STAKEHOLDER PERSPECTIVES: THE FUTURE OF CCUS

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ADDRESSING THE NATION'S ENERGY NEEDS THROUGH TECHNOLOGY INNOVATION

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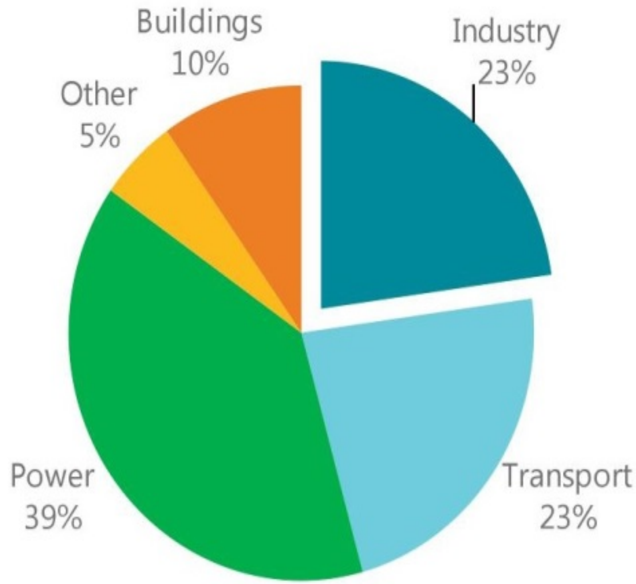
Global CO_2 Emissions from Different Economic Sectors

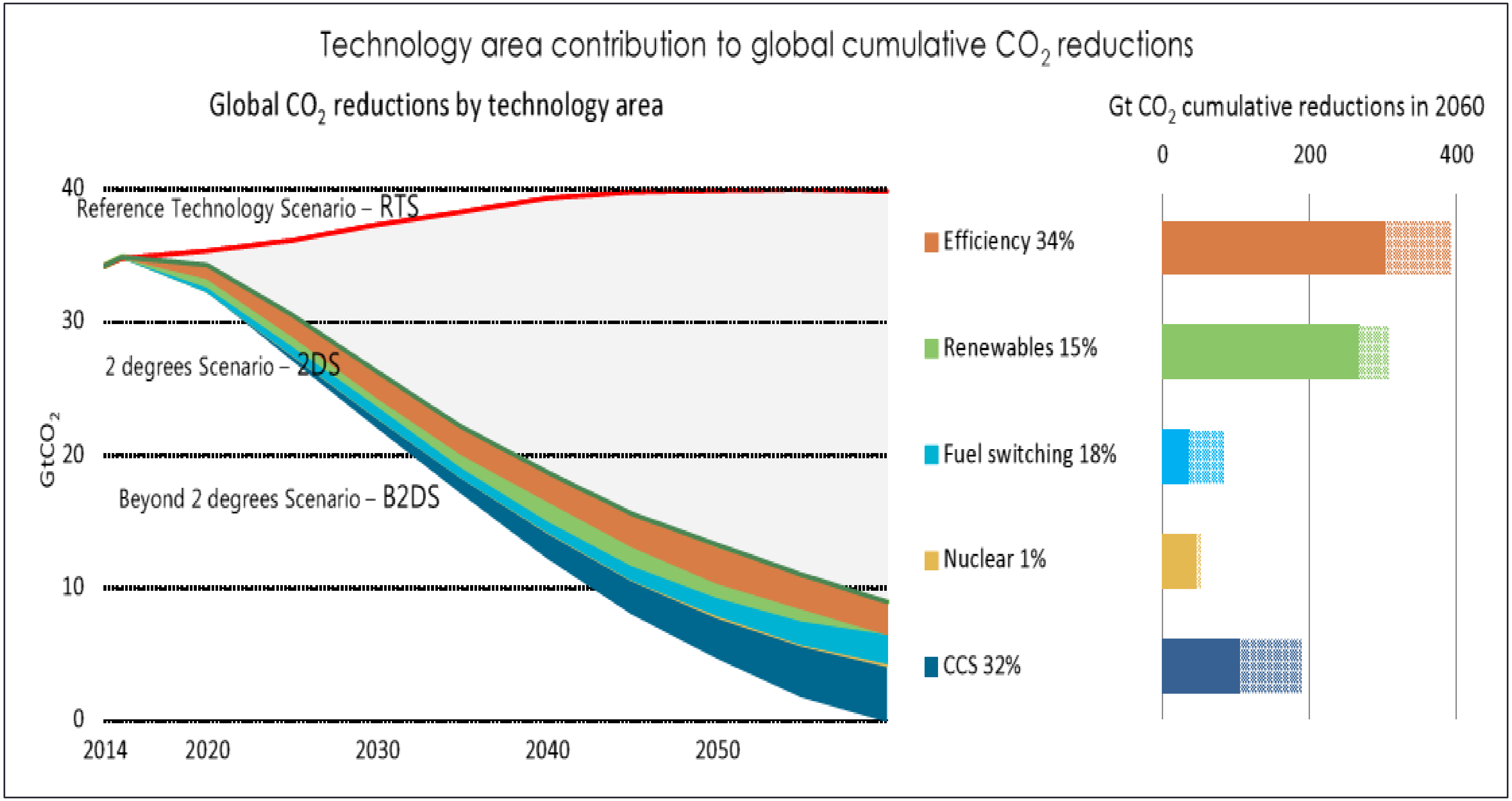
Figure 3. Direct CO_2 emissions by sector, 2017



Source: IEA (2019).

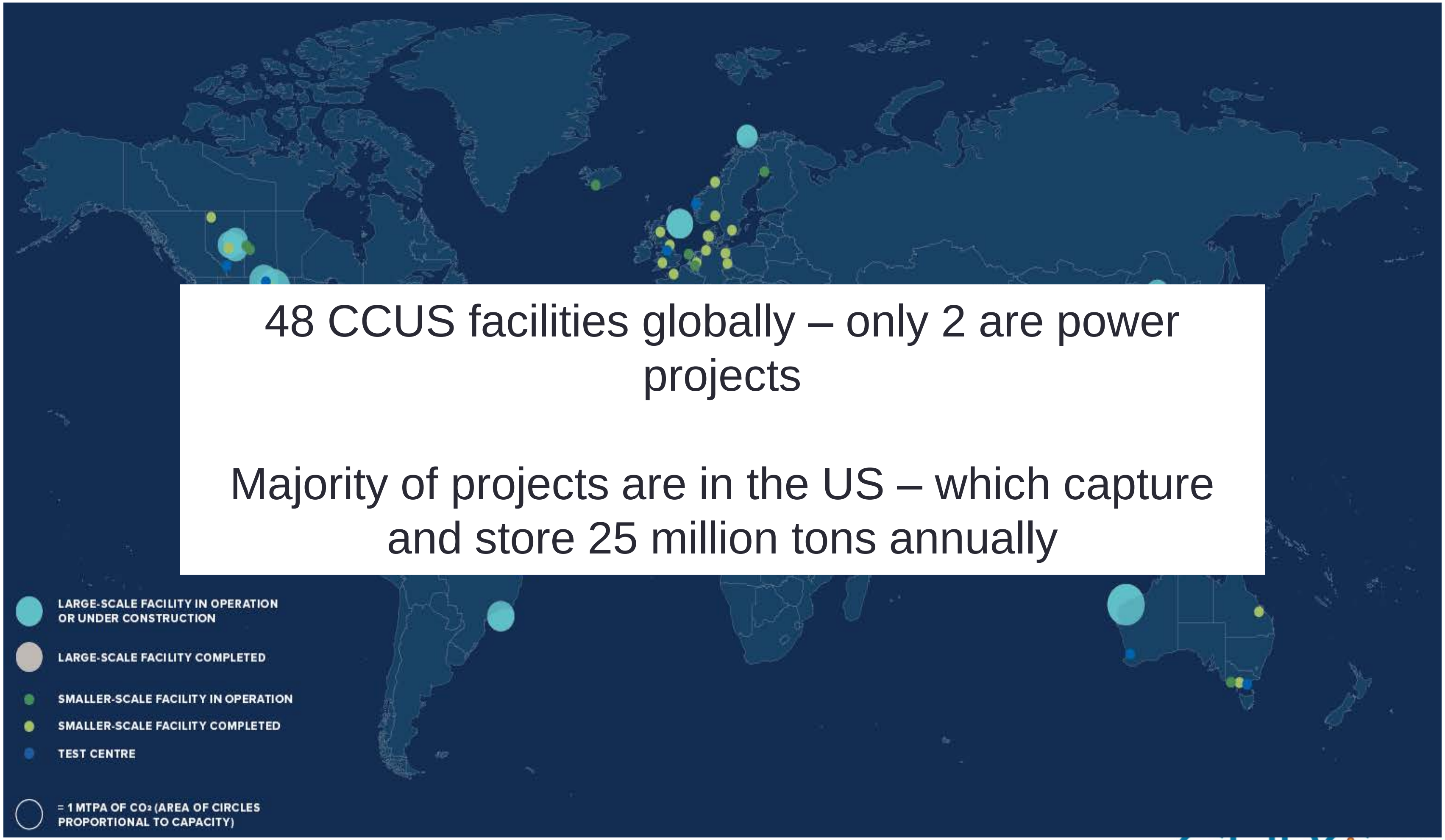
 Transforming Industry through CCUS, May 2019, International Energy Agency

Importance of CCUS in Meeting Global Climate Targets



Source: International Energy Agency

How Many CCUS Projects Operating Today?



48 CCUS facilities globally – only 2 are power projects

Majority of projects are in the US – which capture and store 25 million tons annually

Source: Global CCS Institute

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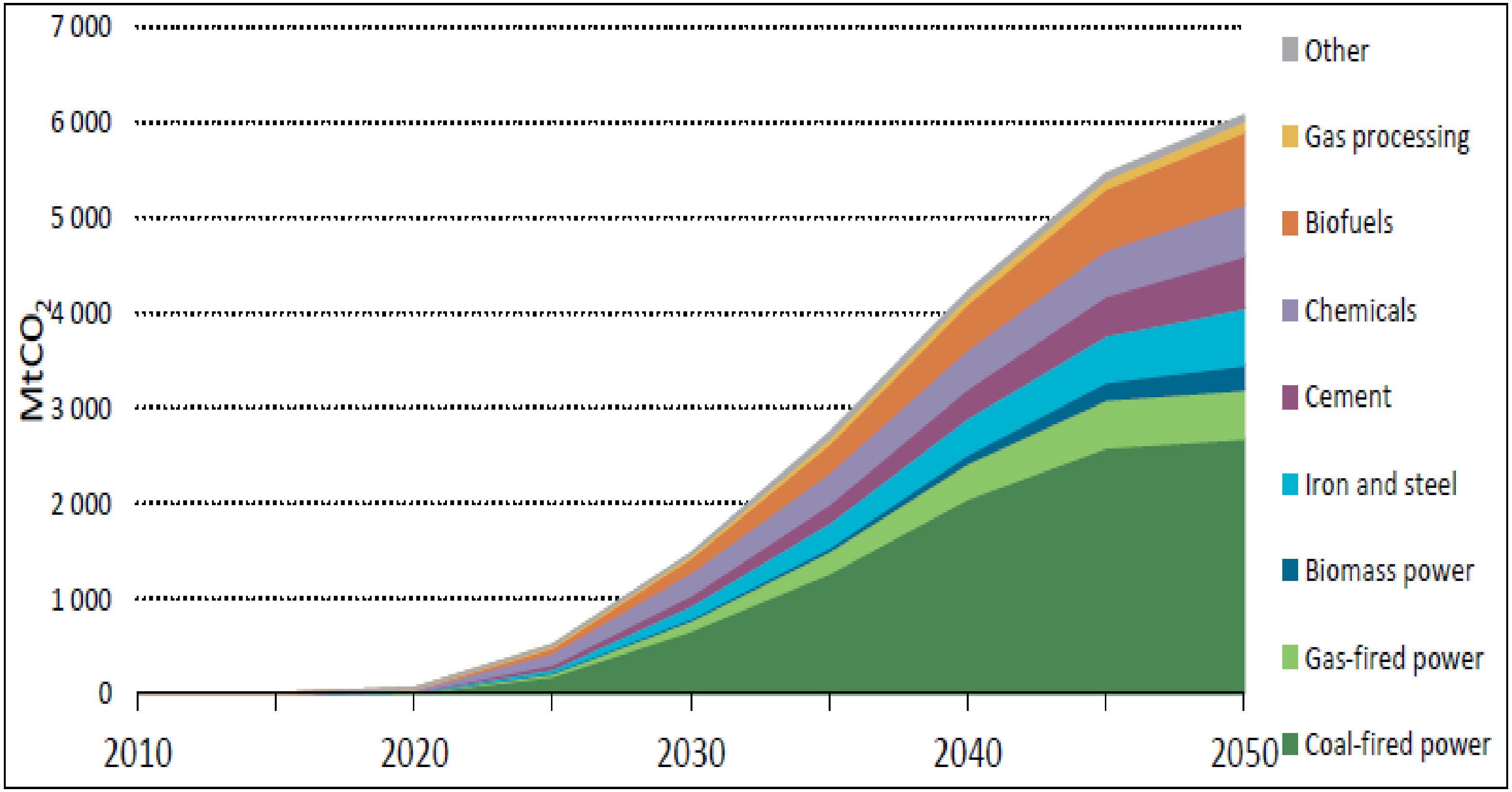
Global Carbon Capture by Industry to Meet 2°C Target



Source: Derived from *Energy Technology Perspectives 2016 (IEA, 2016)*.

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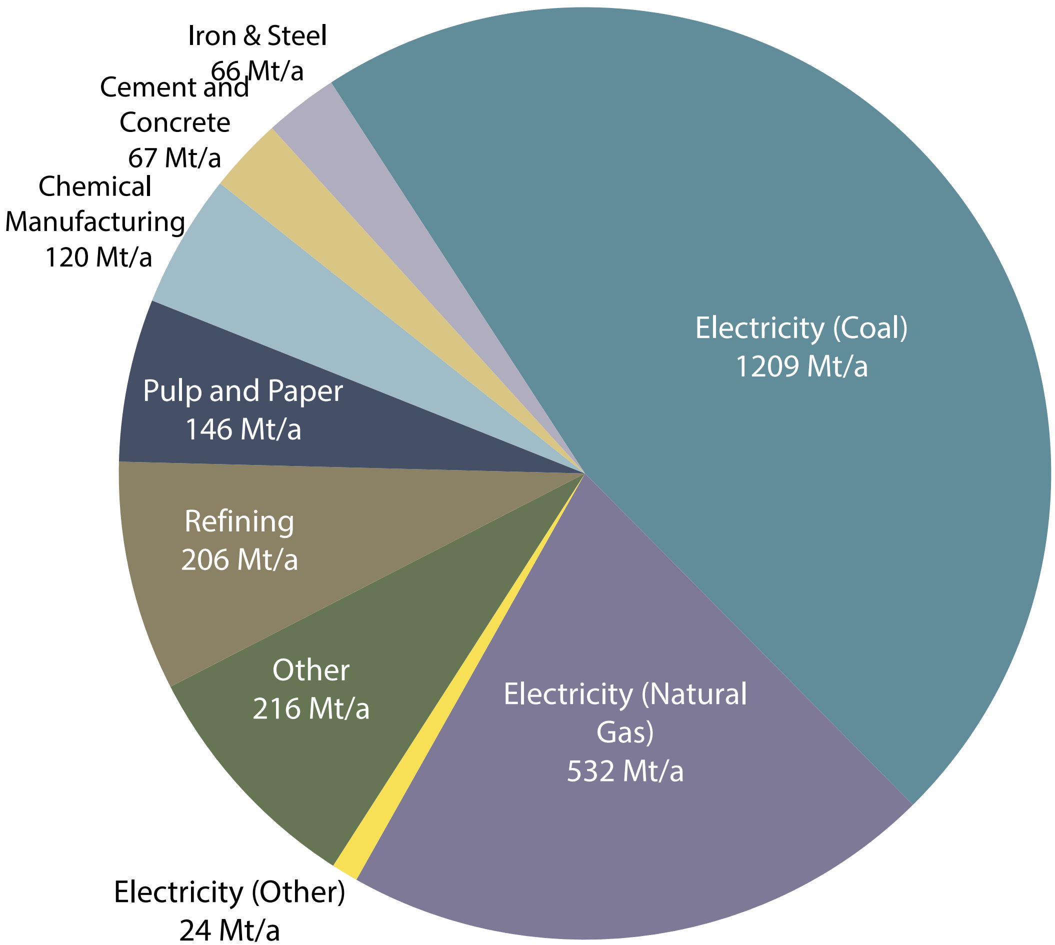
U.S. CO_2 Emissions by Sector (2017)



Source: EPA GHGRP 2017 data by point sources

POWER GENERATION ACCOUNTS FOR 68% OF CO_2 EMISSIONS FROM INDUSTRIAL SOURCES

FROM POWER GENERATION, THE MAKEUP OF CO_2 EMISSIONS: COAL 69%, NATURAL GAS 30%

Source: Electric Power Research Institute (EPRI)

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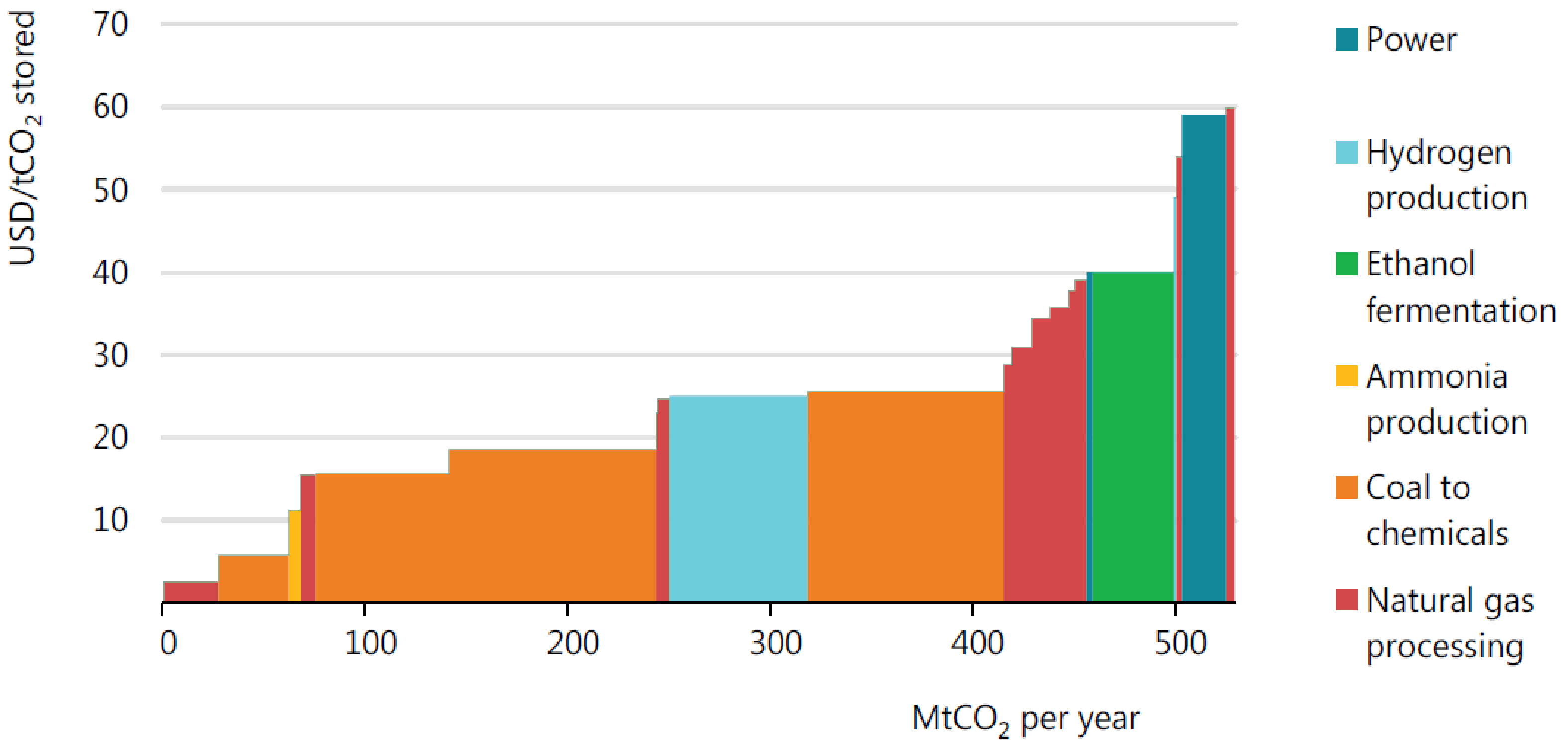
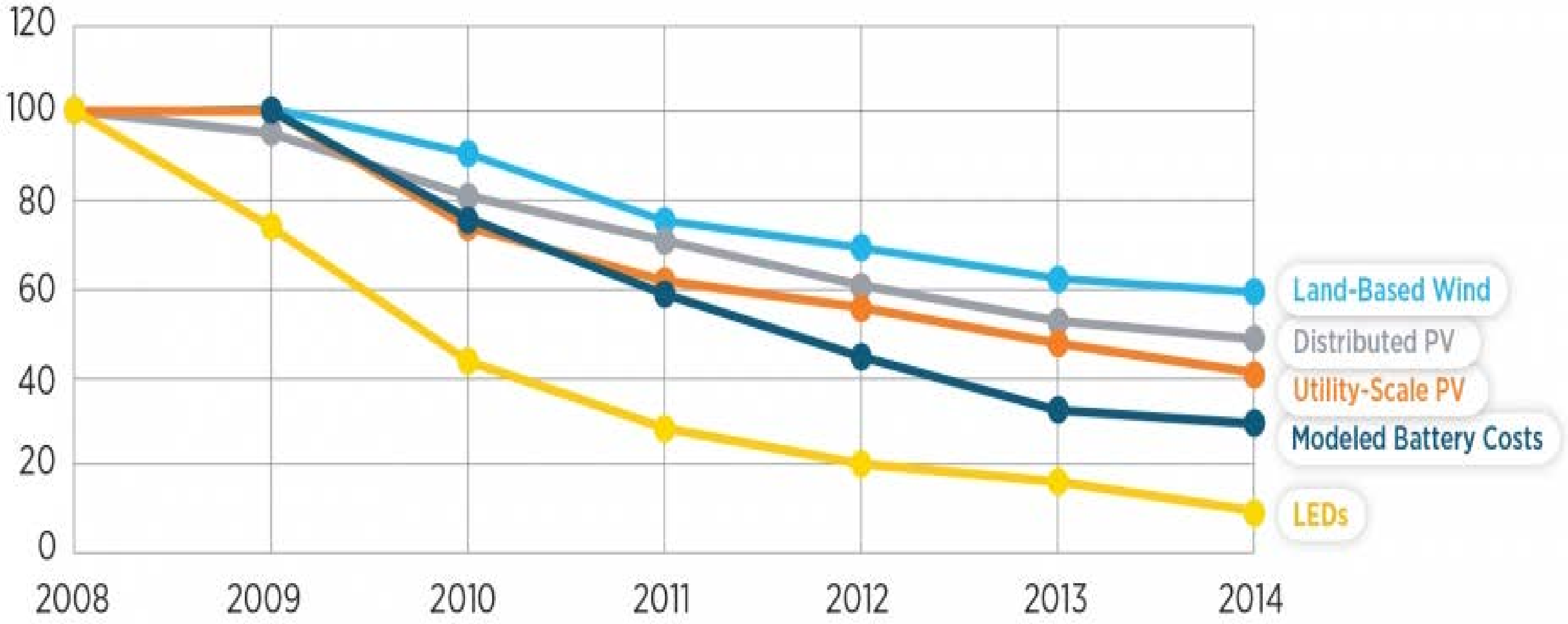
First-of-a-kind CCS Costs In Different Industries

Figure 39. Break-even costs for CO_2 capture and storage by application



CCS Costs Can Come Down with Aggressive and Sustained Policy Support

As witnessed by the deployment curve with renewable energy technologies, we know that the costs for CCS – when coupled with policies to support their successive application into the commercial market – will reduce over time and make CCS competitive in the marketplace.



Each of these technologies has dropped 40-90% in cost in the U.S. since 2008

Indexed Cost reductions since 2008. (Source: energy.gov/fe)

What is Needed to Enable Widespread CCUS Deployment?

- More experience with the integration of capture, transport and storage
- Cross-industry understanding of different business models involved in CCUS projects
- Financial industry confidence in CCUS projects
- Resolution to questions on pore space/mineral rights and long term liability for saline storage projects
- Expansion of CO_2 pipelines including trunklines
- Demonstrated leadership and commitment to CCUS from both the public and private sector, including ENGOs, industrial sector and fossil fuel industry

Thank You and Questions

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