

# building a CCS industry

29/5/08

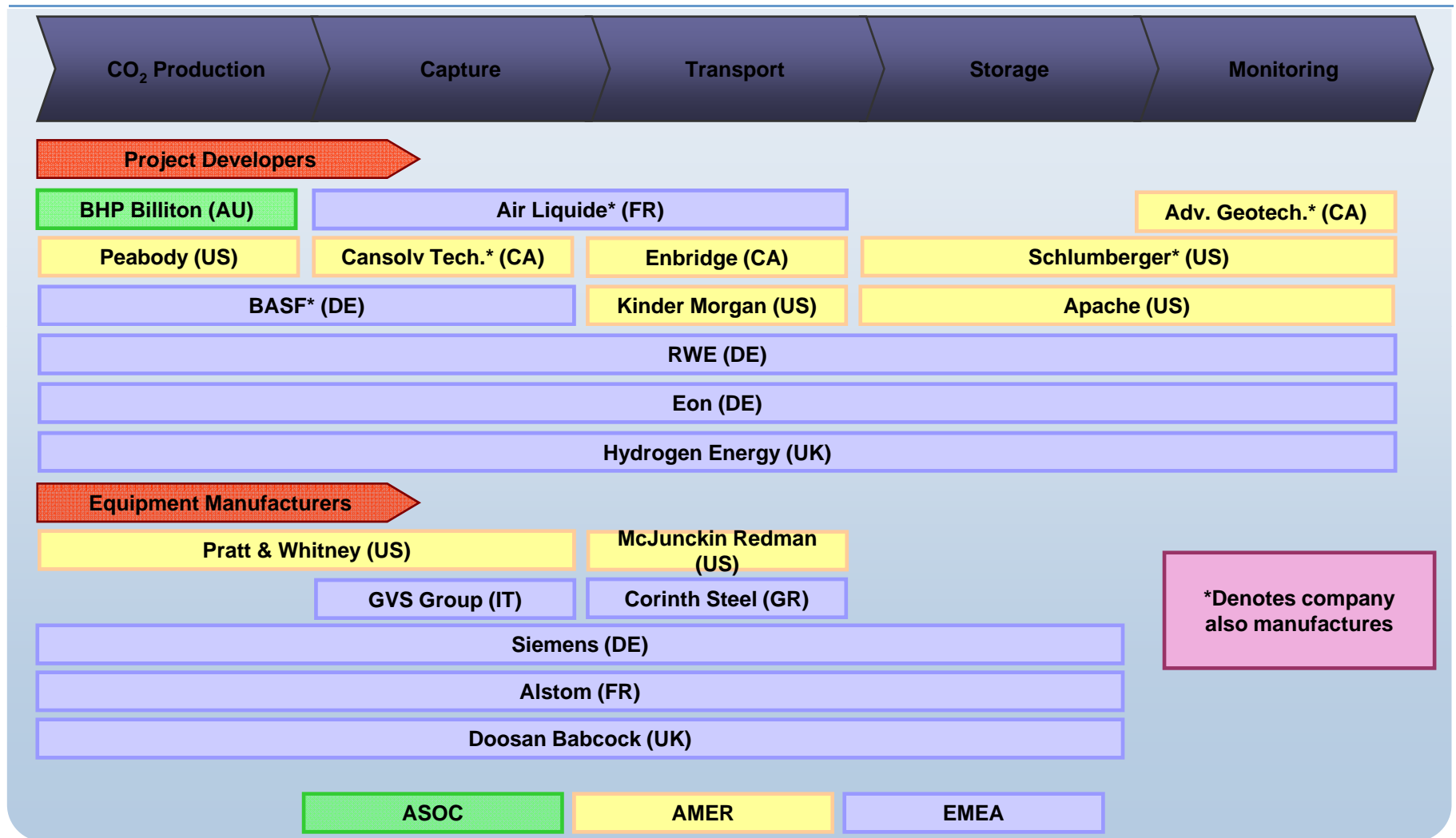
new energy finance



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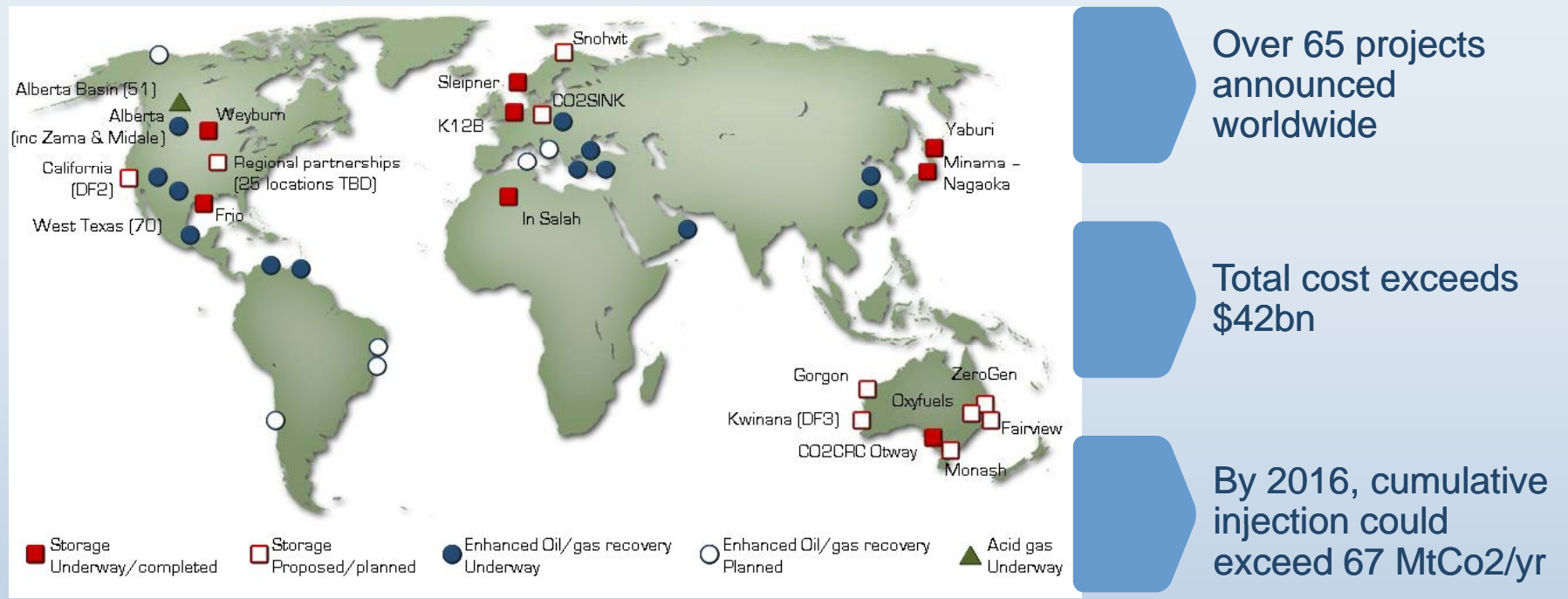
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# who is doing these projects?



Source: New Energy Finance 2008

# there are over 65 CCS projects announced worldwide



0.25% reduction in annual emissions from fossil fuel usage at 2004 levels (based on 27 GtCo2/yr EIA estimate)

Source: New Energy Finance 2008; Map: Geologic Storage of Carbon Dioxide, IEA Greenhouse Gas R&D Programme

2008

# building investor confidence

the first commercial scale plant will likely be the catalyst to get several more built



Source: New Energy Finance 2008

# outcomes of a commercial scale project



determine actual cost



gain public acceptance



refine regulatory definitions



prove technical/logistical feasibility



build investor confidence!!!

Source: New Energy Finance 2008

# what is needed for a robust CCS investment environment?



1. sustainable demand for fossil fuels



2. set emissions standards/reduction goals



3. legislation/regulatory framework



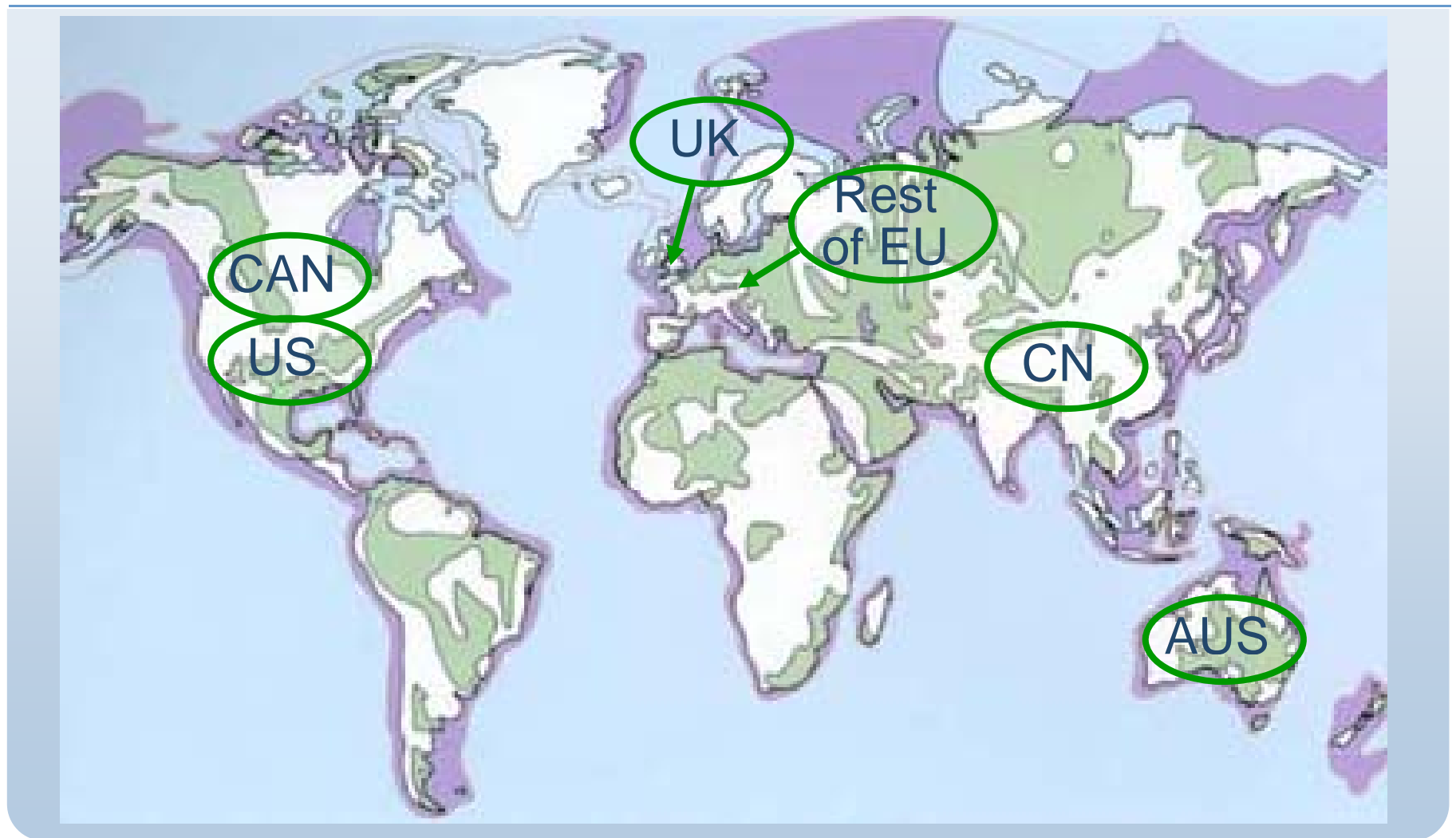
4. progress toward commercial-scale project(s)



5. funding for projects and infrastructure

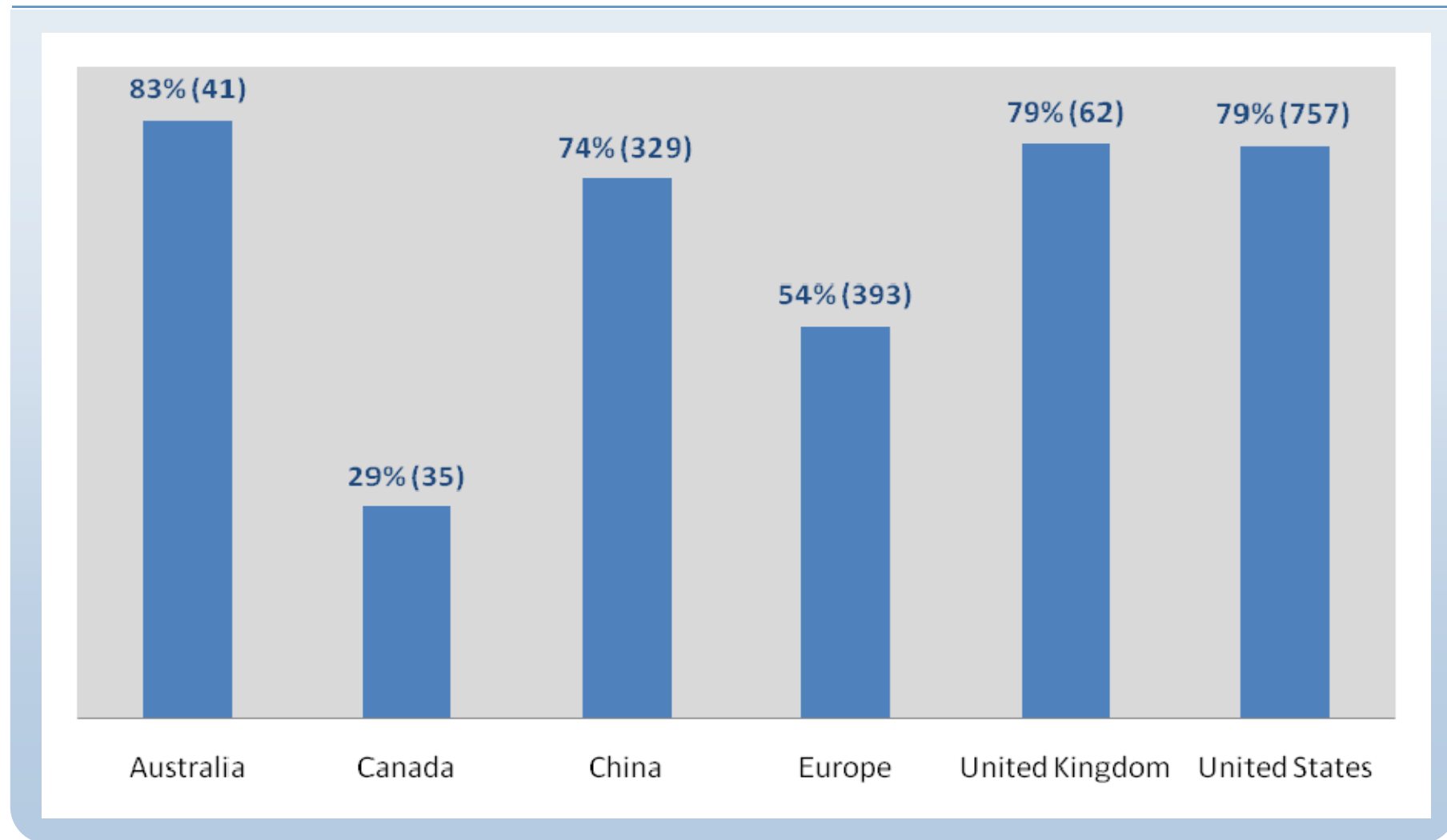
Source: New Energy Finance 2008

## six likely candidate regions



Source: New Energy Finance 2008; Map: Schlumberger

# sustainable demand for fossil fuels: % (GW), 2005 levels



Source: EIA, New Energy Finance 2008



## emissions standards/reduction goals

AU: signed Kyoto – 108% of 1990 levels between 2008-2012

CA: signed Kyoto – 20% emissions reduction on 2006 levels by 2020

CN: signed Kyoto – 20% emissions reduction on 2005 levels by 2010

EU: signed Kyoto – 20% emissions reduction on 1990 levels by 2020

UK: signed Kyoto – 20% emissions reduction on 1990 levels by 2020

US: soft commitment to 18% emission intensity reduction

Source: New Energy Finance 2008

## legislation/regulatory framework

AU: \$70m to establish ETS to begin in 2010 (cap & trade); draft legislation for CCS regulatory framework

CA: Climate Change and Emissions Act, Regulatory Framework for Air Emissions

CN: government initiatives

EU: EU ETS; currently setting-up legal/regulatory framework

UK: EU ETS; in talks to establish all-UK regulatory framework

US: drafts at state level; bills hitting congress floor

Source: New Energy Finance 2008

## progress toward commercial-scale project(s)

AU: ZeroGen Mark II

CA: Belle Plaine, ASAP, Heartland

CN: GreenGen

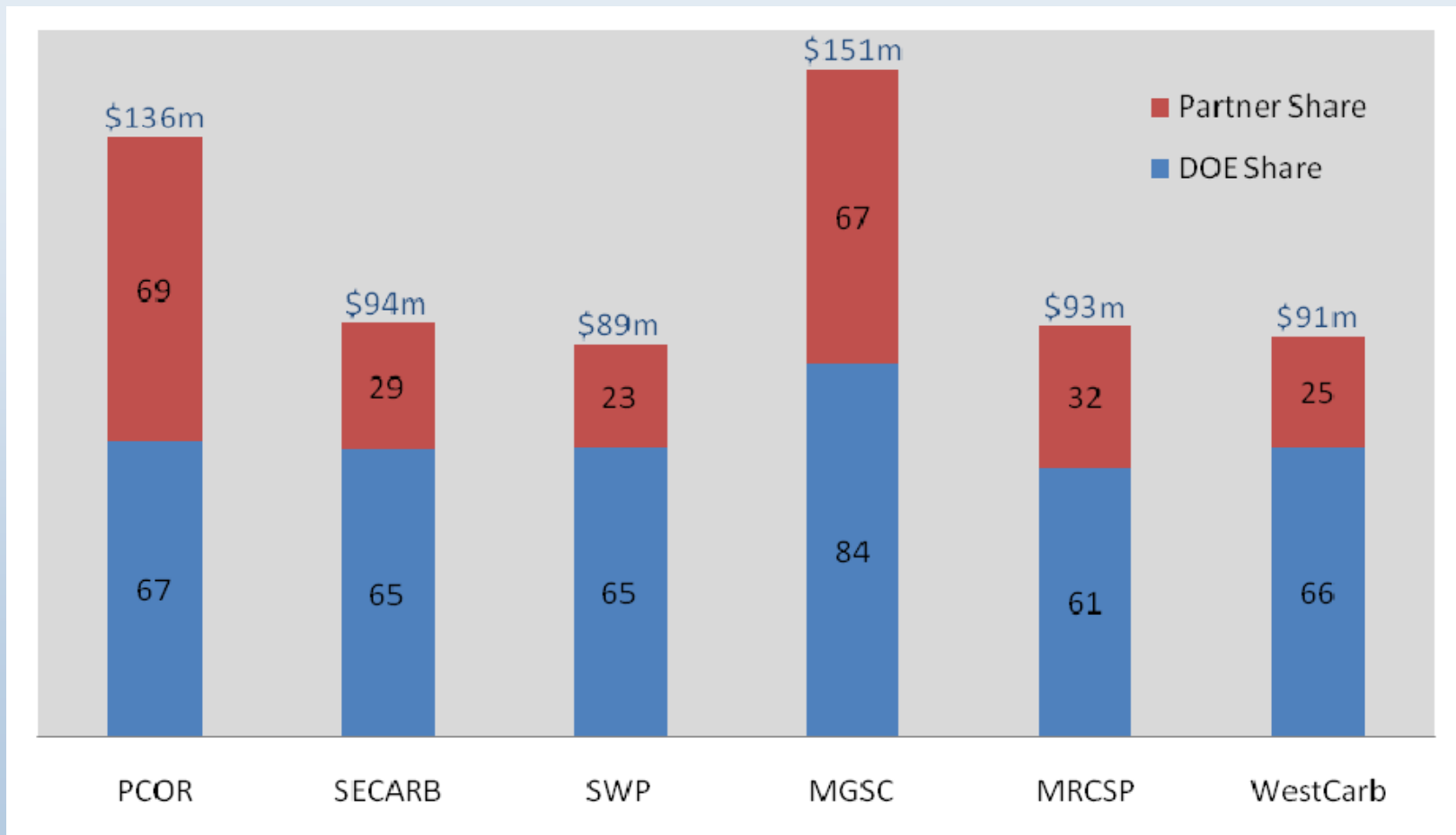
EU: up to 12 demonstration plants commissioned by 2020 costing €6-10bn (\$9.4-15.6bn)

UK: government contest to fund up to 100% of CCS portion of commercial scale PCC plant

US: seven large-scale research projects, and restructured FutureGen likely to bring more

Source: New Energy Finance 2008

# projects funded mainly through public/private consortia



Source: New Energy Finance 2008

## funding for projects and infrastructure

AU: \$2.3bn for climate change, territory funding

CA: CAD250m from federal government in 2008, nothing from Alberta; Alberta formed CCS Development Council

CN: GreenGen approved by two government agencies as 'national high-tech industrialisation program'

EU: revenues from EUAs; budgetary difficulties

UK: government to pay for CCS portion of project; industry dissatisfaction

US: \$1.3bn in support to new projects (starting w/ \$250m)

Source: New Energy Finance 2008

## simplified summary

	Fossil Demand	Reduction Targets	Legislation	Projects	Funding
AU	+	+	+	+/-	+/-
CA	+	+	+/-	+	+/-
CN	+	+	+/-	+	+/-
EU	+	+	+	+/-	+/-
UK	+	+	+	+/-	+/-
US	+	+/-	-	+	+/-

Source: New Energy Finance 2008

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