What is CCS? (CO_2 Capture & Storage)

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A ready-to-go, viable and flexible mitigation technology for reducing CO_2 emissions into the atmosphere

CO_2 is produced at large industrial process facilities, such as coal and natural gas power plants, steel mills, refineries, cement and paper plants.

Capture processes can be applied to large-scale point-source emitters (plants). CO_2 separation/capture technologies have been operational for decades. Once separated, the CO_2 may be used as a feedstock in various industries or be compressed and transported, usually via pipeline or ship, to a suitable site for geological storage.

Storage The CO_2 is injected deep underground (> 800 m) and is stored in the natural spaces between rock grains (pores). At the carefully selected geological storage sites, the CO_2 is trapped beneath impermeable seal rocks and permanently stored.

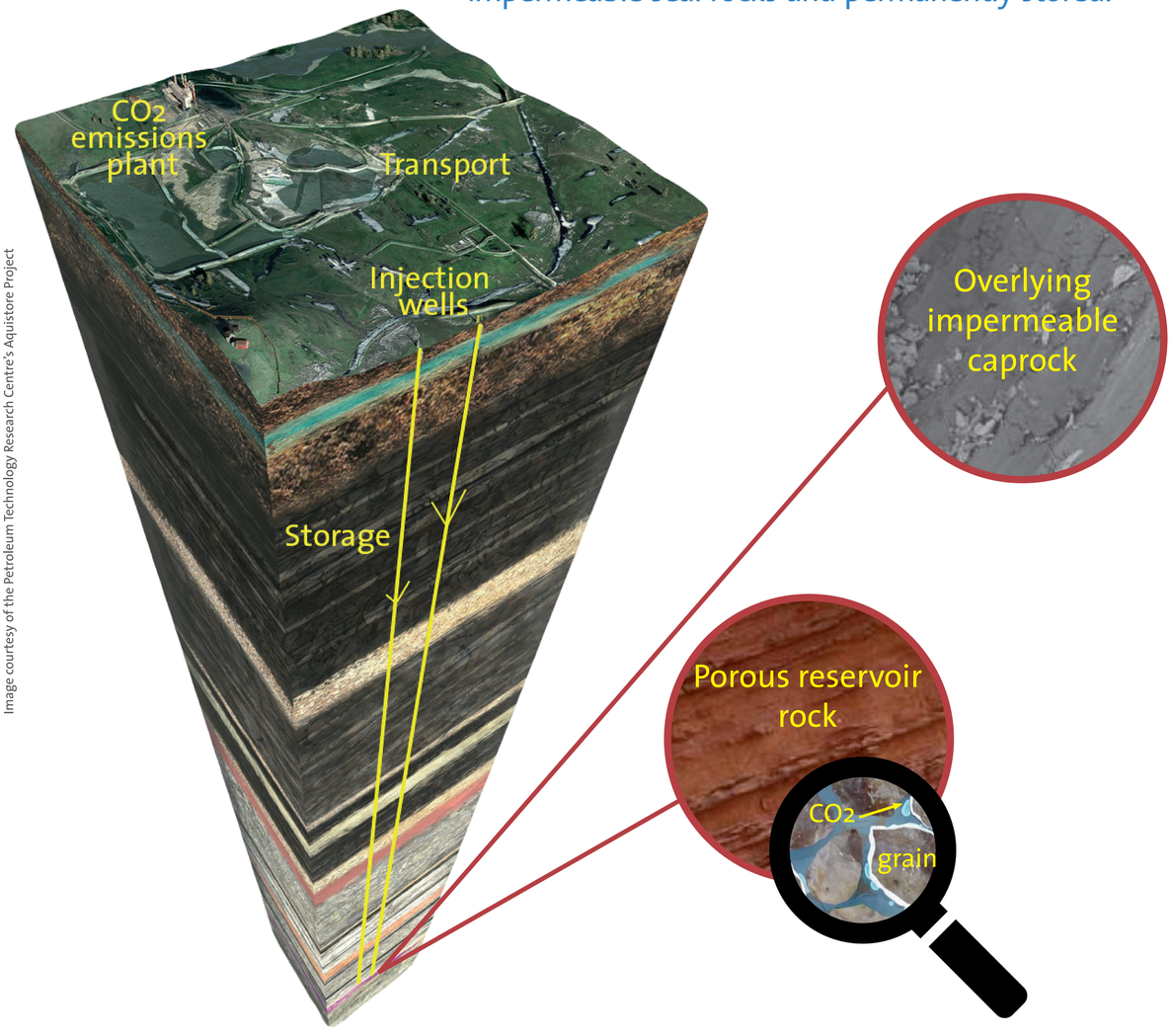

Image courtesy of the Petroleum Technology Research Centre's Aquistore Project

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Why we need CCS (CO_2 Capture & Storage)

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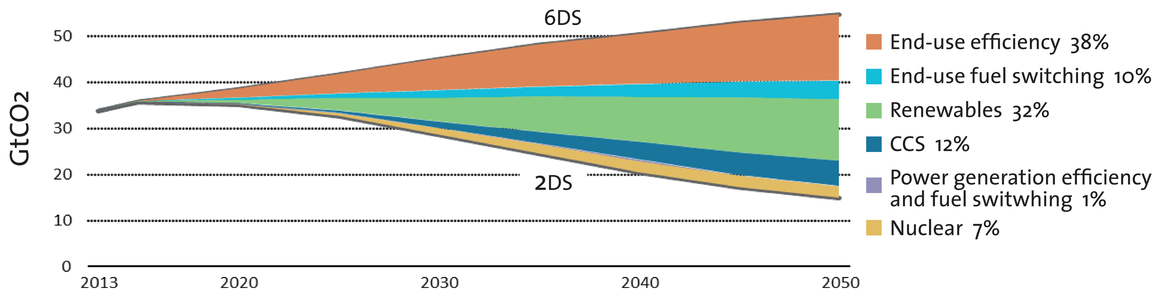
Without CCS, it will be extremely challenging and more costly to reach the emission reduction targets of the COP21 Paris Agreement

The challenge

Enable global development AND a reduction in CO_2 emissions. Consider that by 2050:

- global population will increase by 25%
- global GDP will increase by 150%
- global electricity demand will increase by 50-70%, as will that for
- steel, cement, chemicals from coal, plastic and other commodities

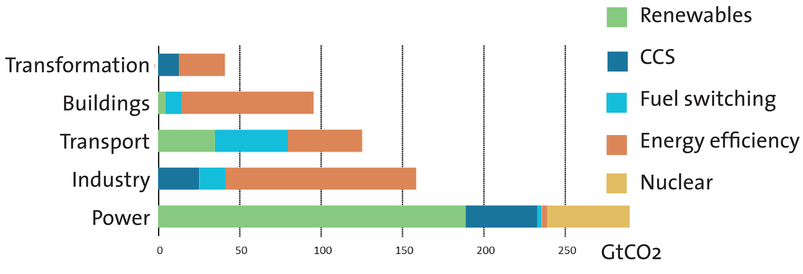


Contribution of technology area and sector to global cumulative CO_2 reductions

Graphs courtesy of the IEA Energy Technology Perspectives 2016

The reality

We need to apply all the decarbonisation tools we have to keep average global temperature rise below 2°C.



Efforts are needed in all sectors

The vital role of CCS

According to the IEA Energy Technology Perspectives 2016:

- CCS can contribute 12% of the needed CO_2 reductions
- CCS is the ***only*** method able to reduce emissions from many industrial processes (cement & steel manufacture, etc.)
- the cost of decarbonisation will be much greater without CCS
- when combined with bio-energy, CCS can reduce CO_2 levels in the atmosphere (essential for a neutral CO_2 net balance later this Century)

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