Carbon Capture & Storage Association

# CCS: Current status and future deployment needs

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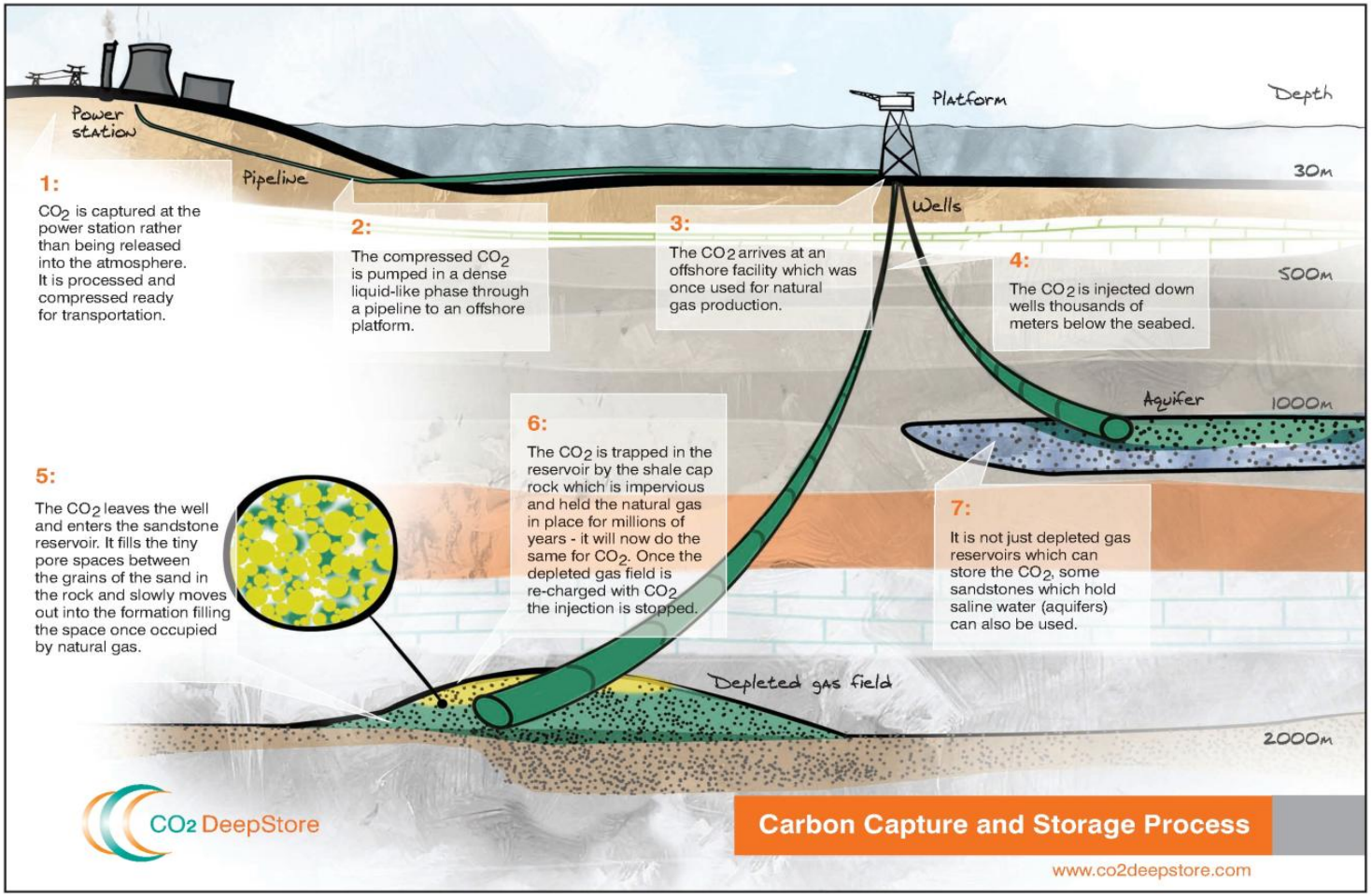
Carbon Capture & Storage Association

# The CCS Process



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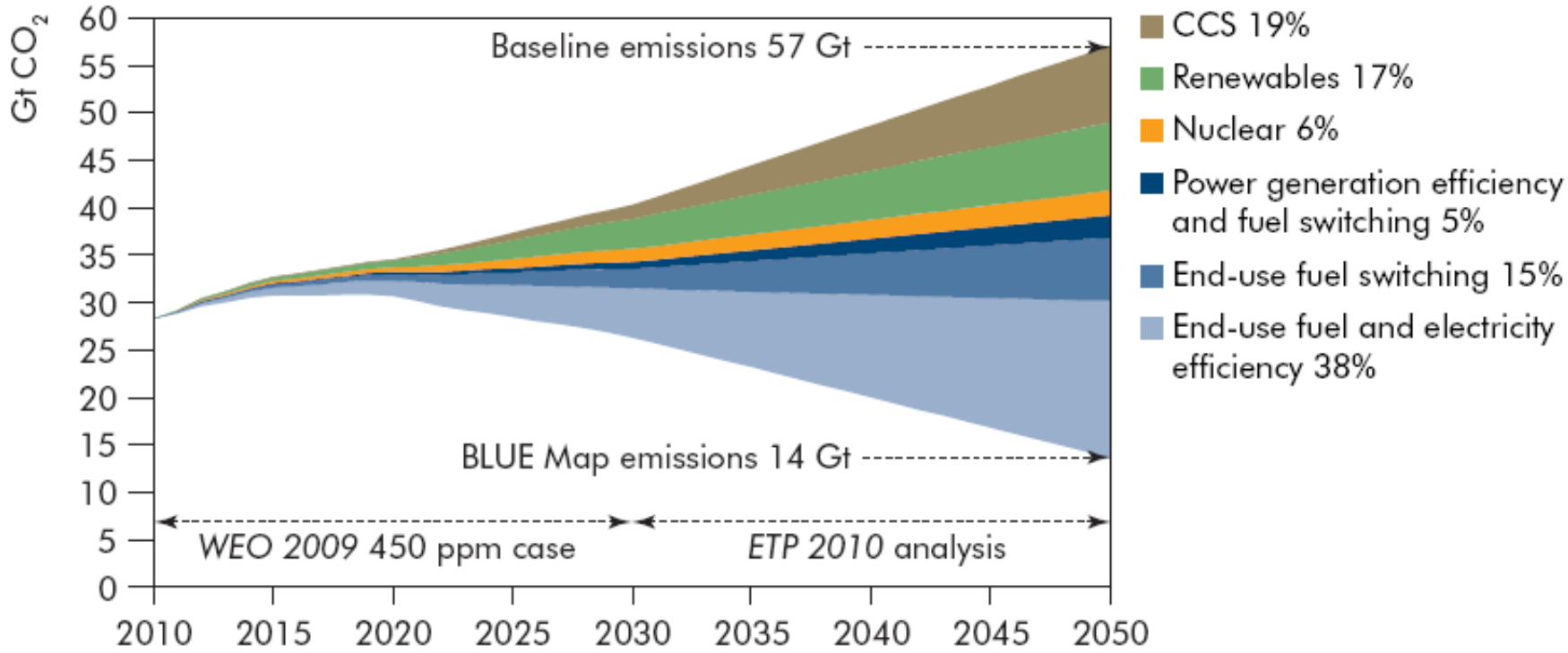
# CCS is essential to tackling climate change

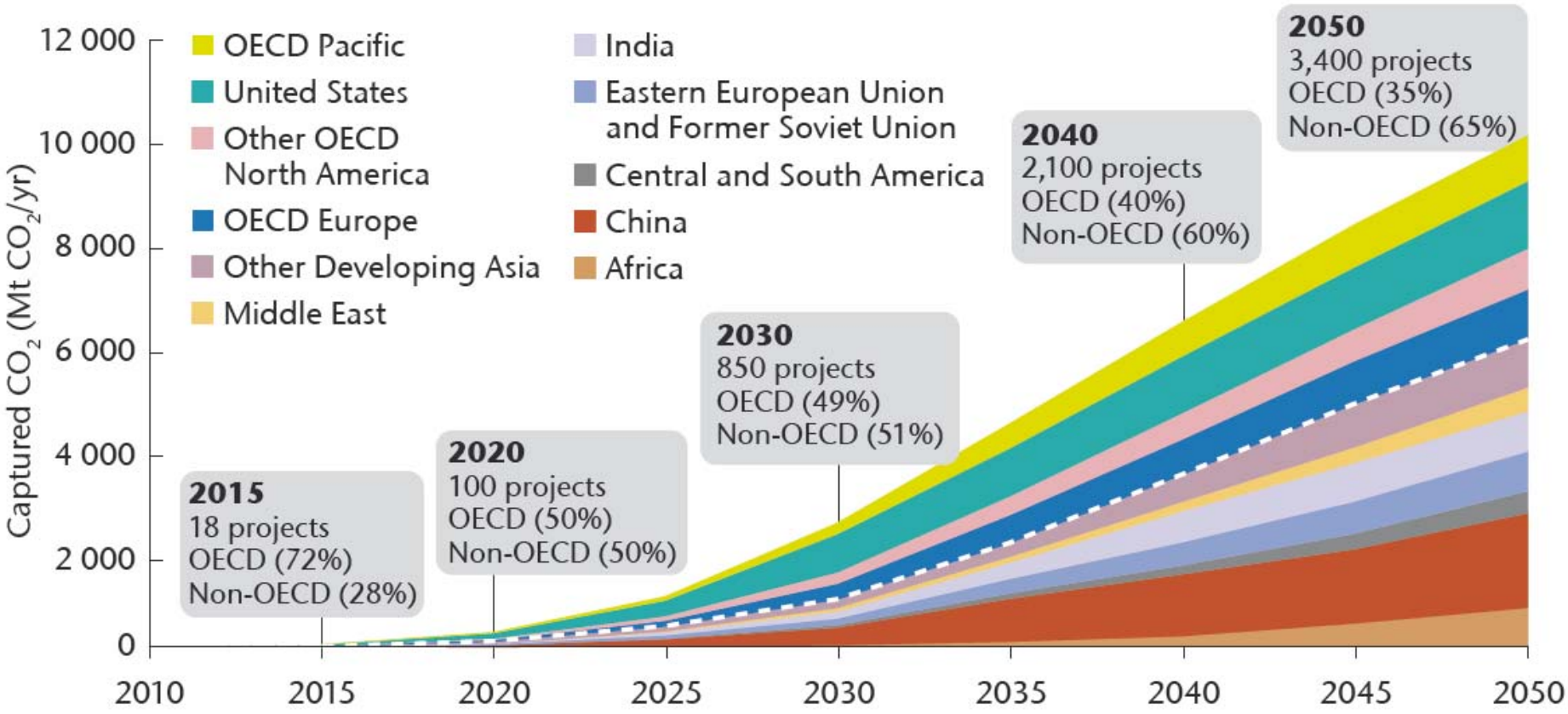



*Source: IEA Energy Technology Perspectives*

**IEA Conclusions:**

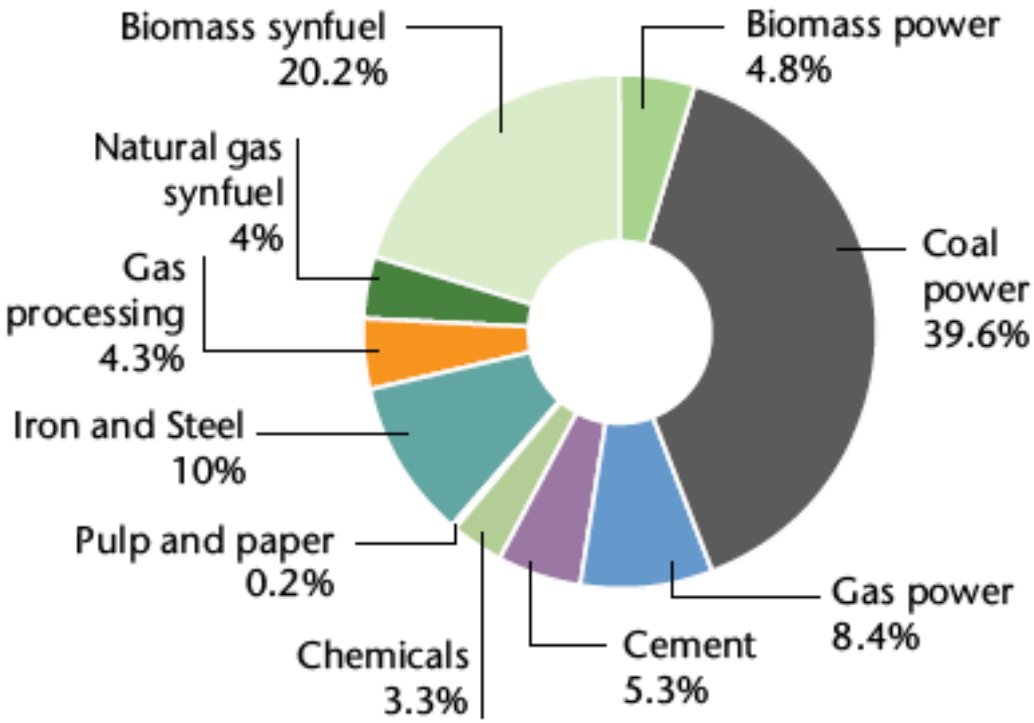
- CCS must be deployed equally in power and industrial sectors
- It is not possible to halve $CO_2$ emissions by 2050 without CCS
- Attempting to address emissions without CCS raises costs significantly

# CCS needed at scale




Source: IEA (2009) Technology Roadmap Carbon Capture and Storage

# CCS much more than “Clean Coal”




- CCS; only low-carbon option for many industrial sectors, e.g. cement, iron & steel, chemicals
- CCS and renewable biomass can generate “negative emissions”

# Current Status CCS

**According to the Global CCS Institute:**

75 large-scale, integrated CCS projects at various stages of development

- Majority centred in Australia, Canada, China, EU, USA

Eight large-scale projects in operation

- Gas processing
- Synthetic-fuels
- Fertiliser production

Seven large-scale projects under construction

- Power
- Hydrogen production
- Refining
- Bio-ethanol
- Gas processing
- Fertiliser production

Total storage from all 15 projects >35 $MtCO_2$ p.a

*Sleipner CO2 injection platform*

*Laying the Snøhvit $CO_2$ pipeline*

*Courtesy of Statoil*

# The capacity building challenge

**Effective capacity building critical to deploy CCS at scale**

- CCS needs to be deployed in multiple countries
  - Need domestic capacity to deploy CCS
  - Significant ramp-up in developing countries
- Deployed at scale in multiple industrial sectors
  - New business models developed
  - New skills and services required
- Need step-change in CCS deployment rates
  - Move from 10s projects to ~100 projects / year globally from 2020
  - Develop industry equivalent in size to the oil and gas sector in 40 years
- Need rapid, effective dissemination of knowledge generated by early projects
  - Number of CCS Demonstration programmes established Knowledge Sharing arrangements