LTI

Leonardo Technologies, Inc.

IEA World Energy Outlook 2008 – Points of Note

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Policy (WEO-2008)

- On current trends, ***energy related emissions of carbon dioxide and other GHG will rise inexorably***, pushing up average global temperature by as much as 6C in the long term.
- ***Energy Sector will have to play the central role in curbing emissions*** – through major improvements in efficiency and rapid switching to renewable and other low-carbon technologies, such as carbon capture and storage (CCS)
- ***People will need to change the way they use energy***, and energy suppliers will need to invest in developing and commercializing low-carbon technologies.
- To make this happen, ***governments have to put in place appropriate financial incentives and regulatory frameworks*** that support both energy-security and climate-policy goals in an integrated way.

Energy Demand (WEO-2008)

- World primary ***energy demand grows by 1.6% per year*** on average in 2006-2030, **an increase of 45%.**
- ***Fossil fuel accounts for 80% of the world's primary energy mix*** in 2030.
- ***China and India account for just over half of the increase*** in world primary energy between 2006 and 2030.
- Collectively, ***non-OECD countries account for 87% of the increase***.

Emissions (WEO-2008)

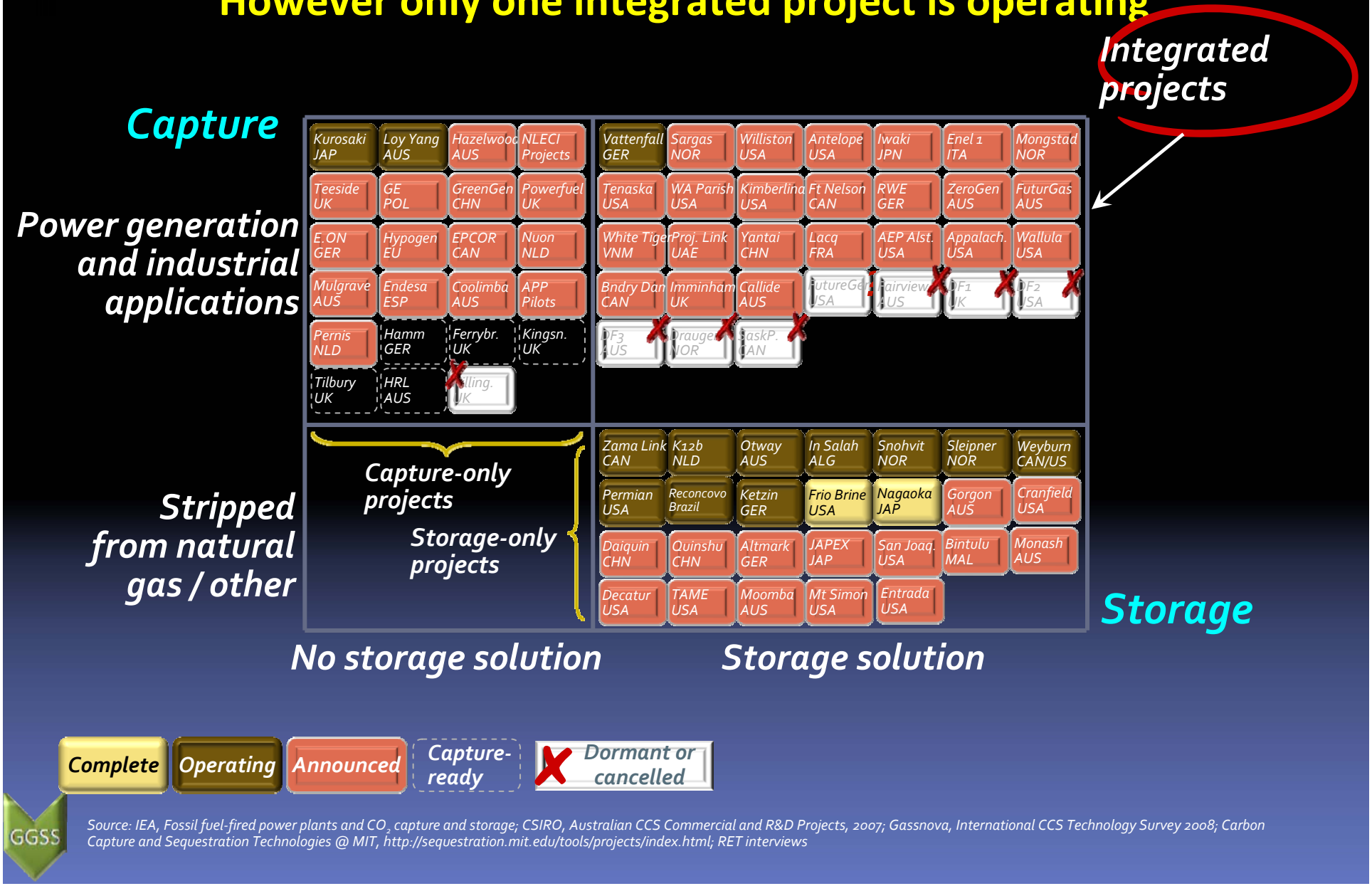
- Global energy related CO2 emissions rise from 28Gt in 2006 to 41 GT in 2030 – an ***increase of 45%***.
- *75%* of the projected increase in energy related CO2 emissions *arise in* ***China, India, and the Middle East***.
- ***97% in non-OECD countries*** as a whole.

Investment (WEO-2008)

- Projections call for cumulative ***investment of over $26 trillion*** ($2007) in 2007-2030.
- ***Power sector accounts for $13.6 trillion***, or 52% of the total.
- The ***current financial crisis*** is not expected to affect long-term investment, but ***could lead to delays*** in bringing current projects to completion, particularly in the power sector.
- The ***normal cycle of capital replacement is a key constraint*** on the speed with which low-carbon technologies can enter into use without incurring disproportionate cost. It will be necessary to face up to the reality of the cost of early capital retirement if radical measures are to be taken to speed up this process so as to deliver deep cuts in emissions.

Many CCS projects have been announced

However only one integrated project is operating



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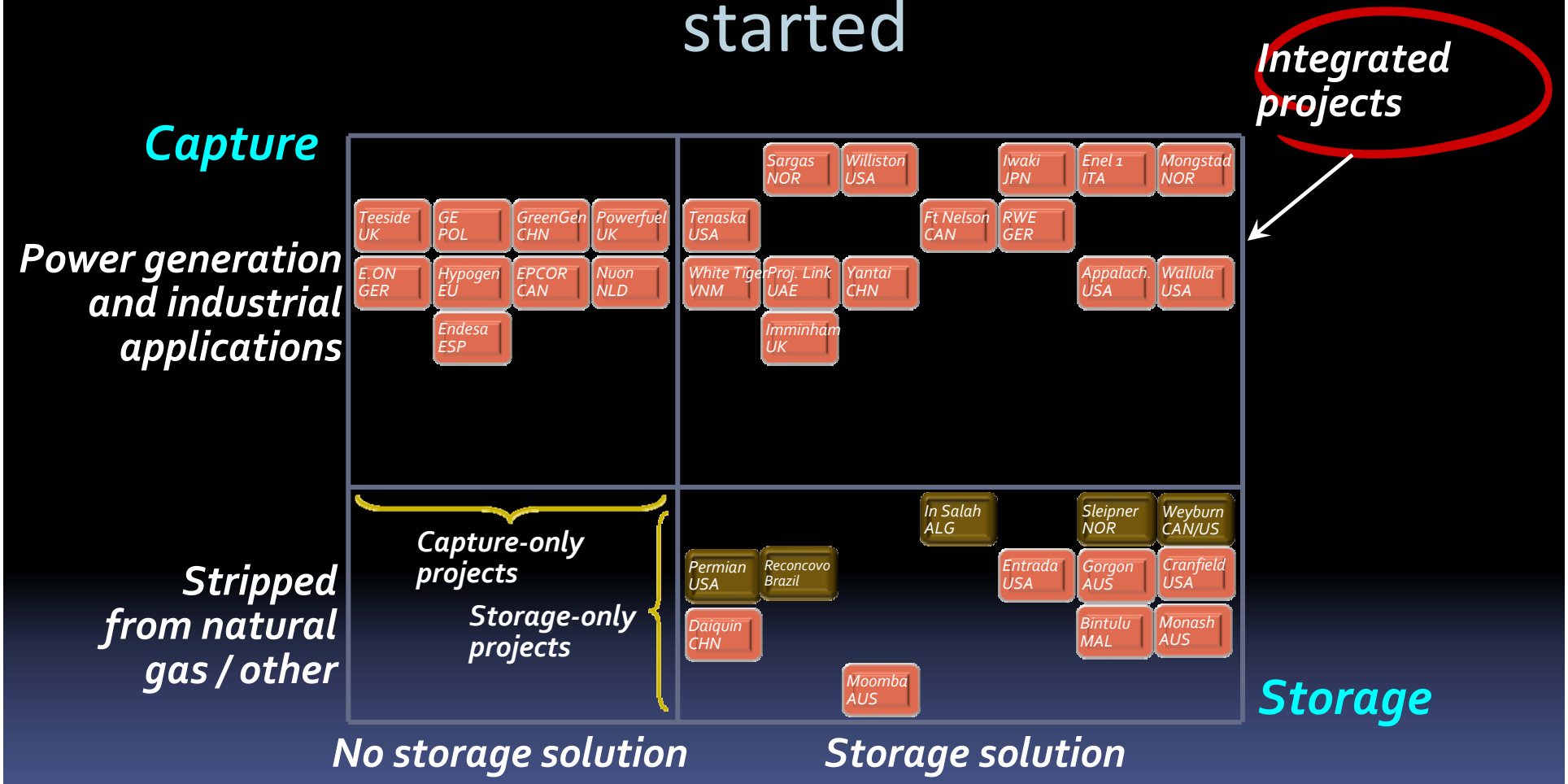
Source: IEA, Fossil fuel-fired power plants and CO_2 capture and storage; CSIRO, Australian CCS Commercial and R&D Projects, 2007; Gassnova, International CCS Technology Survey 2008; Carbon Capture and Sequestration Technologies @ MIT, http://sequestration.mit.edu/tools/projects/index.html; RET interviews

No integrated industrial-scale projects have started



Note: Industrial-scale defined as more than 250 MW power production and/or greater than 1 Mtpa CO_2 storage
Source: IEA, Fossil fuel-fired power plants and CO_2 capture and storage; CSIRO, Australian CCS Commercial and R&D Projects, 2007; Gassnova, International CCS Technology Survey 2008; Carbon Capture and Sequestration Technologies @ MIT, http://sequestration.mit.edu/tools/projects/index.html; RET interviews

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