

## Supplementary information: The role of supercritical carbon dioxide for recovery of shale gas and sequestration in gas shale reservoirs

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This supplementary information provides details and supporting material to the main text.

Classification of CO<sub>2</sub> storage projects.<sup>1-3</sup>

Project (location)	CO <sub>2</sub> -source	Type of storage	Amount of CO <sub>2</sub>
Terrell Natural Gas Processing (USA)	Natural gas processing	Natural oil field (EOR)	0.5 Mt per year (since 1972)
Enid Fertilizer (USA)	Koch Nitrogen's Enid Fertilizer Plant	Natural oil field (EOR)	0.7 Mt per year (since 1982)
Shute Creek Gas Plant (USA)	Natural gas processing	Natural oil field (EOR)	7 Mt per year (since 1986)
Great Plains Synfuels Plant (USA)	Coal	Natural oil field (EOR)	3 Mt per year (since 2000)
Century Plant (USA)	Natural gas processing	Natural oil field (EOR)	8.4 Mt per year (since 2010)
Air Products SMR (USA)	Existing steam-methane reformers	Natural oil field (EOR)	1 Mt per year (since 2013)
Coffeyville Gasification (USA)	Fertilizer	Natural oil field (EOR)	1 Mt per year (since 2013)
Lost Cabin Gas Plant (USA)	Natural gas processing	Natural oil field (EOR)	0.9 Mt per year (since 2013)
Petra Nova (WA)	Coal-fired power	Natural oil field	1.4 Mt per year (since

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Parish) (USA)	generation	(EOR)	2017)
Petrobras Santos Basin (Brazil)	Natural gas processing	Natural oil field (EOR)	1-3 Mt per year (since 2013)
Boundary Dam (Canada)	Coal-fired power	Natural oil field (EOR)	1 Mt per year (since 2014)
Uthmaniyah (Saudi Arabia)	Natural gas processing	Natural oil field (EOR)	0.8 Mt per year (since 2015)
Abu Dhabi CCS (United Arab Emirates)	Steel production	Natural oil field (EOR)	0.8 Mt per year (since 2016)
CNPC Jilin Oil Field CO <sub>2</sub> EOR (China)	Natural gas processing	Natural oil field (EOR)	0.6 Mt per year (since 2018)
Alberta Carbon Trunk Line with Sturgeon Refinery CO <sub>2</sub> Stream (Canada)	Petcoke gasification plants for hydrogen	Natural oil field (EOR)	1.2-1.4 Mt per year (since 2019)
Alberta Carbon Trunk Line with Agrim CO <sub>2</sub> Stream	Agrium fertilizer plant	Natural oil field (EOR)	0.3-0.6 Mt per year (since 2019)
In Salah (Algeria)	Natural gas processing	Natural gas field/saline aquifer	1.2 Mt per year (since 2004)
Weyburn (Canada/USA)	Coal	Natural oil field (EOR)	1 Mt per year (since 2000)
K12b (Netherlands)	Natural gas processing	Natural gas field (EGR)	0.1 kt per year (since 2004)
Otway (Australia)	Natural gas processing	Depleted gas field	50 kt per year (2007–2009)
Snohvit (Norway-offshore)	Natural gas processing	Natural gas field/saline aquifer	0.75 kt per year (since 2007)
Lacq (France)	Oxyfuel power station	Depleted gas field	0.15 Mt (2010–2012)

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## Reference

1. IEA, *CO<sub>2</sub> Capture and Storage*, IEA/OECD, Paris, 2008.
2. N. Tanaka, *Energy Technology Perspectives 2008—scenarios and strategies to 2050*, International Energy Agency (IEA), Paris, 2008.
3. P. Markewitz, W. Kuckshinrichs, W. Leitner, J. Linssen, P. Zapp, R. Bongartz, A. Schreiber and T. E. Müller, *Energ Environ Sci*, 2012, **5**, 7281-7305.