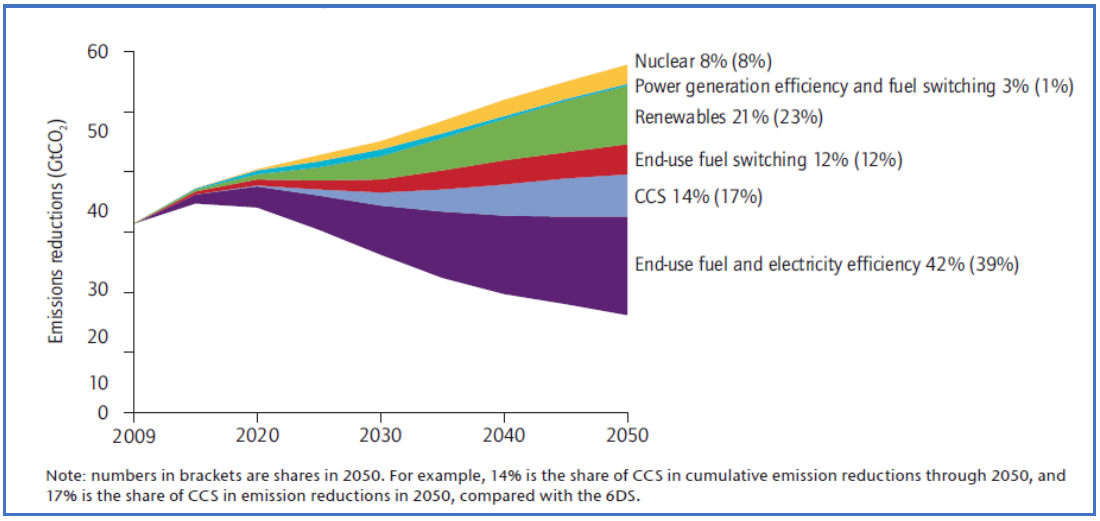
Revitalizing CCS: Bringing Scale & Speed to CCS Deployment

Chapter A – The CCS Imperative

In 2013, 87% of global primary energy consumption was supplied by fossil fuels.[1] Coal produces about 40% of electricity around the world and is the fastest growing fossil fuel today, which can be largely attributed to growth in developing countries, where 1.2 billion people currently live without any access to electricity and 2.8 billion do not have access to clean cooking facilities.

The international community has yet to form a consensus on how to balance development efforts and climate change objectives. Carbon capture and storage (CCS), including utilization, is the only mitigation option that will allow for deep cuts in CO_2 emissions from fossil fuels and thus must play a role in CO_2 mitigation.

The U.S. Department of Energy (DOE) is the leader in the advancement of CCS. However, the U.S. accounts for only 16% of annual global CO_2 emissions and is projected to account for virtually zero incremental CO_2 emissions through 2040.[2] From this viewpoint, it will make little difference if the U.S. is the sole implementer of commercial CCS. International collaboration and joint deployment will be required.



IEA Suggested Roles of CO2 Mitigation Options

According to International Energy Agency (IEA) analyses, CCS is responsible for 14% of cumulative emission reductions to 2050. Keeping CCS in the technology mix, however, is also necessary to limit the global mitigation costs. The increase in mitigation costs without CCS, as estimated by the IPCC, would be about 138% (median estimate). By comparison, a nuclear phase out would increase the median cost by only ~7%. Similarly, if wind and solar expansion was limited, the increase in global mitigation costs would increase by only ~6%.[3]

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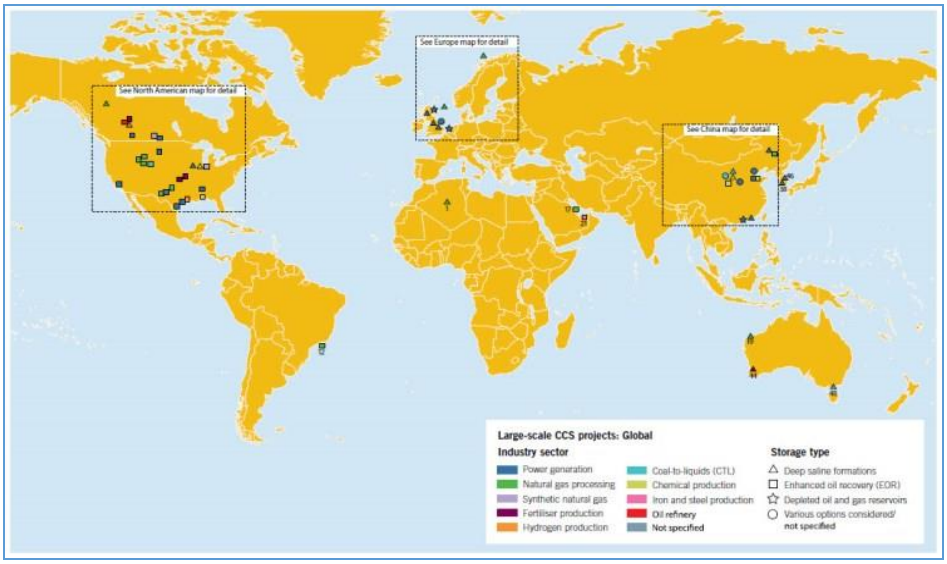
[1] BP, 2014, BP Statistical Review, www.bp.com/en/global/corporate/about-bp/energy-economics/statistical-review-of-world-energy.html?cigx=d.kac,stid.57543,sid.37075,lid.11,mid.49400

[2] US DOE Carbon Dioxide Information Analysis Center, Fossil Fuel CO_2 Emissions 2010 Data

[3] IPCC, Working Group III, Climate Change 2014: Mitigation of Climate Change, report.mitigation2014.org/drafts/final-draft-postplenary/ipcc_wg3_ar5_final-draft_postplenary_technical-summary.pdf

CCS can be an enabling technology to protect the natural world while also placing the necessary value on human welfare; but CCS is at a crossroads and needs strong international leadership with extensive financial commitment to fulfill this potential role.



Large Scale CO_2 Capture Projects in Operation or Under Construction

Key Findings

- CCS is the only large scale technology that can mitigate CO_2 emissions from fossil fuel use for electricity generation and key industrial sectors including cement production, iron and steel making, oil refining, and chemicals manufacturing.
- Not including CCS as a key climate mitigation technology is projected to increase the overall costs of meeting CO_2 emissions goals by 70% to 138%.
- U.S. carbon emissions represent less than 16% of world emissions; thus, global and wide scale implementation of CCS is necessary to meet CO_2 emissions goals.
- DOE has taken in a leadership role in advancing CCS technology by supporting first mover CCS projects and fostering international collaborative efforts to deploy CCS, but this role must be strengthened if CCS is to be commercialized.

"Without CCS, it is highly improbable that CO_2 emission reduction goals will be met, but, more importantly, without CCS the projected costs of achieving these goals will be much higher…"

http://www.nationalcoalcouncil.org/studies/2015/Fossil-Forward-Revitalizing-CCS-NCC-Approved-Study.pdf

National Coal Council *"Fossil Forward"* – info@NCC1.org – www.NationalCoalCouncil.org