ELECTRIC POWER DIVISION

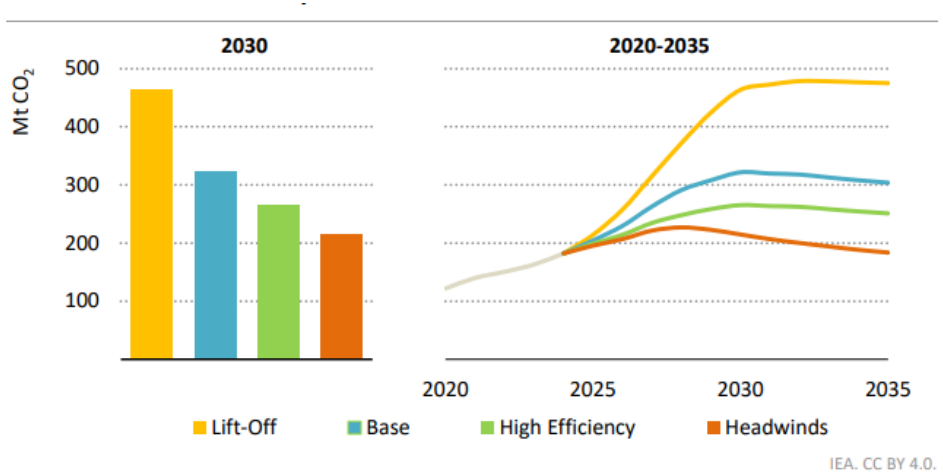
helping our customers build a better, more sustainable world

Power Solutions for Data Centers

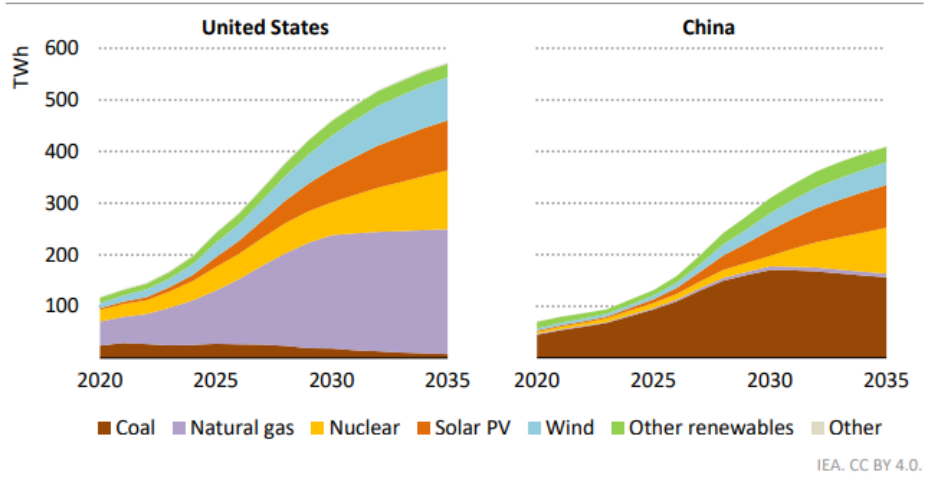
10 July 2025

CATERPILLAR®

Data center energy projections (IEA)



Data centre electricity supply-related CO_2 emissions peak at 215 Mt CO_2 to 320 Mt CO_2 in all cases except the Lift-Off Case, which sees a plateau at around 475 Mt CO_2 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

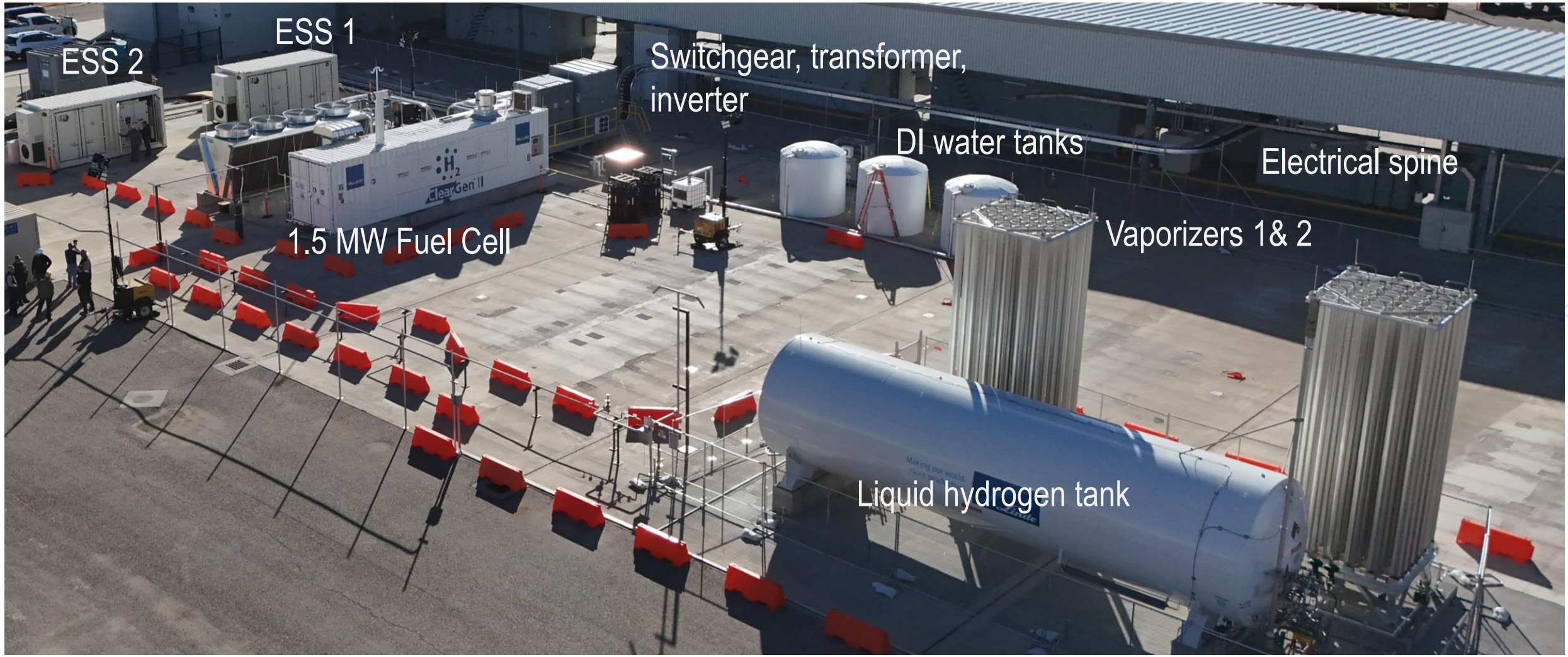
Carbon capture - Available

Energy portfolio leveraging multiple energy options

Carbon capture

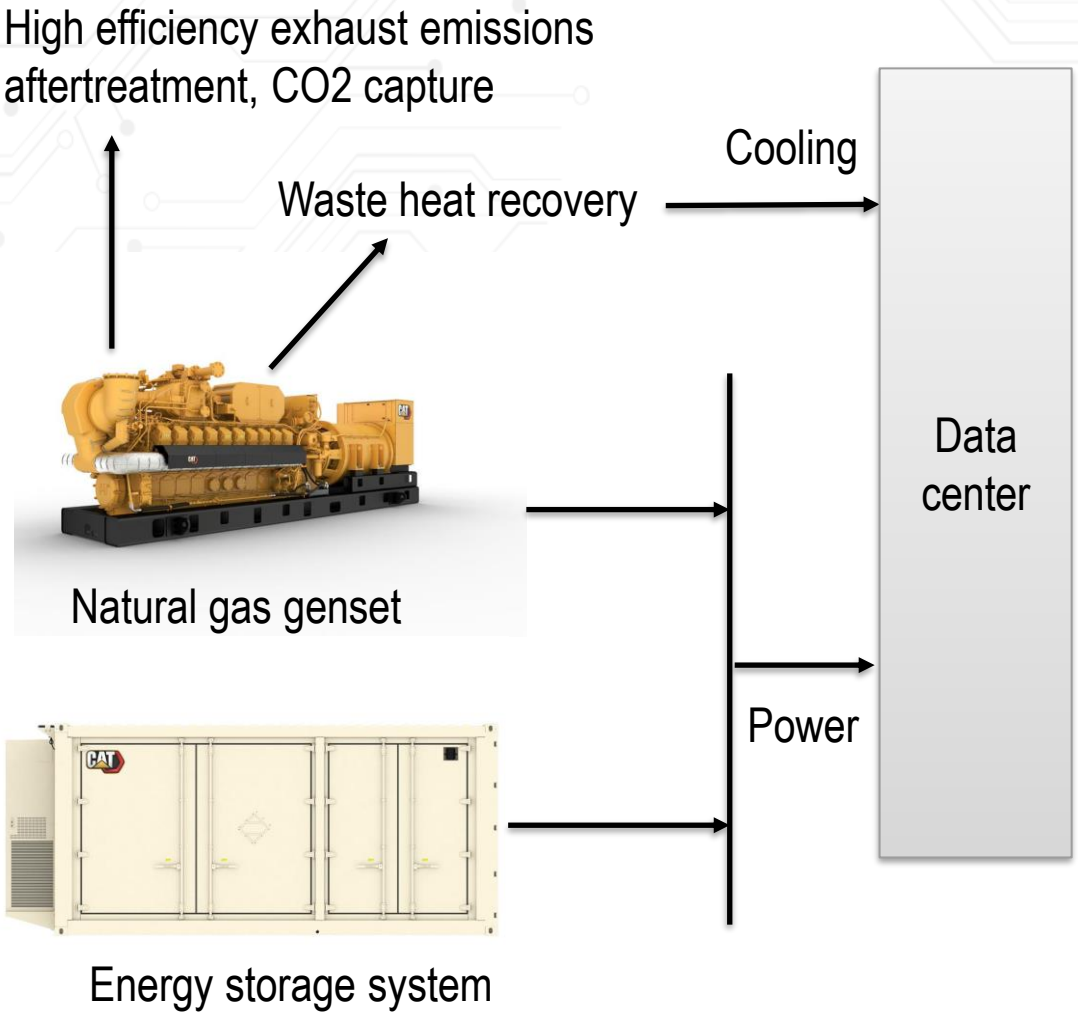
- Integrated solution for oil and gas applications today
- Continual design improvements for future installations
- Can be applied to other applications

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

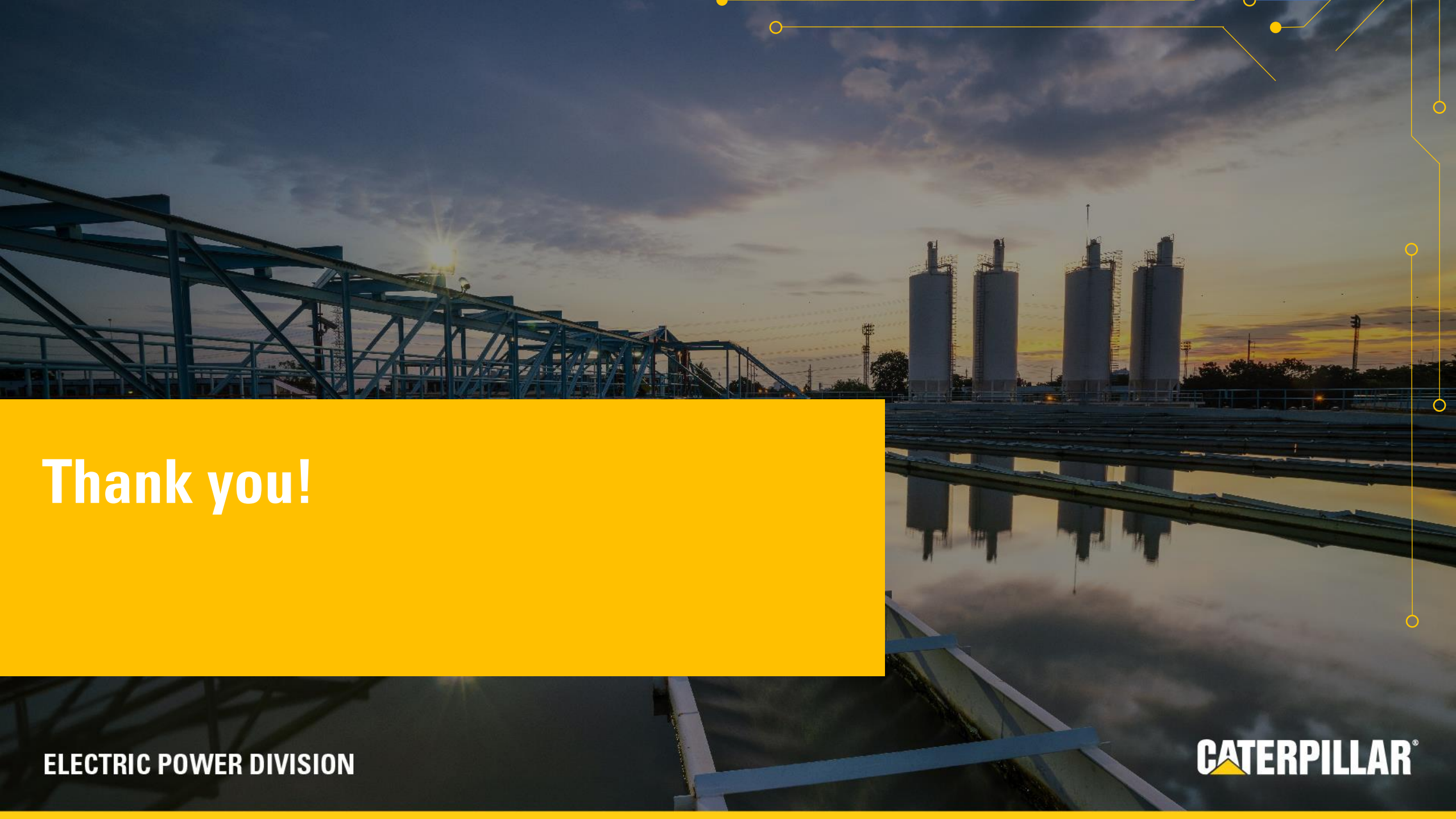


Summary

Enhanced efficiencies - systems integration

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

Technologies for capturing carbon



Thank you!

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