

ELECTRIC POWER DIVISION

helping our customers build a better, more sustainable world

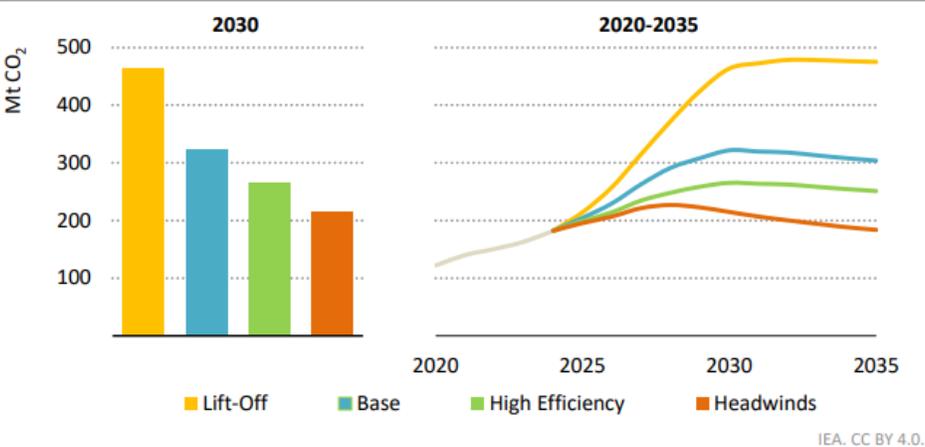
Power Solutions for Data Centers

10 July 2025

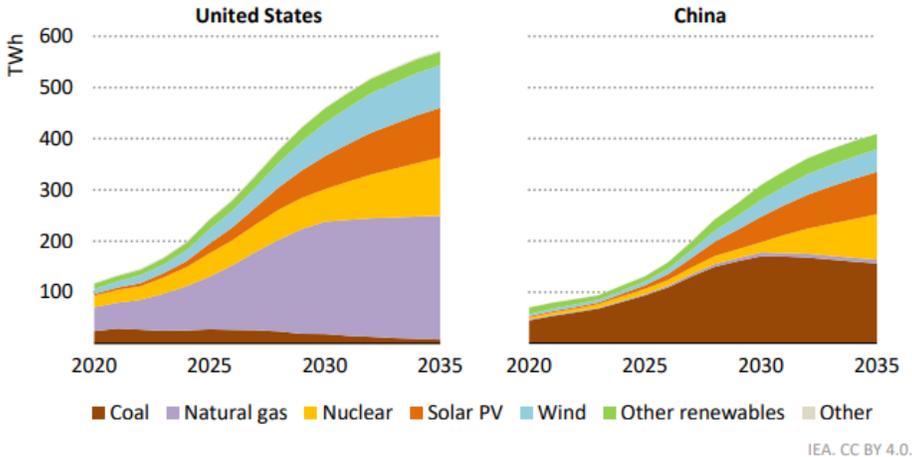
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 **CATERPILLAR**[®]

Data center energy projections (IEA)



Data centre electricity supply-related CO₂ emissions peak at 215 Mt CO₂ to 320 Mt CO₂ in all cases except the Lift-Off Case, which sees a plateau at around 475 Mt CO₂ in the 2030s



Natural gas is set to continue to dominate the near-term data centre electricity supply in the United States, with coal predominant in China

Data center energy demand expected to increase with natural gas being a major contributor of energy mix in the United States

Source: IEA 2024; “Energy and AI”, www.iea.org, License: CC BY 4.0

Power solutions

Challenges

- » Increased power demands
- » Grid constraints
- » Carbon emissions

Solutions



Increased efficiencies – integration

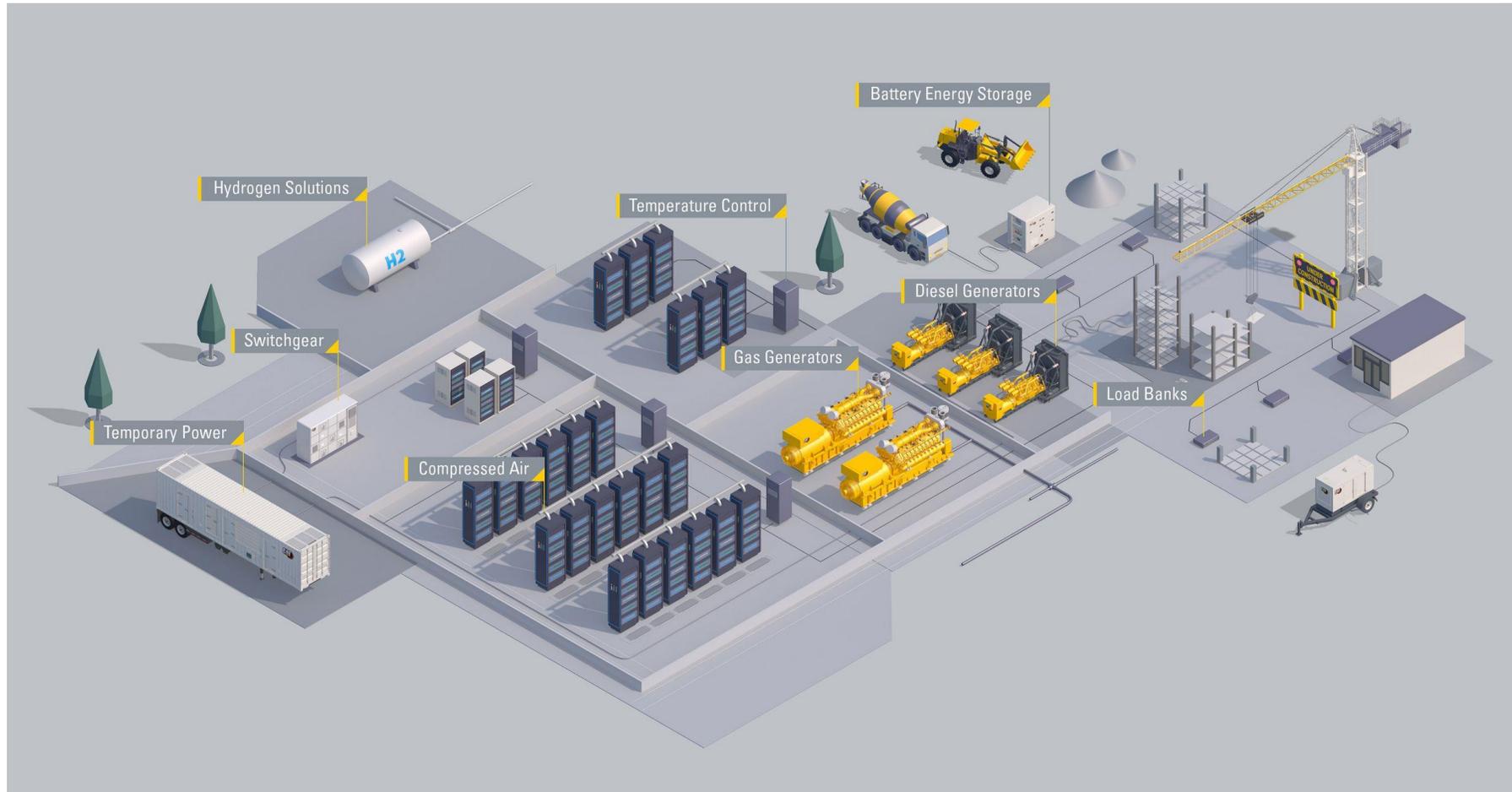


Bridge Power, Distributed Generation – natural gas



Carbon capture - Available

Energy portfolio leveraging multiple energy options



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Caterpillar: Non-Confidential

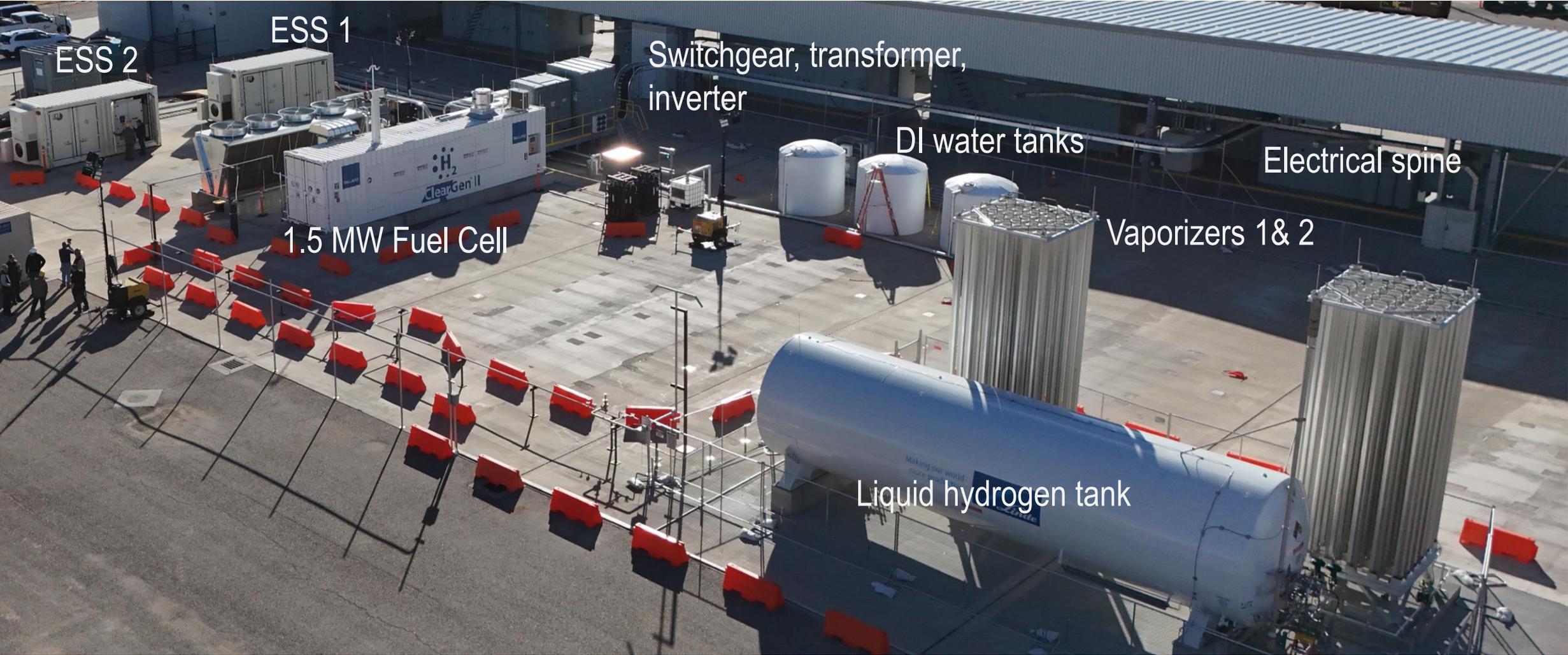
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Carbon capture

- Integrated solution for oil and gas applications today
- Continual design improvements for future installations
- Can be applied to other applications

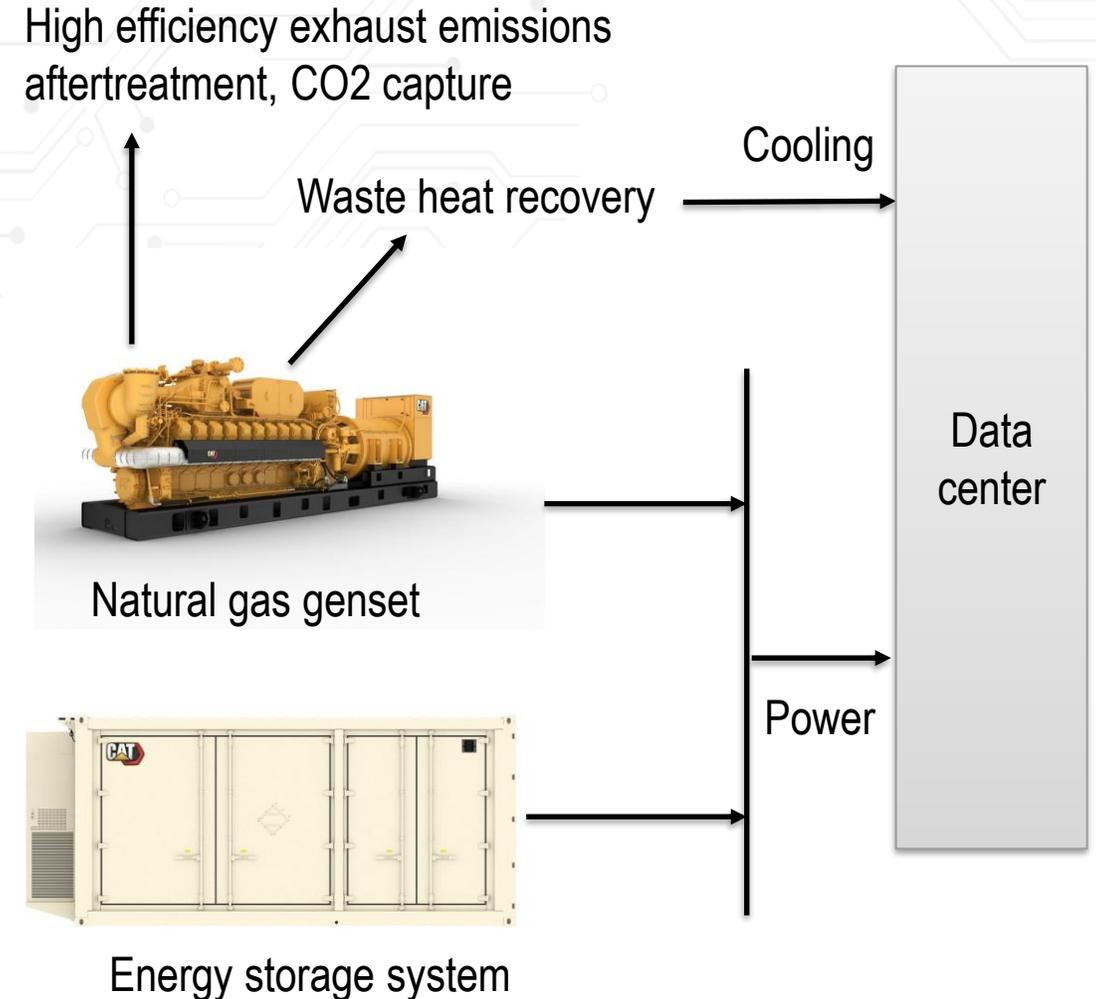


Example: Hydrogen Data Center Demonstration



Concept: Highly integrated system

- » Cogeneration system (power, heat, cooling, carbon dioxide) ~ 90% fuel efficiency
- » Use case: Edge data centers – AI inference workloads



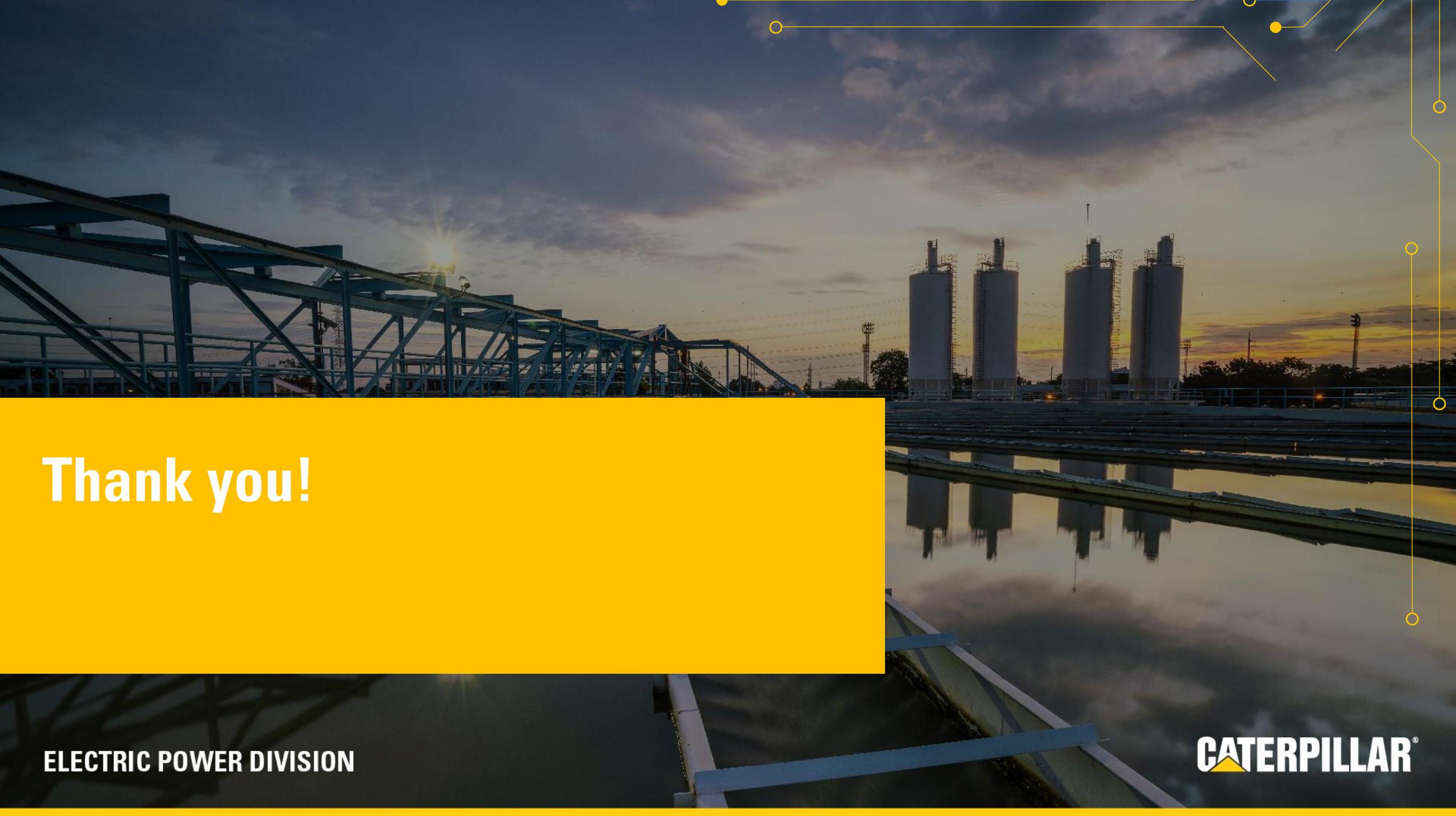
Summary

Enhanced efficiencies - systems integration

Natural gas is anticipated to be a key component of the US energy mix.

Technologies for capturing carbon



A photograph of an industrial facility at dusk. The sky is a mix of blue and orange, with a bright sun low on the horizon. In the foreground, there are several large, rectangular basins filled with water, which reflect the sky and the structures. In the background, there are several tall, cylindrical silos or towers. The entire scene is overlaid with a large yellow rectangle on the left side, which contains the text 'Thank you!'.

Thank you!

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