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CCUS Deployment Training

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USEA

Cogentiv Solutions

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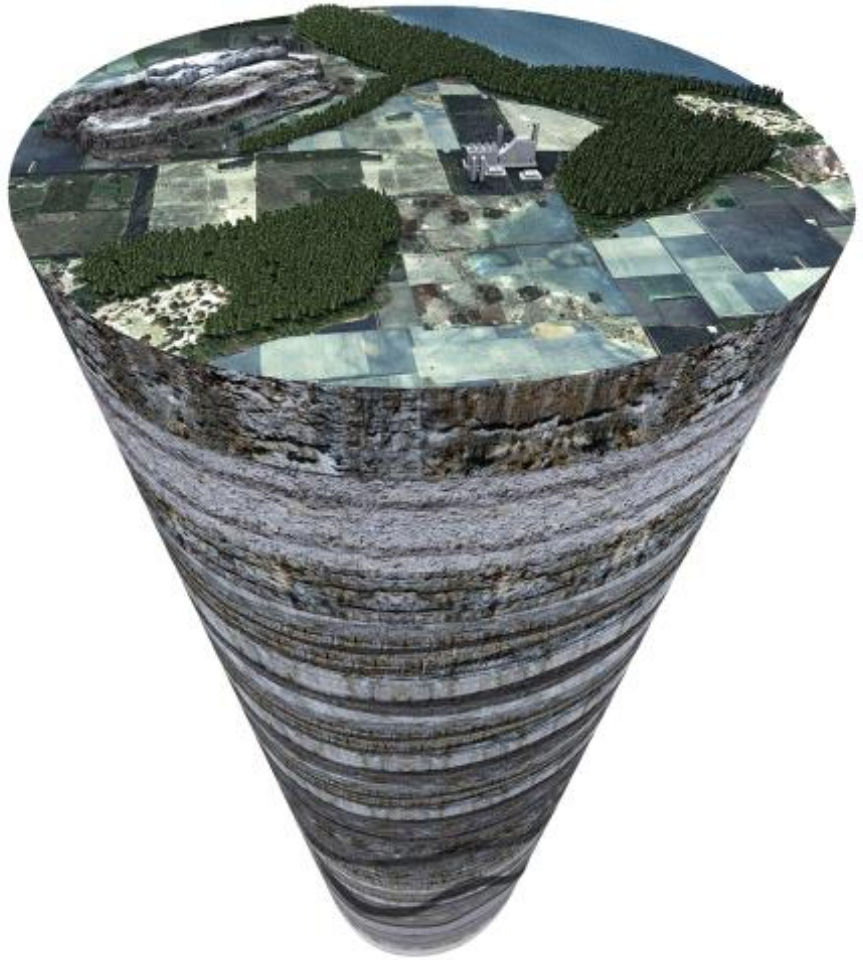
Carbon Energy and Environmental Management

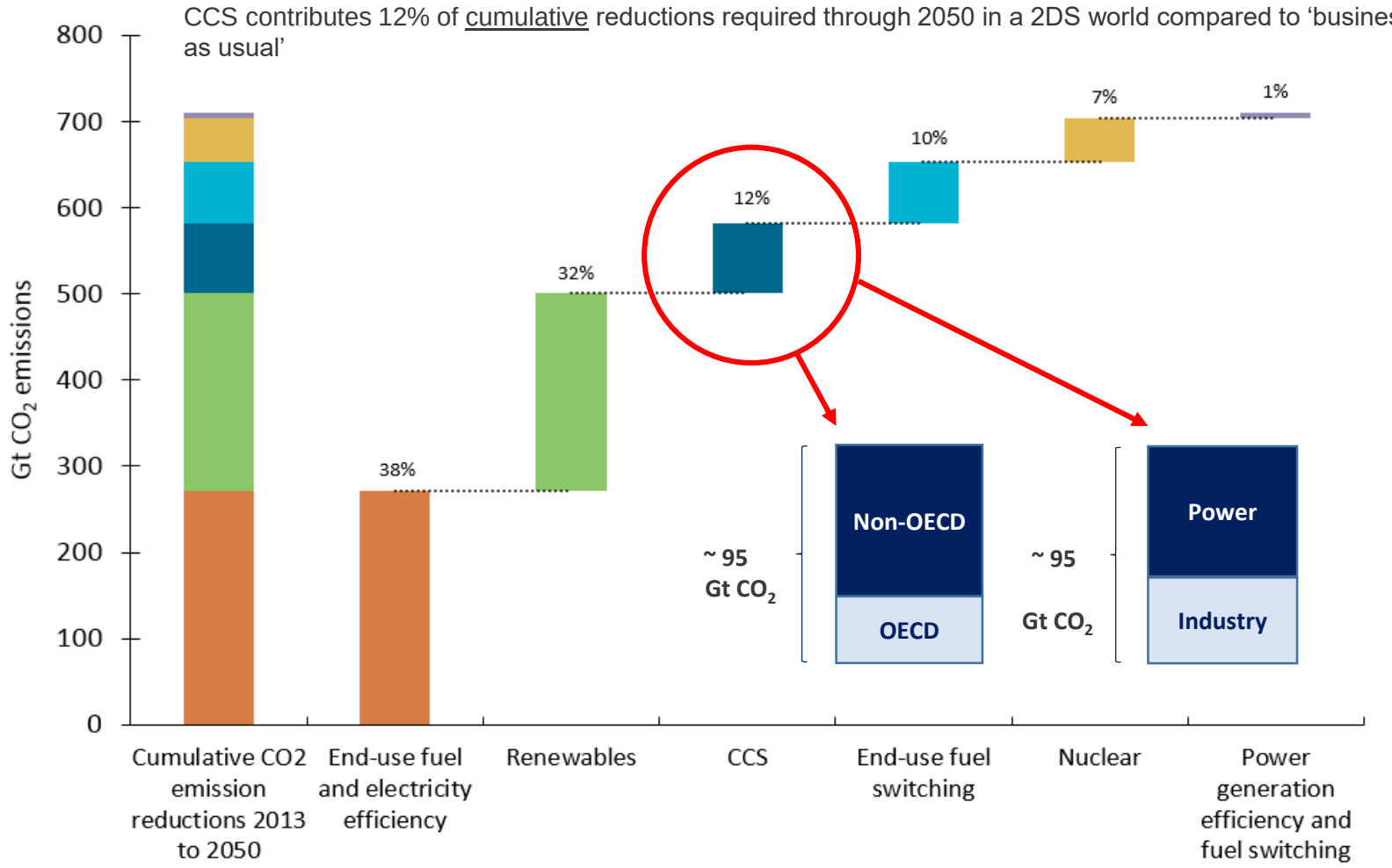
- **Carbon Management**
  - Carbon Capture
  - Carbon Utilization/Re-use
  - Research Programs
  - Project Development

What is CCS?



Projected Carbon Management Contributions

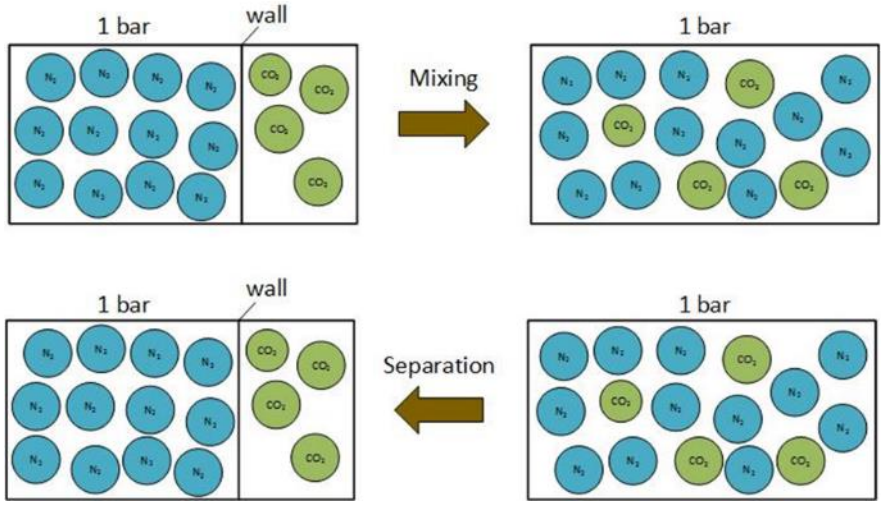
IEA 2°C Scenario

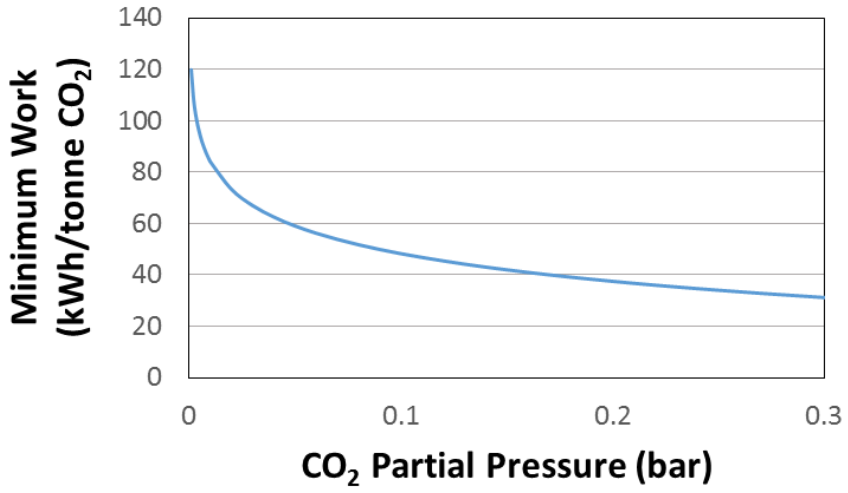


Source: *IEA, Energy Technology Perspectives (2016)*

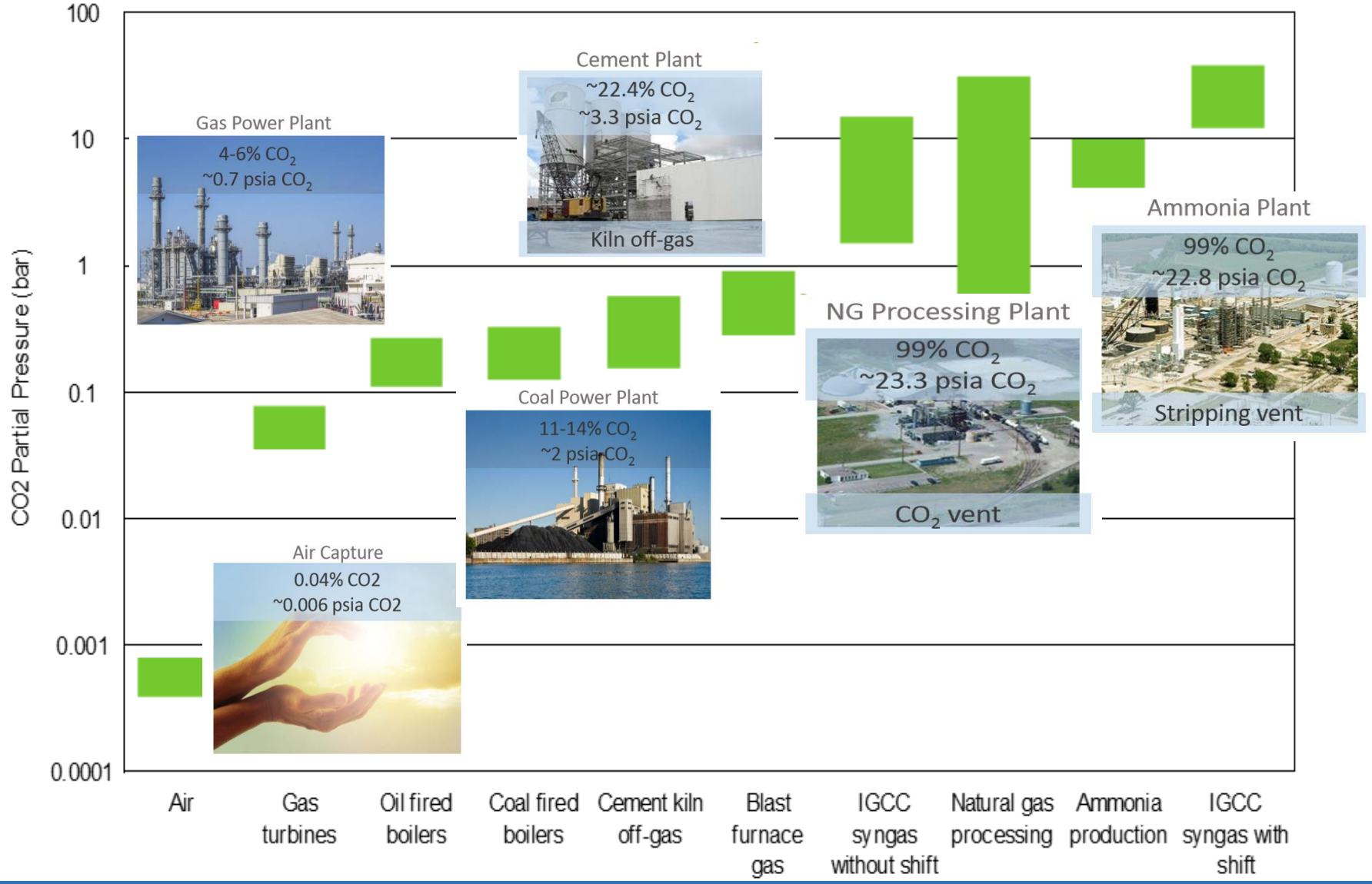
Definition of Carbon Capture

Separation of the CO_2 from a gas stream produced in a power station or an industrial process to obtain pure CO_2 for geological storage or further use

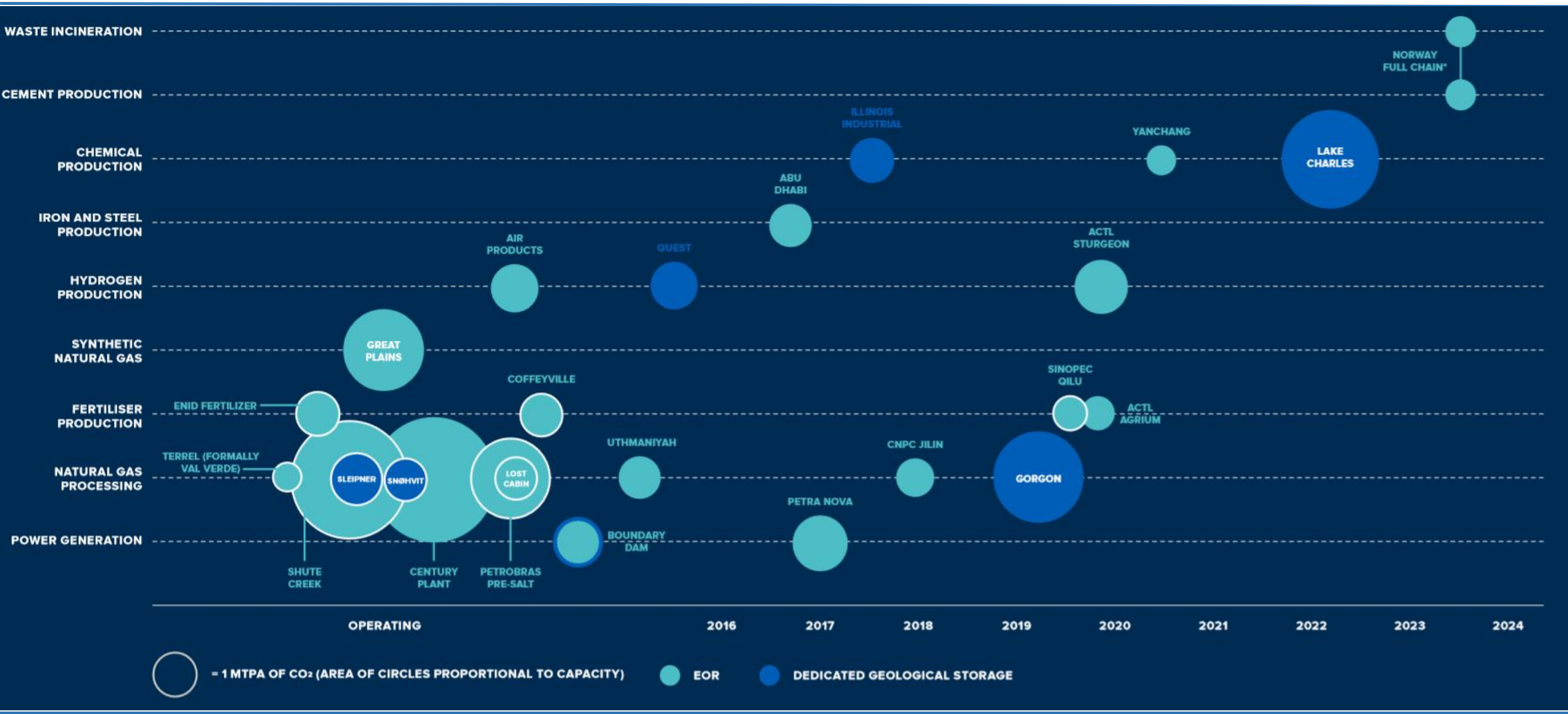




CO_2 Concentrations: Select Sources



Large-Scale Projects



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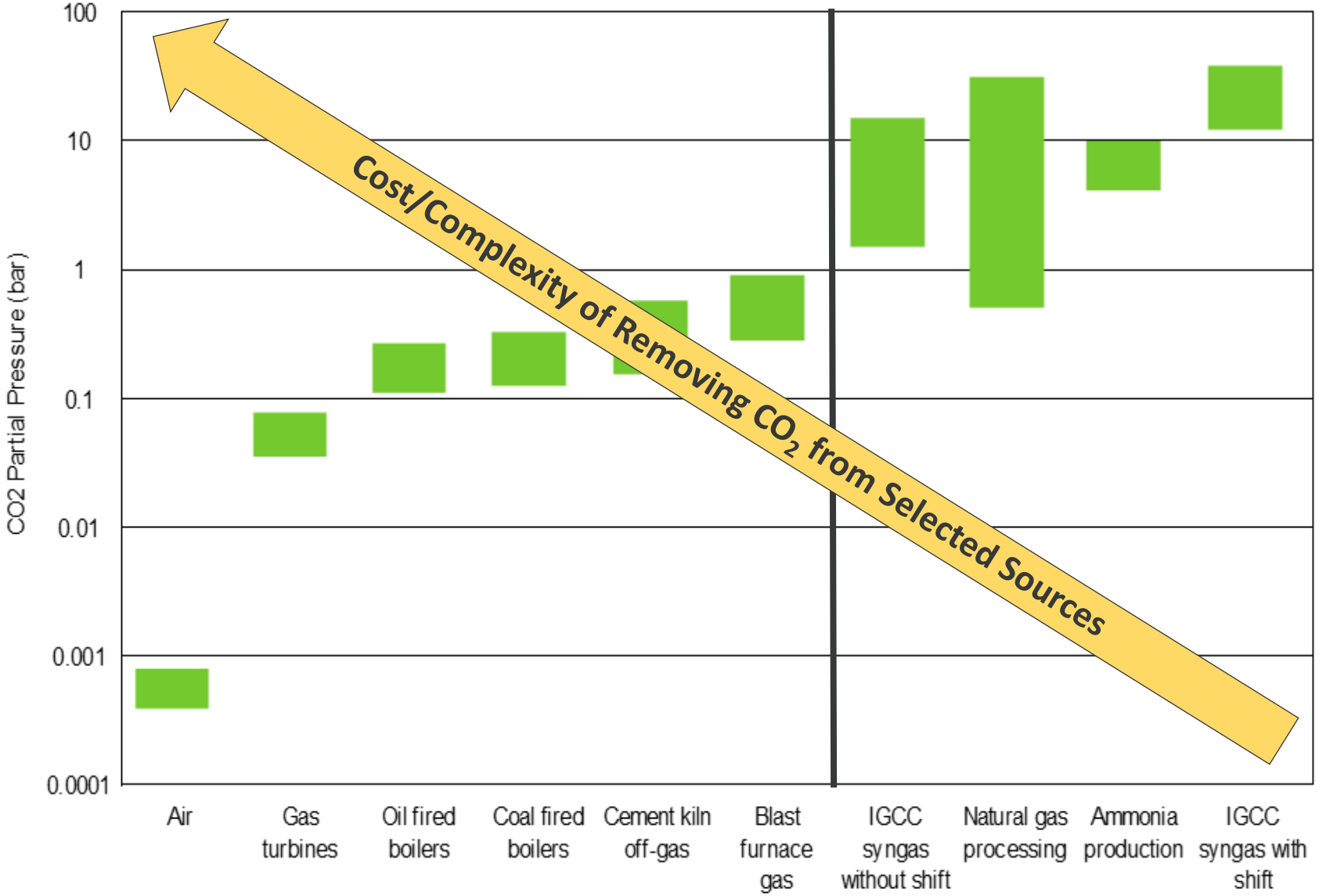
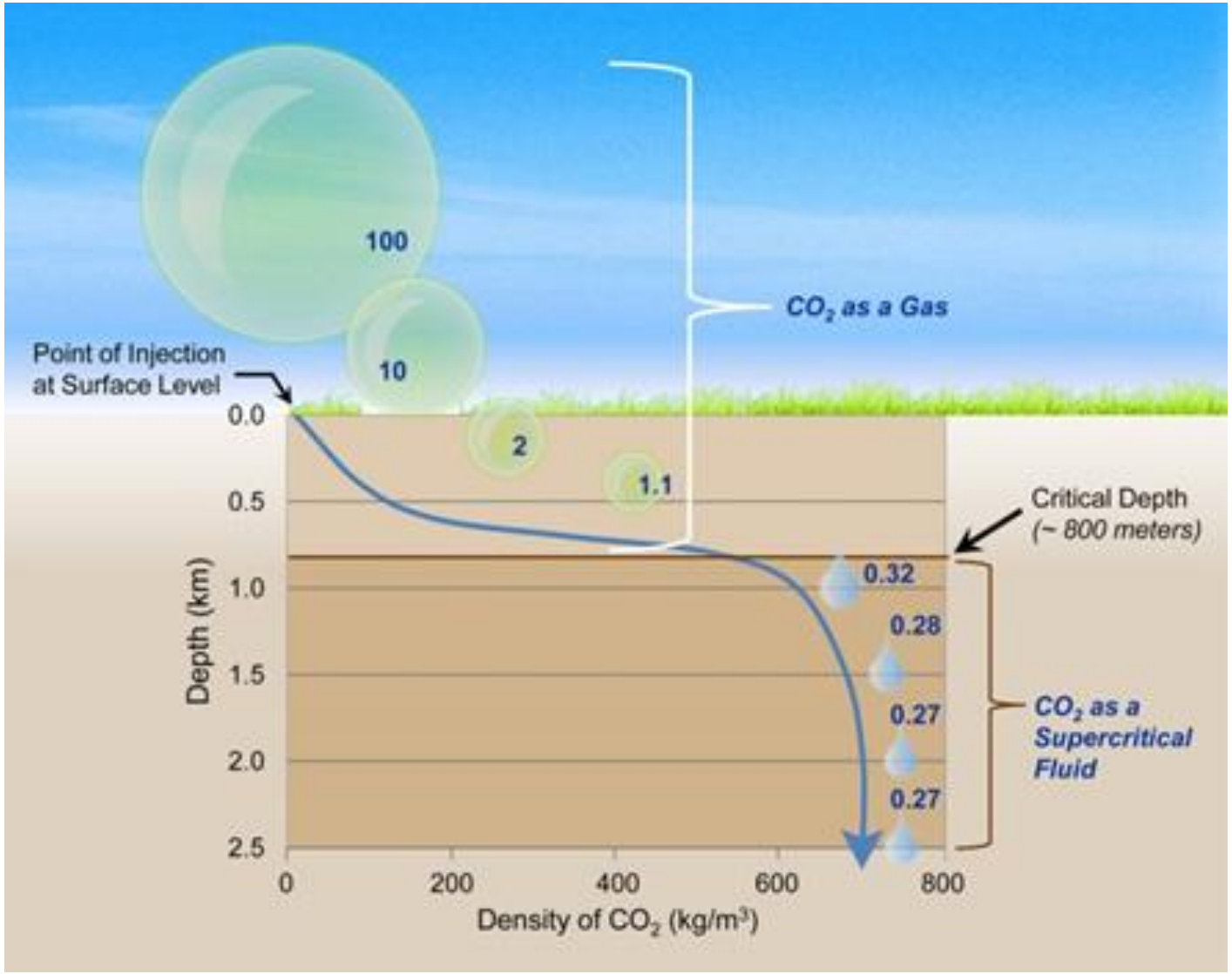
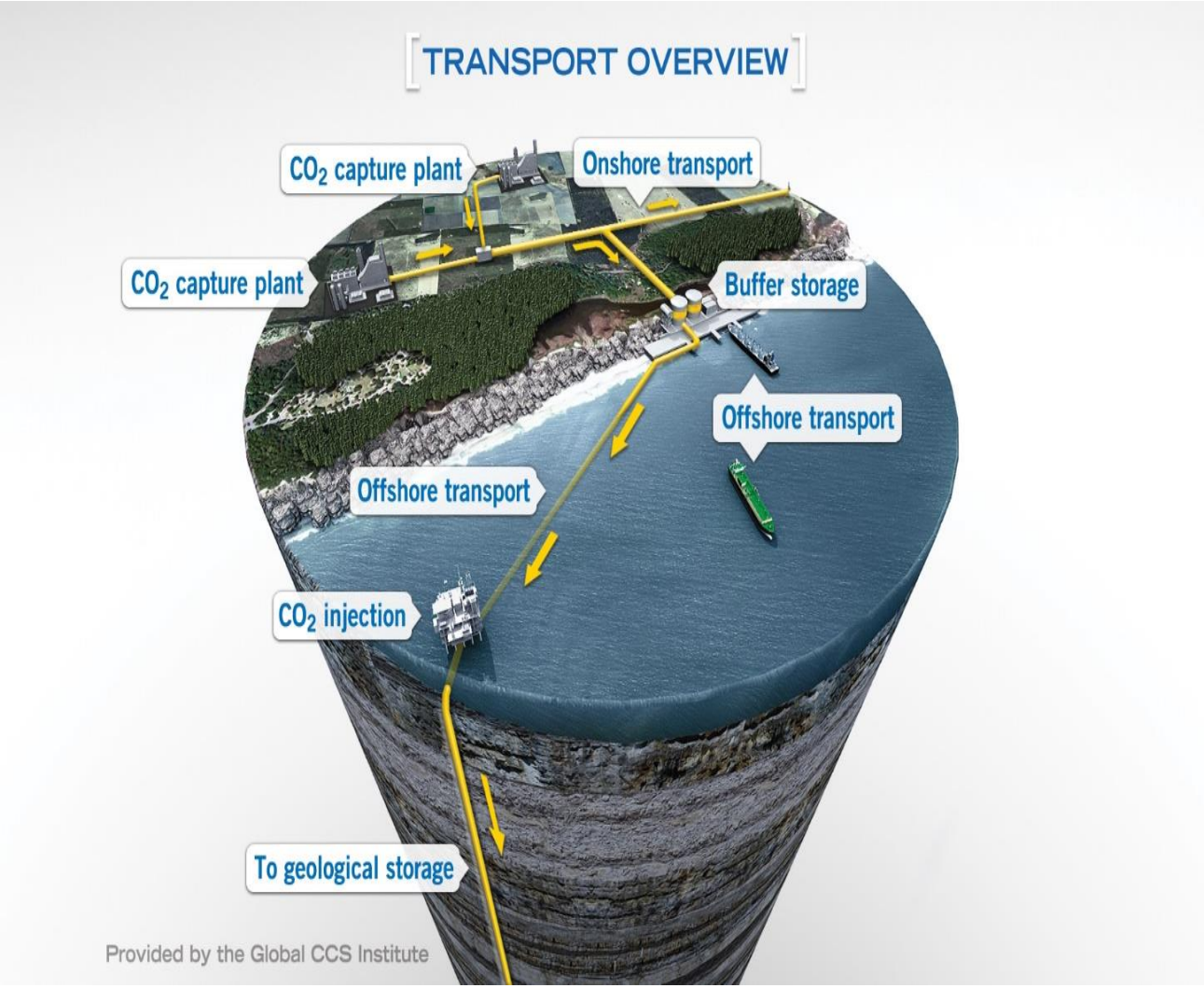


CO_2 Compression

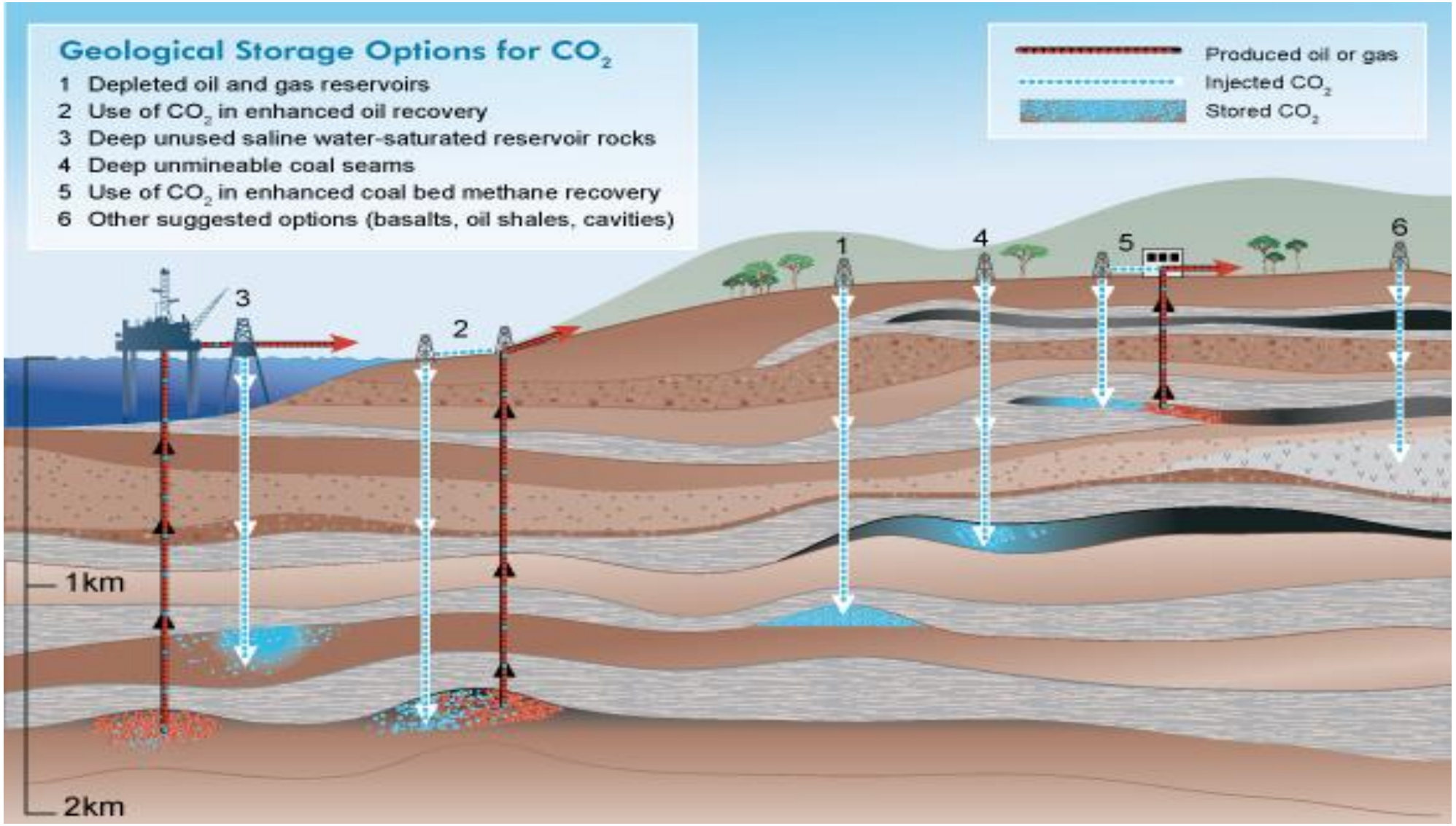


CO_2 Transport



- Pipelines are the most common method of transporting large quantities of CO_2.
- The technology for CO_2 pipelines is well established.
- They have been operated with an excellent safety record for decades.
- CO_2 transport poses no higher risk than is already managed for transporting hydrocarbons.
- In the US there are around 6,500 kilometres of onshore CO_2 pipelines, transporting roughly 68 million tonnes per year for EOR purposes

CO_2 Storage


Geological Storage Options for CO_2
1 Depleted oil and gas reservoirs
2 Use of CO_2 in enhanced oil recovery
3 Deep unused saline water-saturated reservoir rocks
4 Deep unmineable coal seams
5 Use of CO_2 in enhanced coal bed methane recovery
6 Other suggested options (basalts, oil shales, cavities)
Produced oil or gas
Injected CO_2
Stored CO_2
1
2
3
4
5
6
1km
2km

CO_2 Utilization

QUESTIONS?

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