



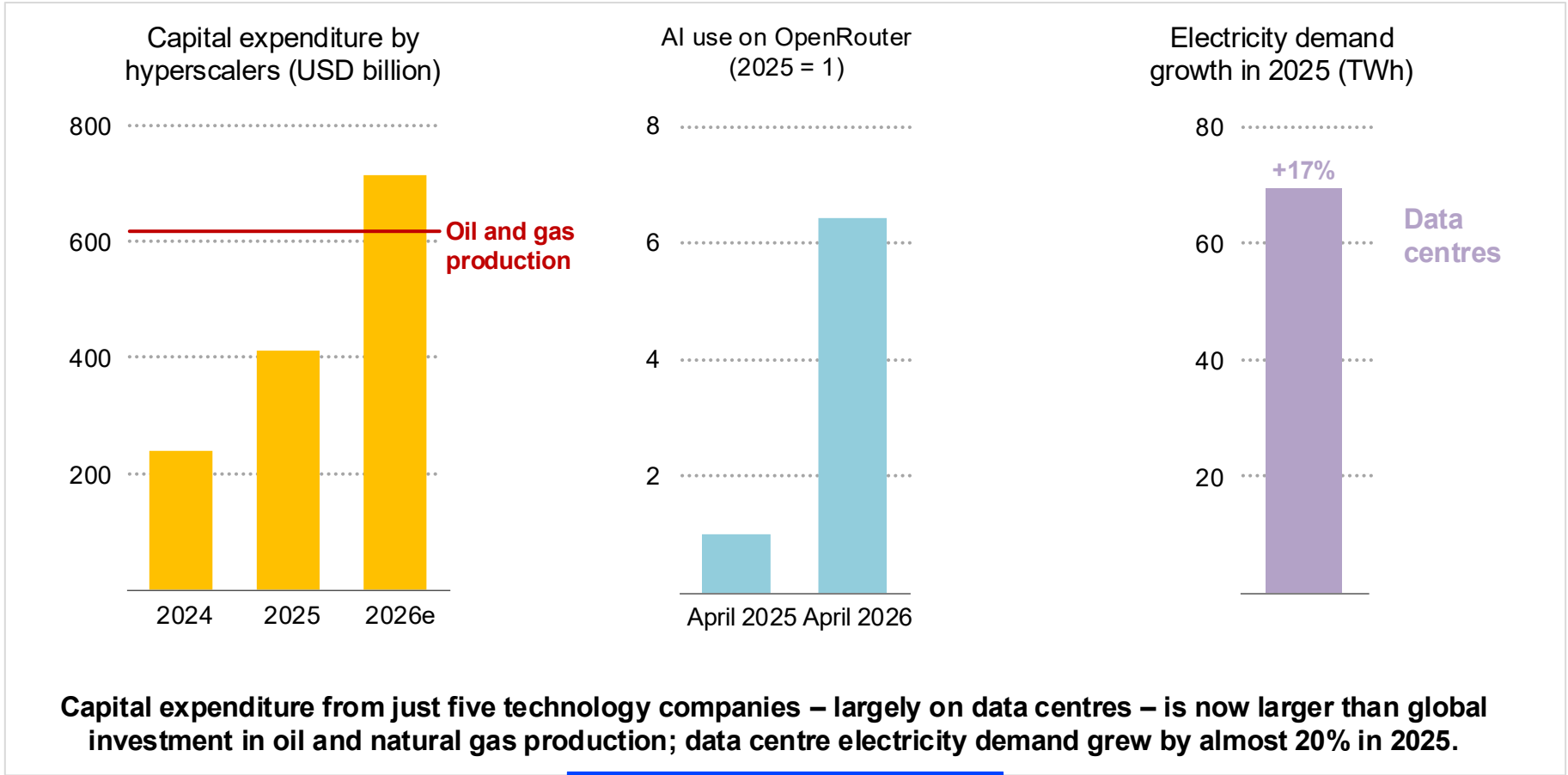
# Key questions on energy and AI

Thomas Spencer and Siddharth Singh

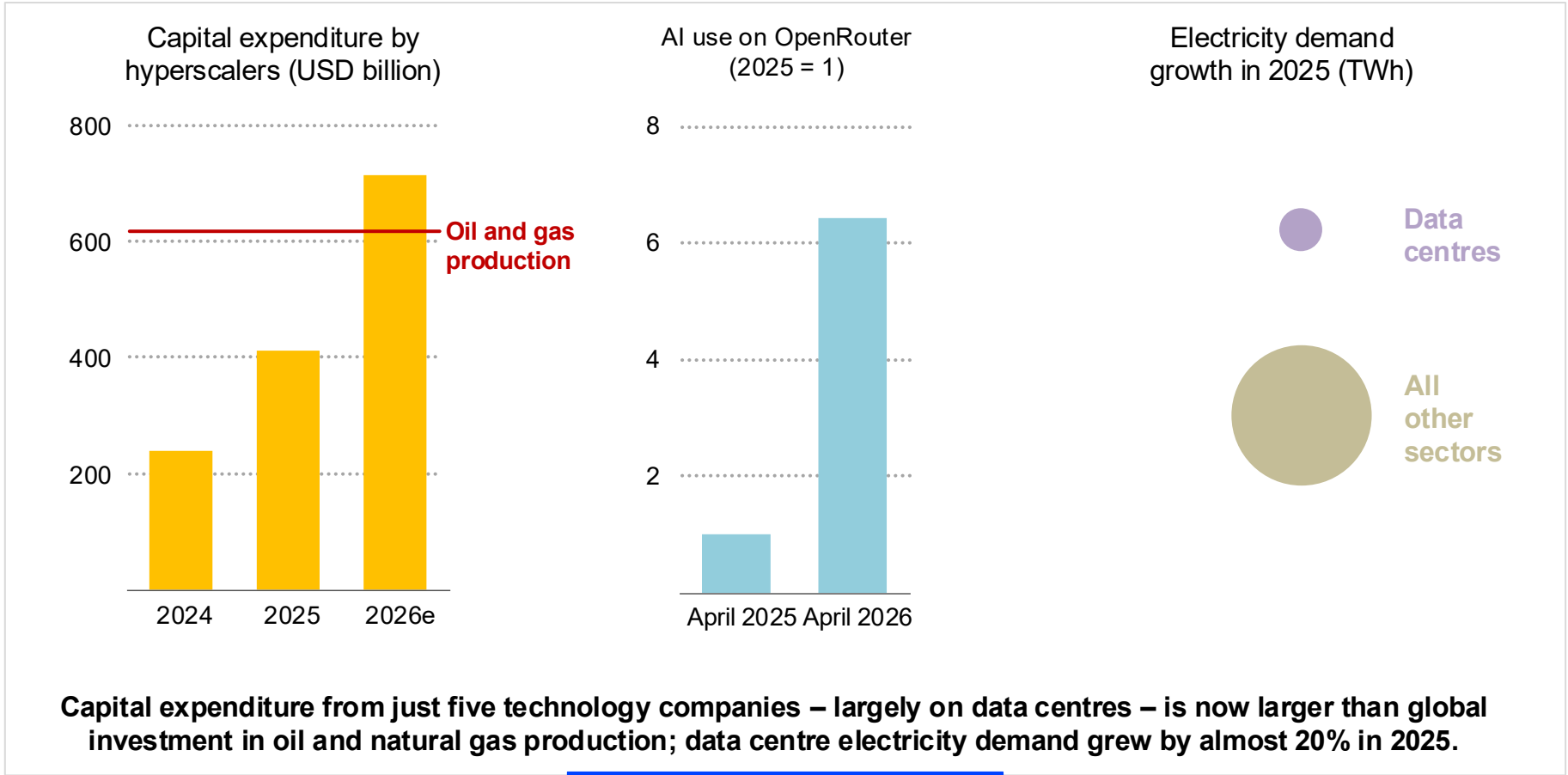
1 June 2026

Paris

# The AI and energy nexus is evolving rapidly

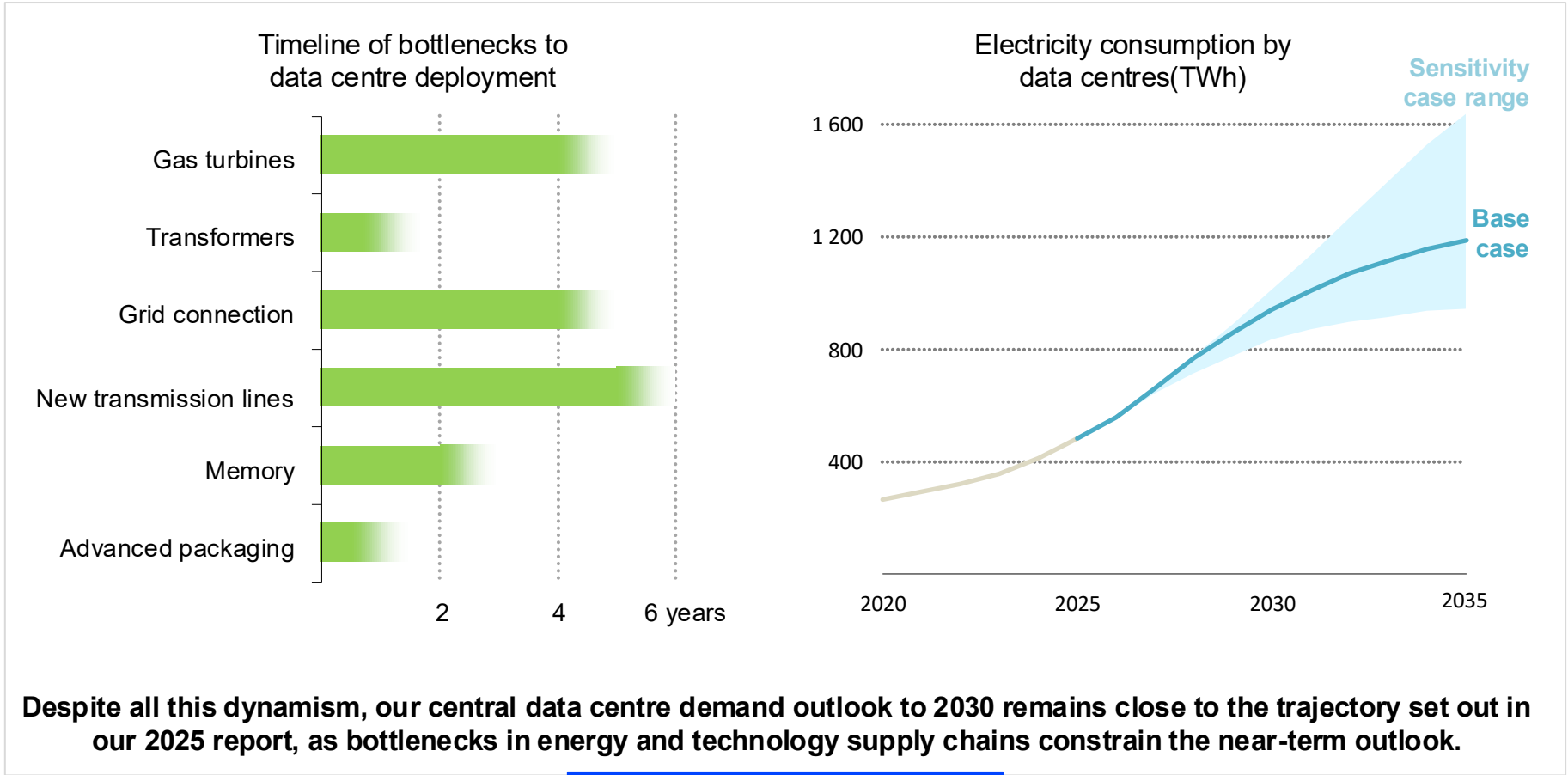


# The AI and energy nexus is evolving rapidly



**Capital expenditure from just five technology companies – largely on data centres – is now larger than global investment in oil and natural gas production; data centre electricity demand grew by almost 20% in 2025.**

# AI is hitting real-world speed bumps



# AI's projected energy growth rests on the rise of new modes

Energy intensity per query (Wh)

0.40

0.30

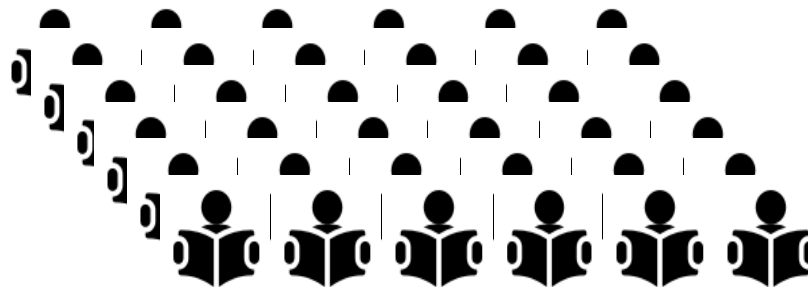
0.20

0.10

Text gen



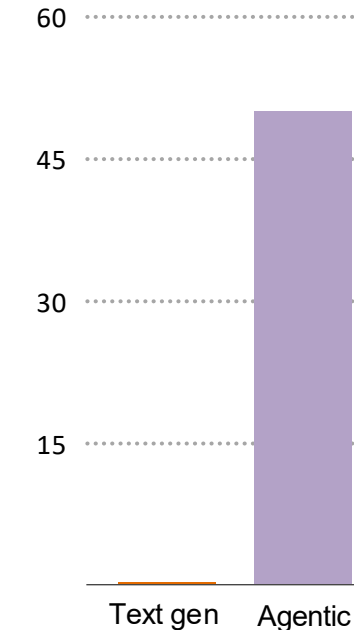
Simple text generation consumes **so little energy** that today's data centre electricity consumption could generate more text than the **entire global adult population together could read in a year**



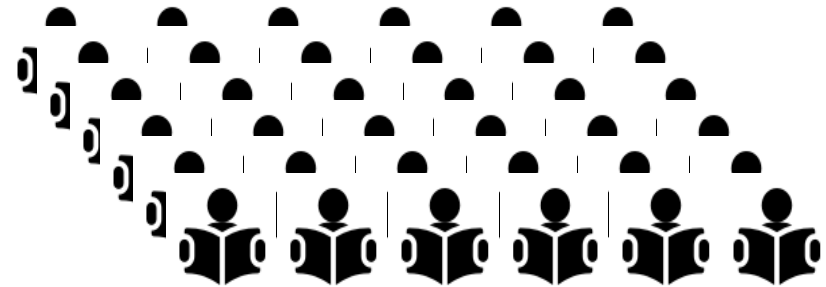
**Models and hardware efficiency is improving faster than any technology in energy history; the level of investments and projected electricity consumption implies surging growth in energy-intensive modes, like AI agents**

# AI's projected energy growth rests on the rise of new modes

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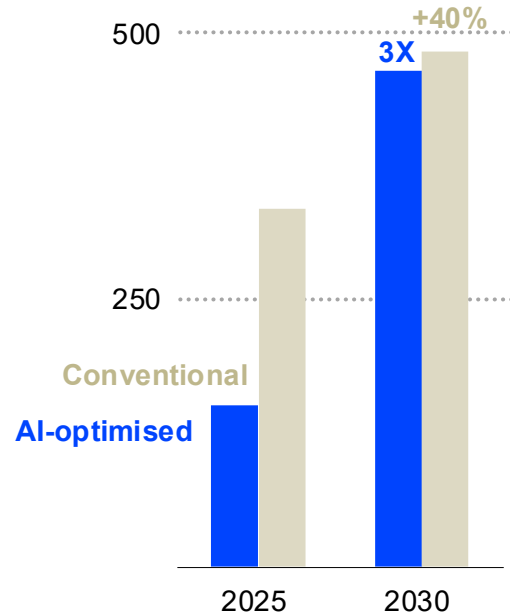
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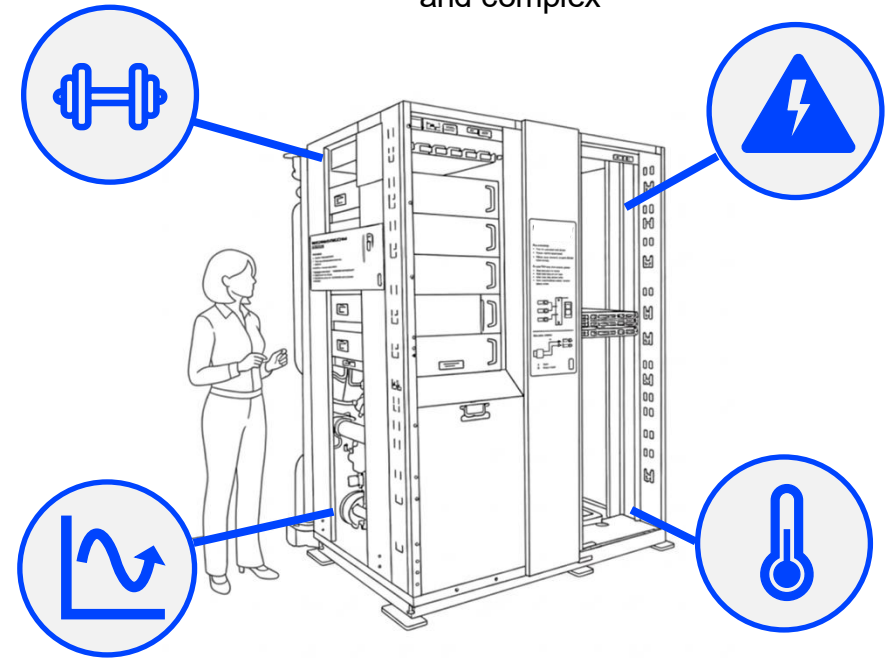
**Models and hardware efficiency is improving faster than any technology in energy history; the level of investments and projected electricity consumption implies surging growth in energy-intensive modes, like AI agents**

# AI drives the outlook and transforms data centre power needs

Electricity consumption by data centres  
in the Base Case (TWh)



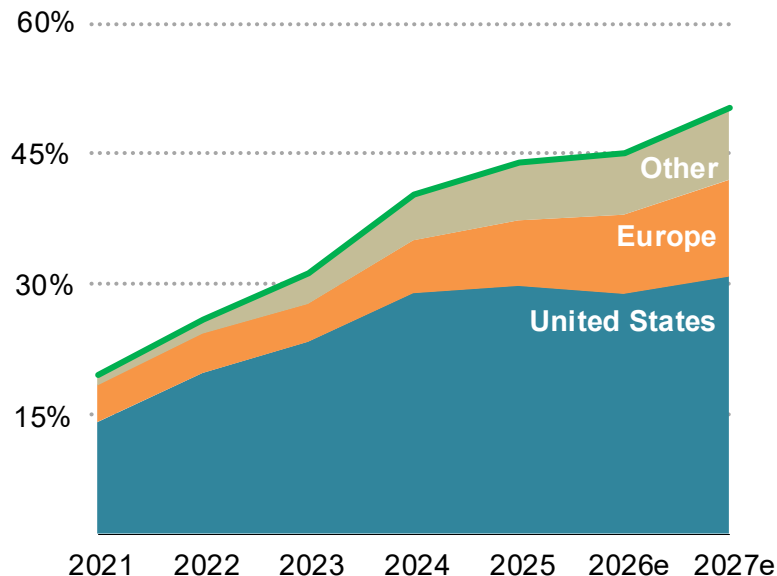
AI data centres are more power hungry  
and complex



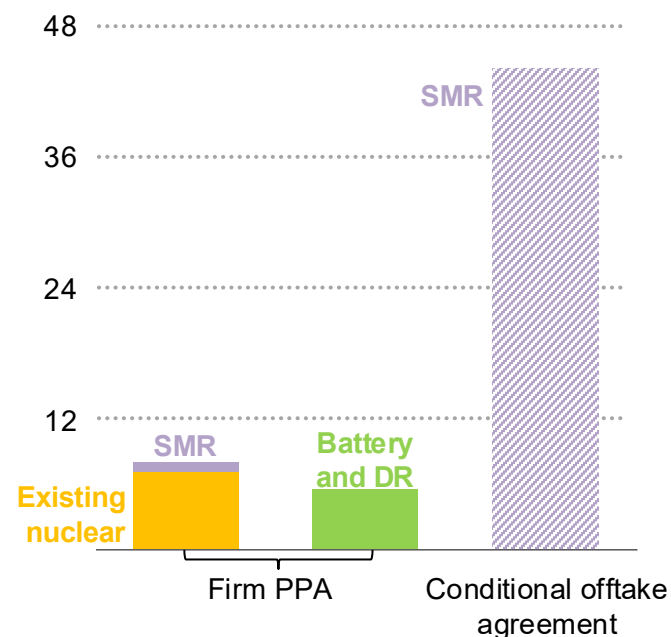
**AI-optimised data centres drive electricity demand growth from the sector; their unique power needs are pushing electrical technologies and supply chains to evolve at unprecedented speeds.**

# Data centre operators are driving electricity sector innovation

Total data centre electricity demand covered by renewables PPAs

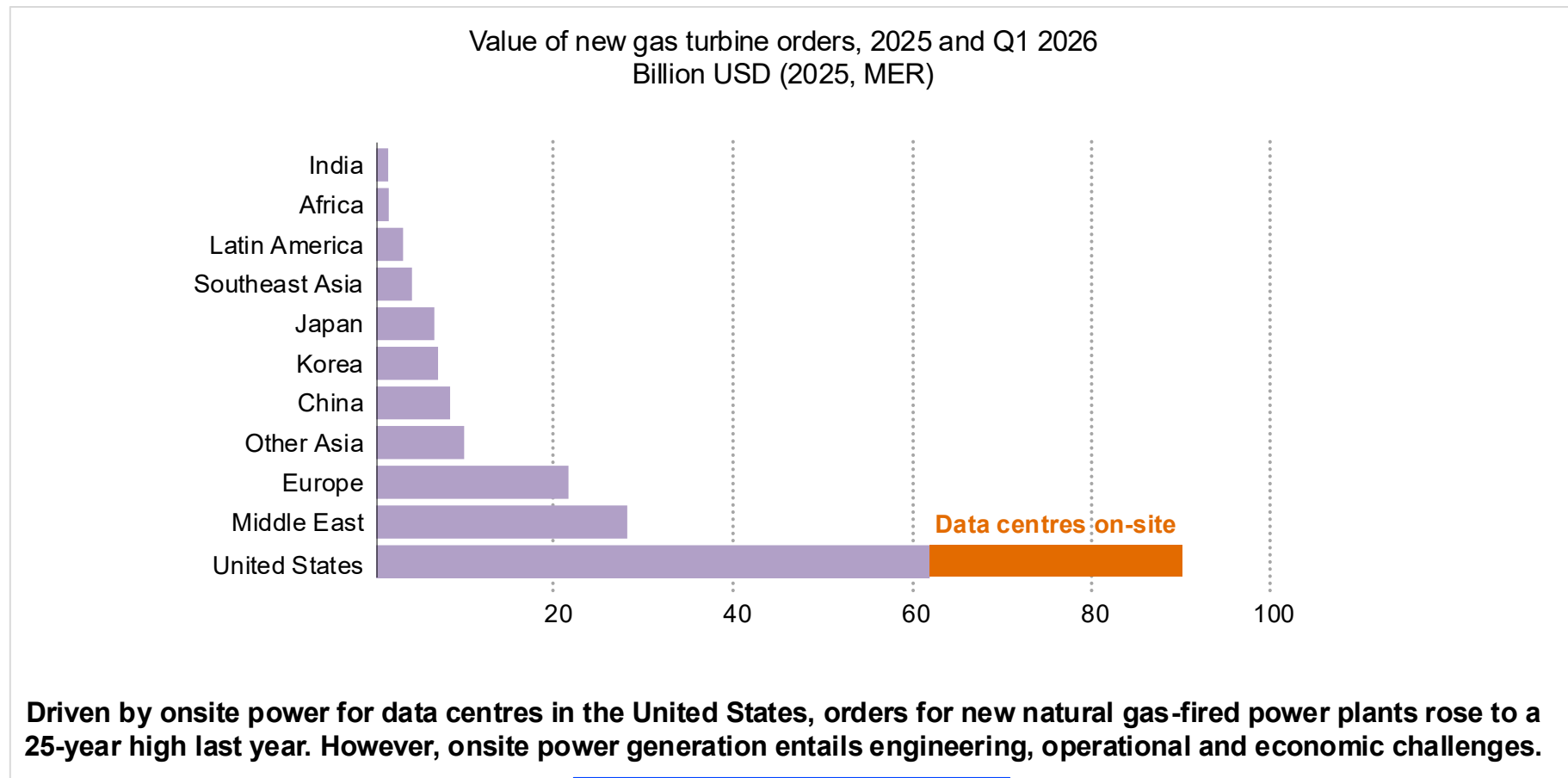


PPAs and offtake agreements in firm power technologies for data centres (GW)



**The tech sector continues to be the largest corporate procurer of renewables PPAs, but has also led the way in contracting existing nuclear and signing offtake agreements with novel technologies like SMRs and batteries**

# Data centres are a key driver for natural gas turbine orders



iea