



GLOBAL
CCS
INSTITUTE



GLOBAL STATUS OF CCS 2015

an overview of existing and future CCS/EOR projects globally

Guido Magneschi – Global CCS Institute

Bellona EOR forum, Kiev, 24th November 2015



The Global CCS Institute

Our Vision for CCS:

CCS is an integral part of a low-carbon future

OUR MISSION

To accelerate the development, demonstration and deployment of CCS globally.

1

Fact-based, influential advice and advocacy

2

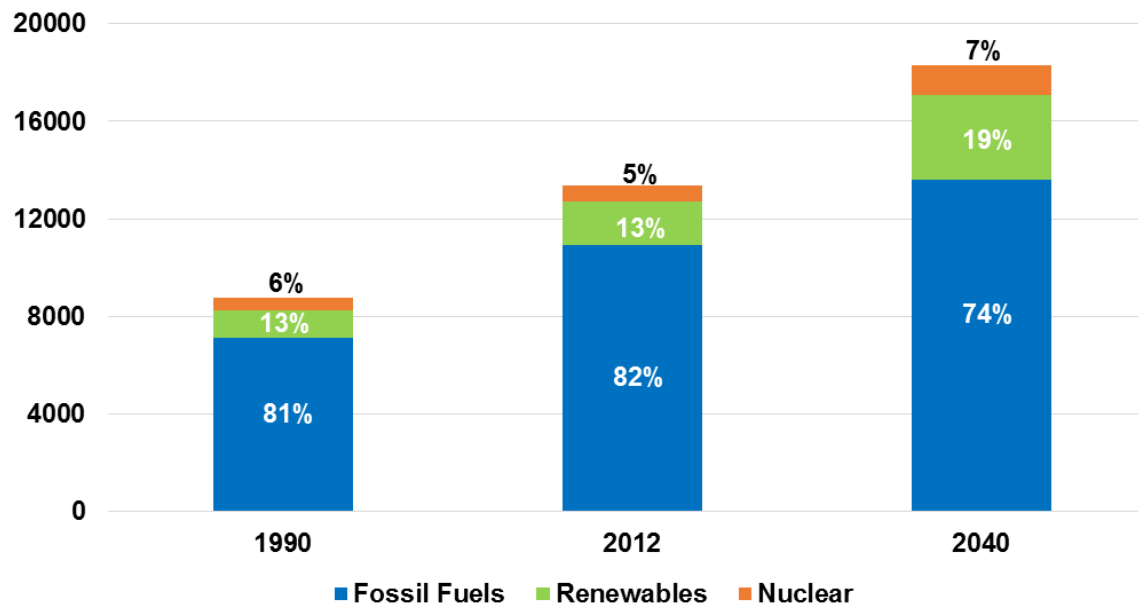
Authoritative knowledge sharing

- We are an international membership organisation.
- Offices in Washington DC, Brussels, Beijing and Tokyo. Headquarters in Melbourne.
- Our diverse international membership consists of:
 - governments,
 - global corporations,
 - small companies,
 - research bodies, and
 - non-government organisations.
- Specialist expertise covers the CCS/CCUS chain.

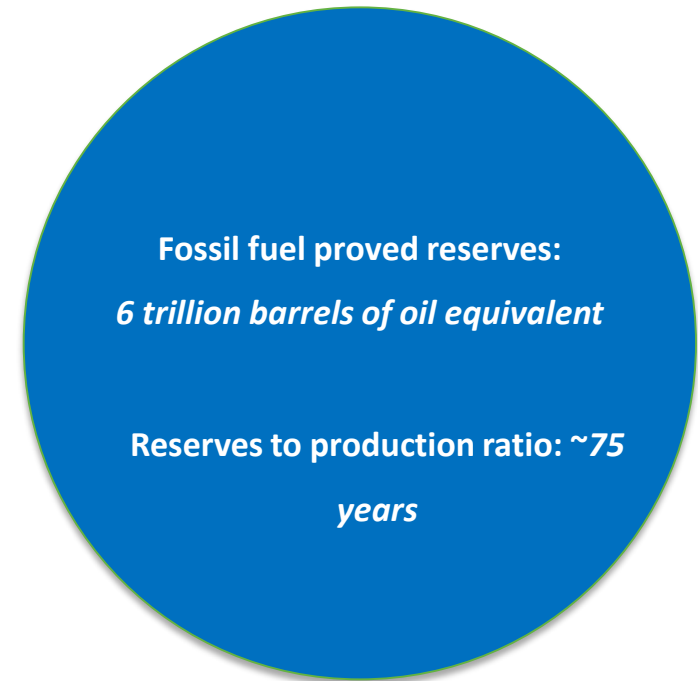


Fossil fuel demand growing and reserves robust

Primary energy demand by fuel source:
(million tonnes of oil equivalent)



Source: IEA World Energy Outlook, 2014 (New policies scenario)

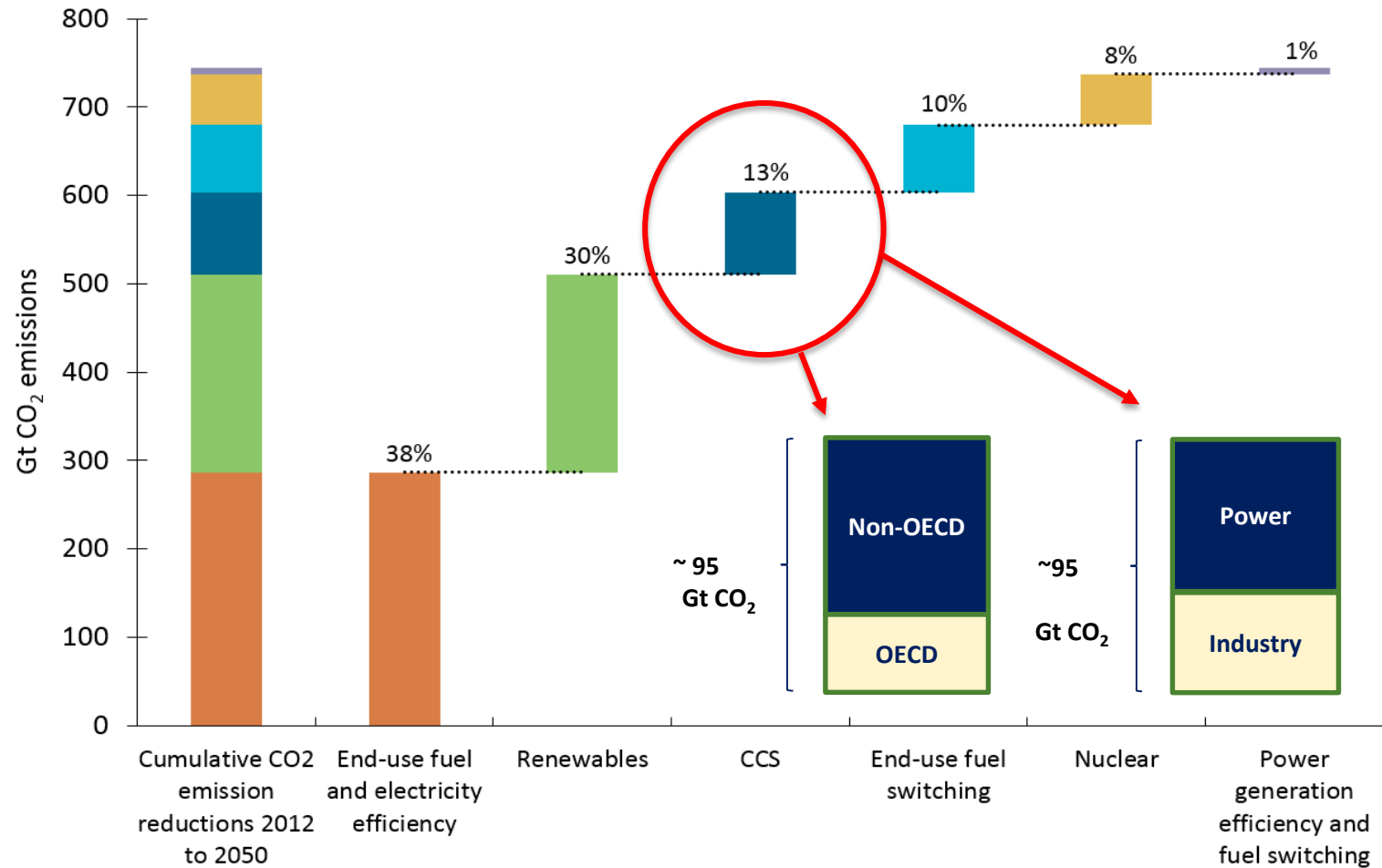


Source: BP Statistical Review of World Energy 2014



CCS is critical in a portfolio of low-carbon technologies

CCS contributes 13% of cumulative reductions required through 2050 in a 2DS world compared to 'business as usual'



Source: IEA, *Energy Technology Perspectives* (2015).



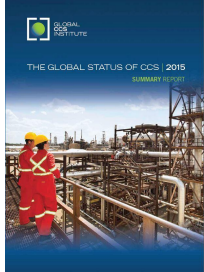
Large-scale CCS projects by region or country

	Early planning	Advanced planning	Construction	Operation	Total
Americas	1	3	5	11	20
China	5	4	-	-	9
Europe	2	4	-	2	8
Gulf Cooperation Council	-	-	1	1	2
Rest of World	4	-	1	1	6
Total	12	11	7	15	45

North America (with 13 in the US and 6 in Canada), China (with 9) and UK (with 5) have the most projects



A significant task within one generation



Global Status of CCS: 2015

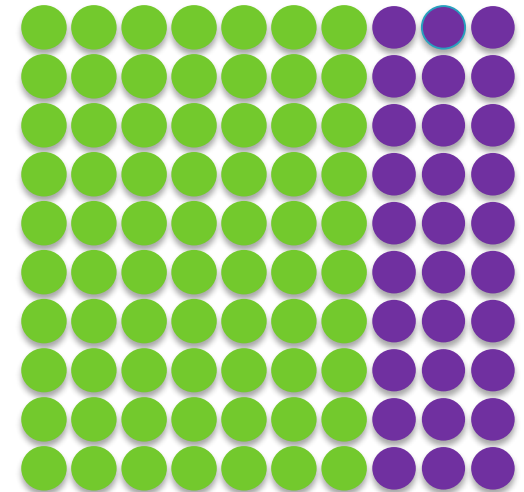
45 large-scale CCS projects -
combined capture capacity of
80 Mtpa*:

- 22 projects in operation or construction (**40 Mtpa**)
- 11 projects in advanced planning, five nearing FID (15 Mtpa)
- 12 projects in earlier stages of planning (25 Mtpa)

40 Mtpa



**4,000 Mtpa of CO₂
captured by CCS by 2040
(IEA 450 Scenario)****



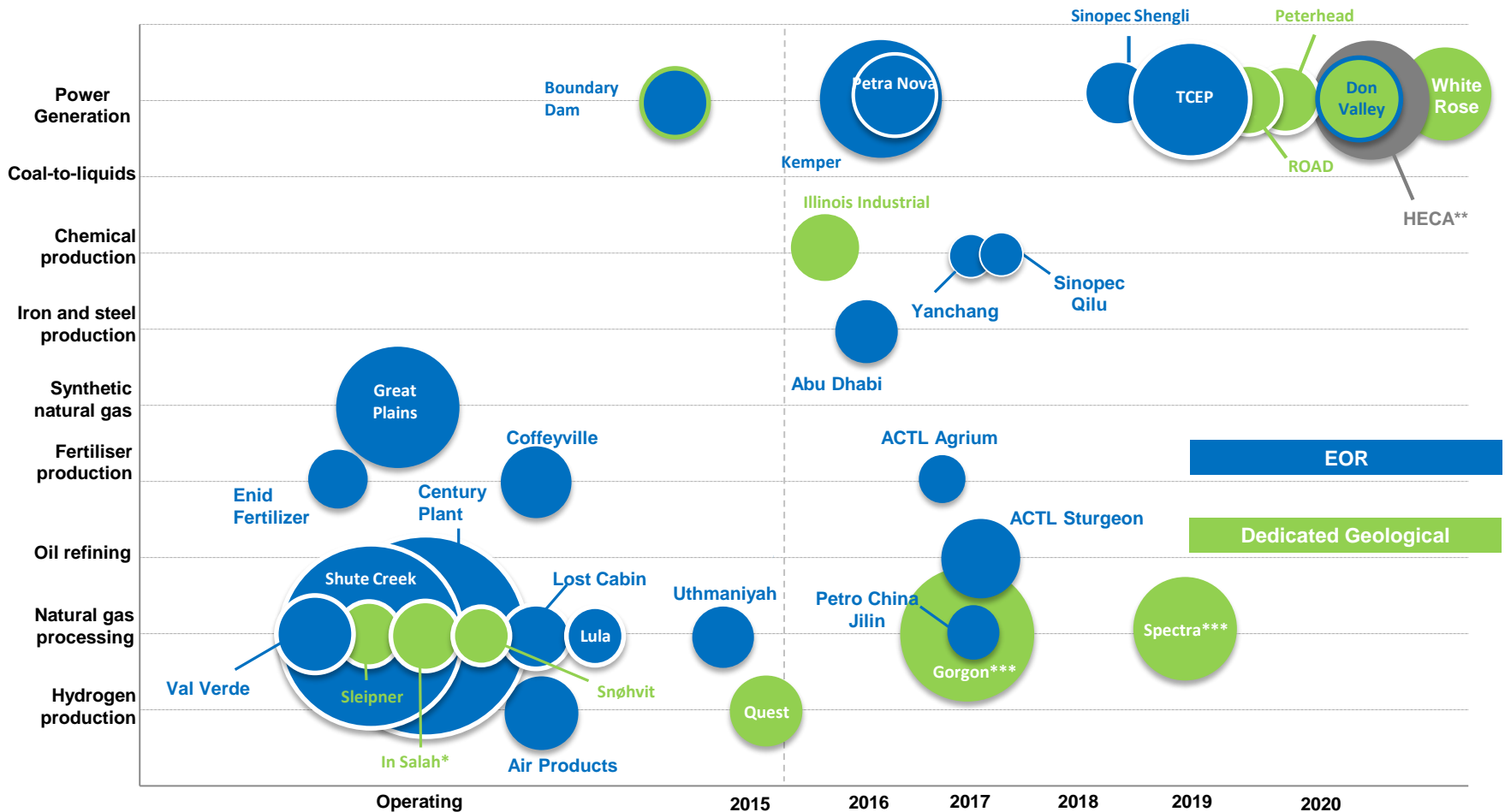
● Non-OECD ● OECD

*Mtpa = million tonnes per annum

**Source: IEA, *Energy Technology Perspectives* (2015).



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



○ = 1Mtpa of CO₂ (areas of circle are proportional to capture capacity)

* Injection currently suspended ** Storage options under evaluation

*** Institute estimate



2015-2016: a year of action

Operational
2015



Uthmaniyah



Quest

FID
2015/16



ROAD



White Rose



Peterhead



Shaanxi Yanchang

Execute
2016



Decatur



Abu Dhabi CCS



Kemper County



Petra Nova



EOR projects globally

- More than 40 years of experience
- 11 operational large scale EOR projects globally
- EOR projects represent the largest share in the CCS portfolio
- EOR development generated significant learnings to be leveraged in CCS applications
- EOR are attractive for high purity CO₂ sources (gas processing, ammonia plants, bio-ethanol facilities)



EOR in Europe

- No EOR operations in Europe:
 - Relatively high cost for off-shore location of North sea oil fields
 - Missing CO₂ transport network
- Growing interest in EOR operations (UK, NO, NL)
- There are potential synergies between the development of CO₂ hubs & cluster and EOR fields in the North sea.

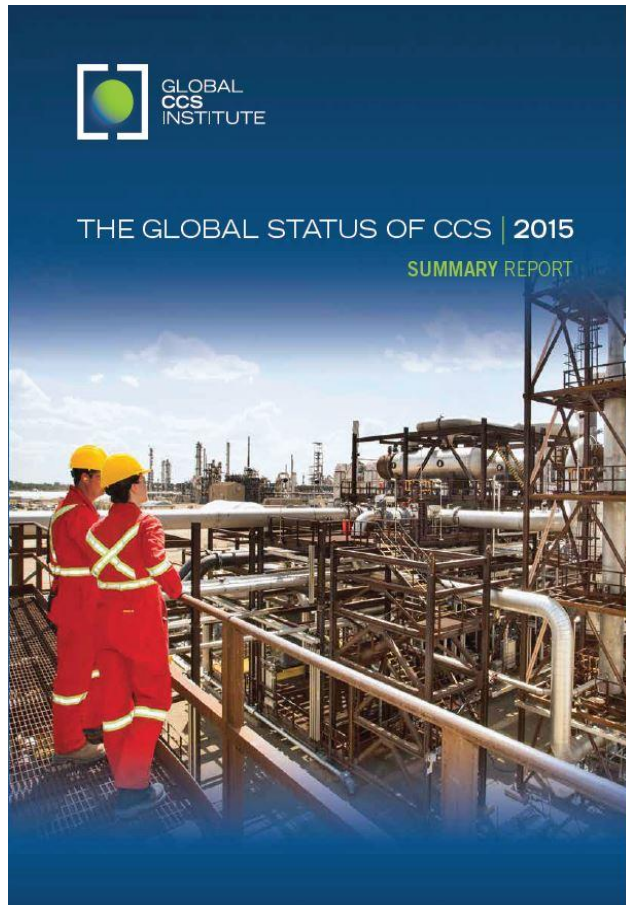


Global CCS status – a recap to guide future action

- CCS is indispensable in a least-cost approach to global decarbonisation
- The task is enormous – the urgency of CCS deployment is only increasing
- Deployment is not a technology challenge
- Significant cost reduction and strong political support are necessary to speed up the uptake of CCS
- EOR projects would help to enlarge and diversify the European CCS portfolio



The Global Status of CCS: 2015



The Institute's key publication

Summary Report, Key Findings and other advocacy materials can be found at:

www.globalccsinstitute.com

Full report is available online at the Institute's Members Portal.

If you have questions:

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