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The global status of carbon capture technology

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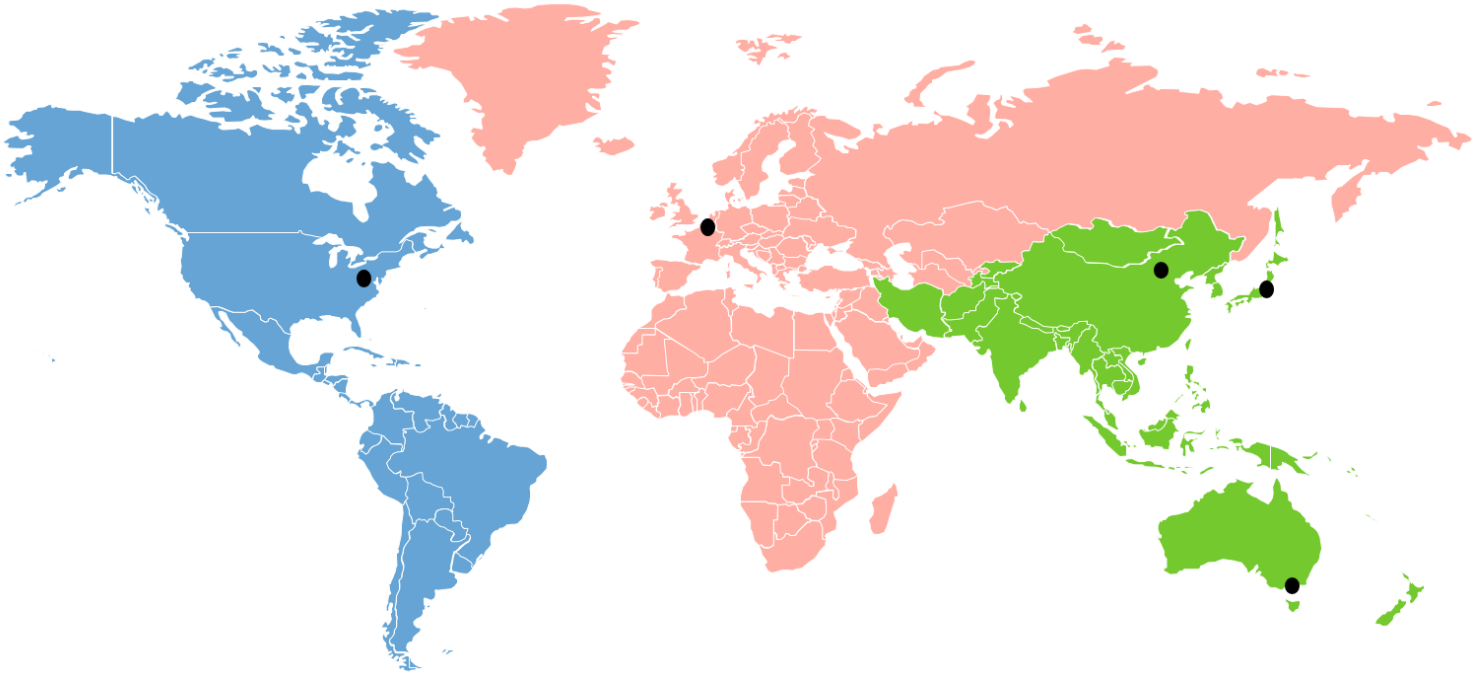
EU-Australia Workshop, 25 March 2015, Melbourne

Global CCS Institute



- Knowledge sharing
- R&D coordination
- International collaboration
- Global networks and regional networks
- Fact-based advice and advocacy

http://www.globalccsinstitute.com/publications

http://decarboni.se/

http://co2degrees.com

CCS is critical if we are to achieve climate goals

Percentage increase in total discounted mitigation costs (2015-2100) relative to default technology assumptions – median estimate

2100 concentrations (ppm CO_2eq)	no CCS	nuclear phase out	limited solar/wind	limited bioenergy
450	138% 	7% 	6% 	64% 

Symbol legend – fraction of models successful in producing scenarios (numbers indicate number of successful models)

 All models successful

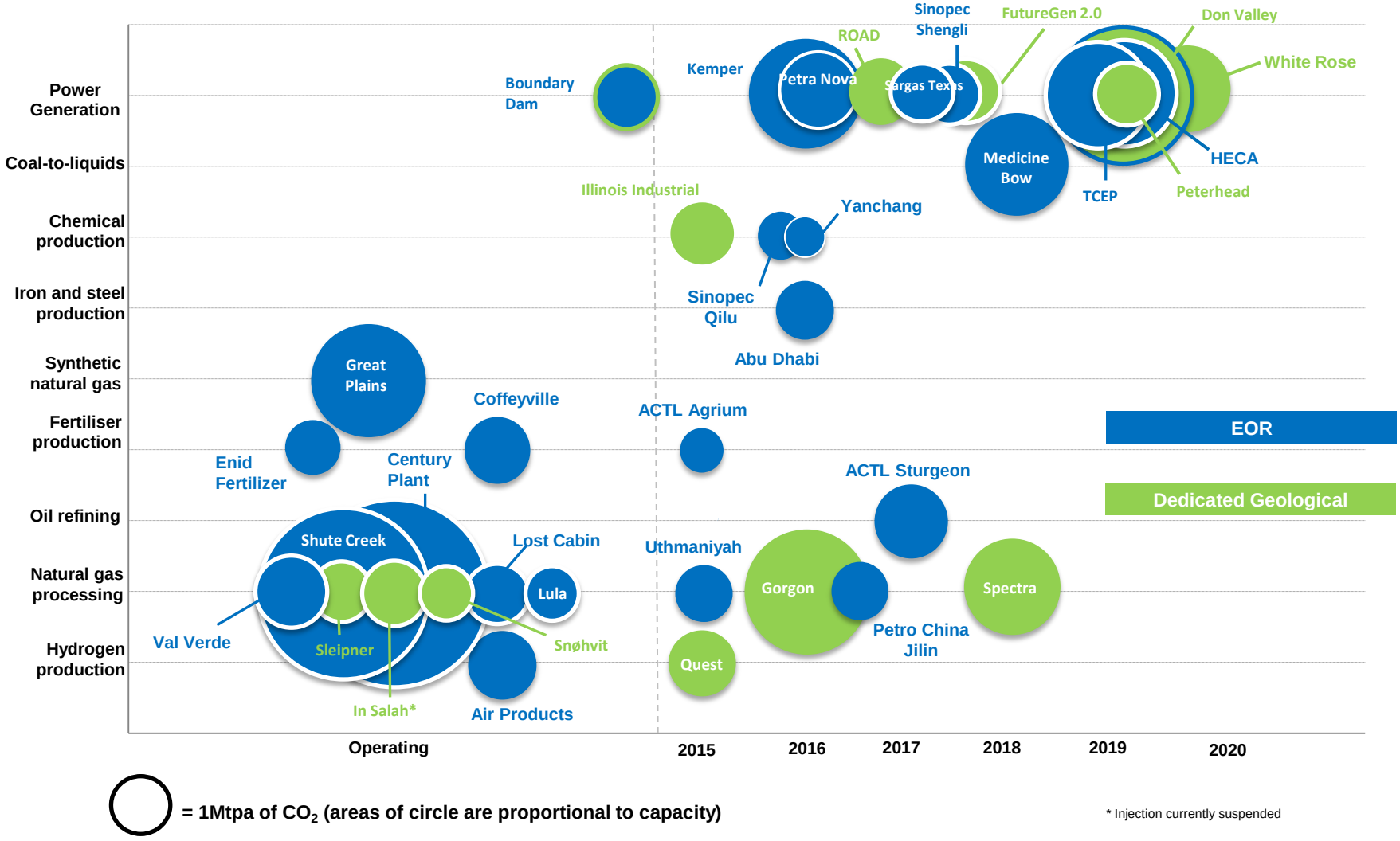
 Between 80 and 100% of models successful

 Between 50 and 80% of models successful

 Less than 50% of models successful

Source: *IPCC Fifth Assessment Synthesis Report, November 2014.*

Actual and expected operation dates for projects in operation, construction and advanced planning



= 1Mtpa of CO_2 (areas of circle are proportional to capacity)

* Injection currently suspended

2014-2015 is a watershed period for CCS – it is a reality in the power sector and additional project approvals are anticipated

Power sector case study - Boundary Dam

Courtesy of SaskPower

A few highlights:

- Original capacity: 139MW Expected: 110 MW **Actual**: 120MW
- Estimated steam consumption: ~2.5 GJ/t CO_2 (4.0GJ/t for conventional MEA)
- Utilization of concrete as materials for absorbers and amine tanks

Key messages for capture technology development

- Capture components accounts for the majority of the cost in the CCS chain
  - For example, in power generation 70-90% of the overall cost of a large scale CCS project can be driven by capture and compression processes
- Goal is to reduce the capital and operational costs associated with CO_2 capture, particularly in new applications, such as power sector and new industrial processes
- Efforts to reduce costs include:
  - Learning by doing, through successful CCS demonstrations in power sector and additional industrial applications;
  - Continuing R&D across a range of capture technologies
  - Coordinated efforts in knowledge sharing and collaboration

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