

Future-ready data centers

What will it take to build the next generation of data centers?



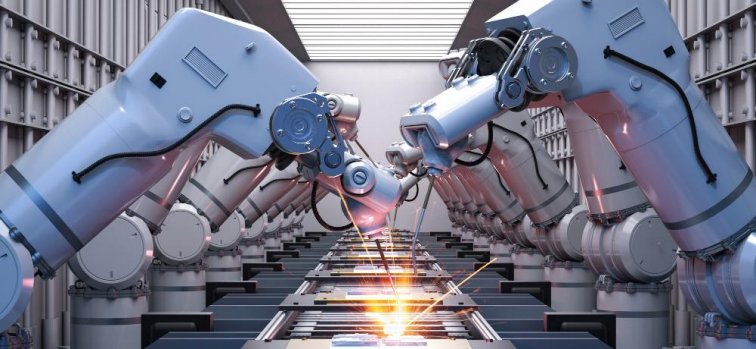
Aiden Cawley

Electrification & Automation business

Siemens GB&I

Siemens Data and AI technology is already delivering strong business impact

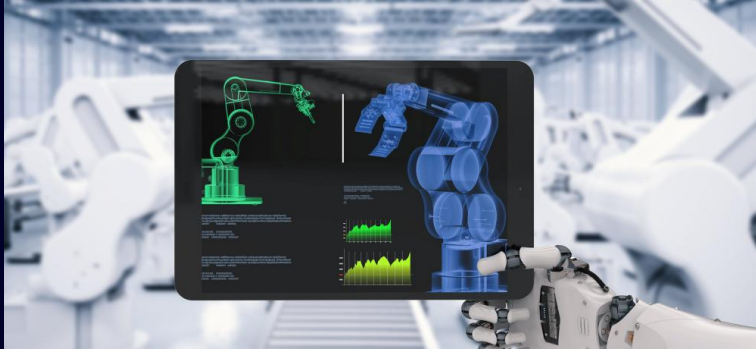
Boost performance



UP TO
30%
higher task-specific productivity through our award-winning Industrial Copilot

UP TO
35%
reduction in operational costs with AI-based tech San Juan de Dios Hospital in Spain

Accelerate development



UP TO
40%
faster production ramp-up with Digital Twins at DMG MORI

UP TO
20%
reduction in product time-to-market at our first digital-native factory in Jiangsu

Enhance resilience



UP TO
67%
reduction in equipment breakdown with AI-driven predictive maintenance at Tata Steel Netherlands

UP TO
55%
energy savings with AI-powered cooling in data centers at the Bank of Montreal

AI computing and modeling are driving foundational infrastructure shifts

Cloud



MW to GW

Increase in scale

10x +

Increase in density

Years to months

Innovation cycles

Air to liquid cooling

AC to DC power

Tech disrupted

AI



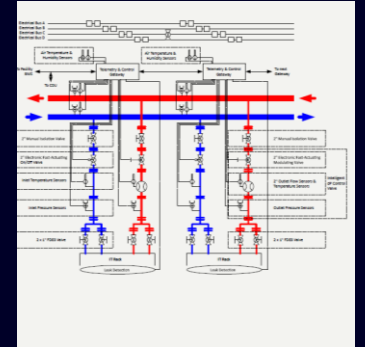
Deep Partnering to Produce Impact

DATA CENTERS

100 MW Hyperscale AI Blueprint

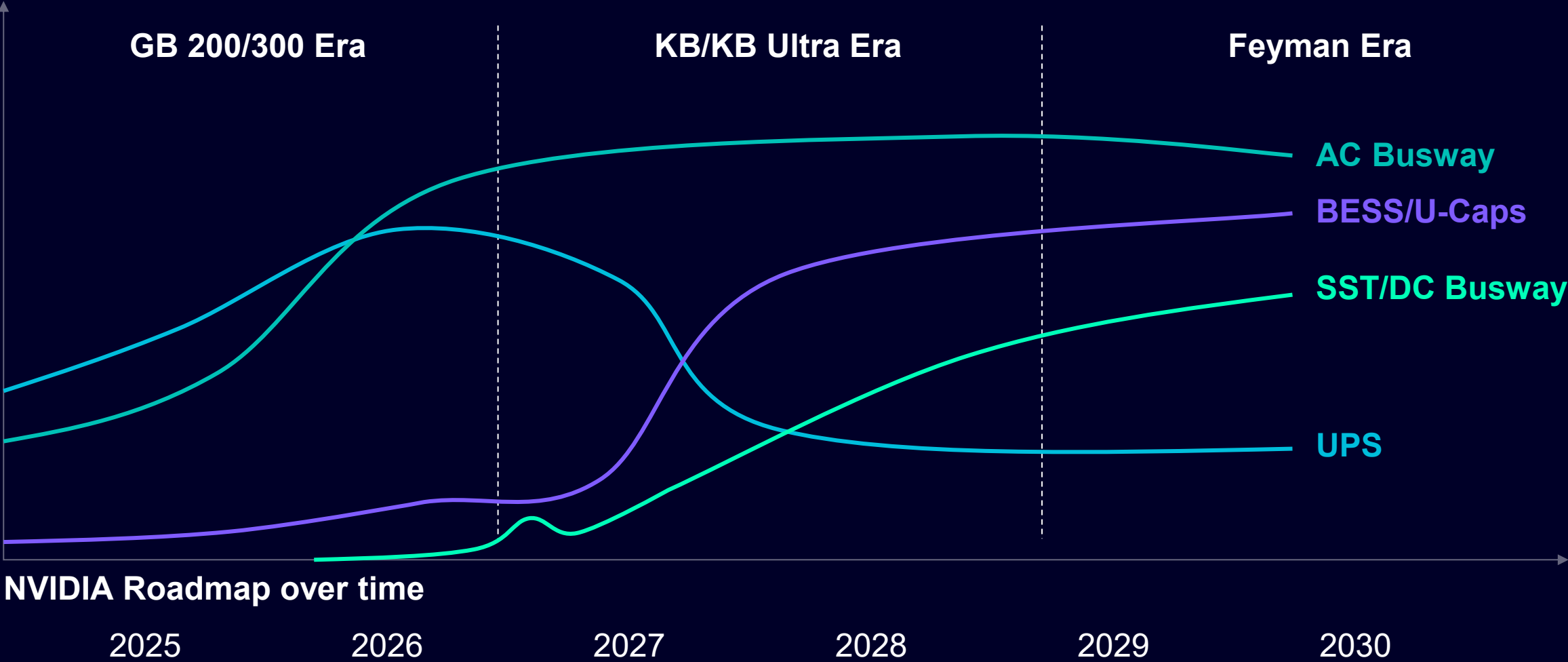
Tier III fault-tolerant architecture for Siemens industrial-grade electrical systems, NVIDIA GB200 NVL72 systems, and nVent liquid cooling technology in UL markets.

In partnership with



Non-Linear Demand Signals for Many Technologies

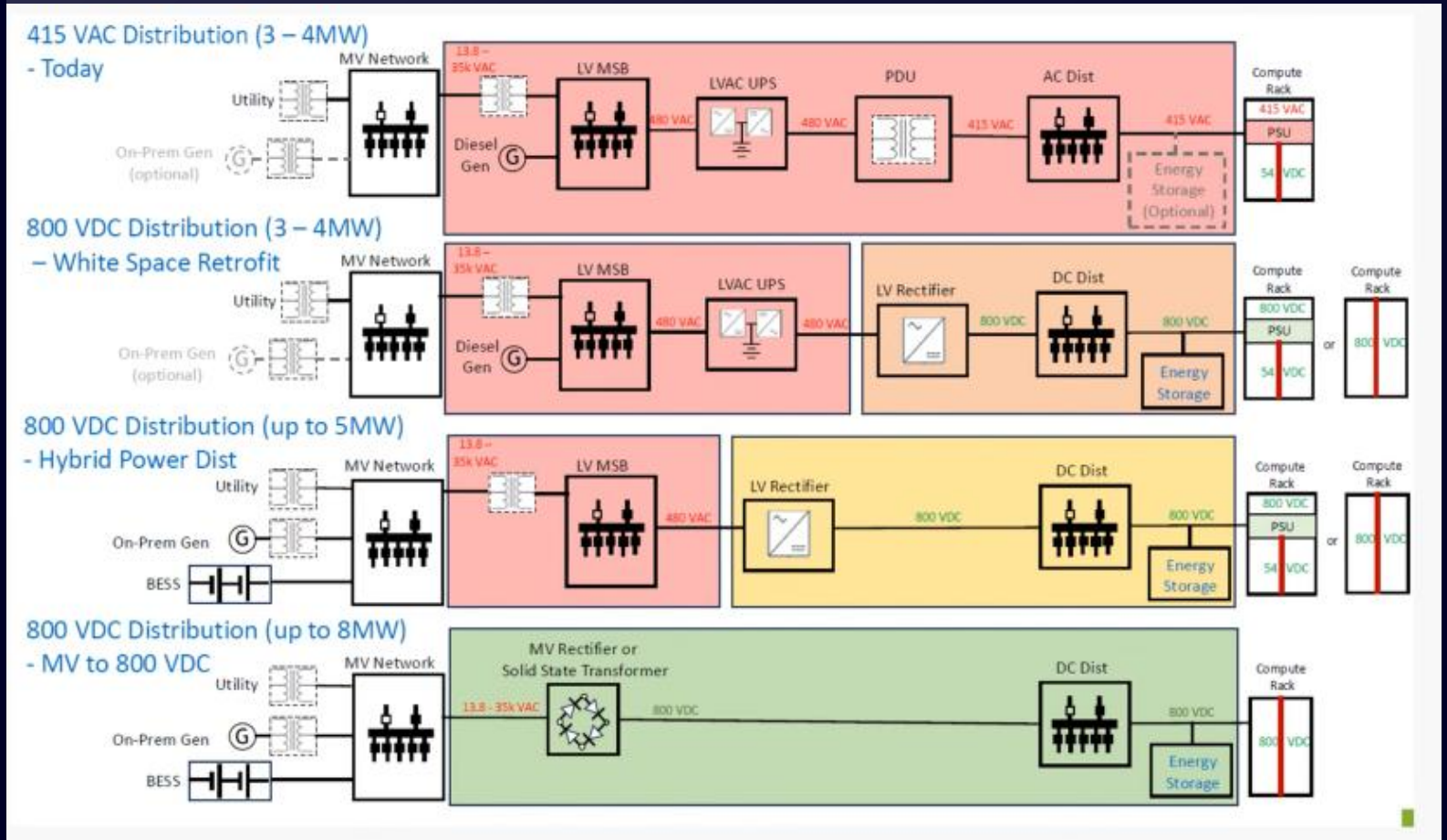
Demand



Evolution to a New Power Architecture

Deliver high-density power for racks beyond 100 kW, while keeping efficiency and uptime under control.

Direct Current offers efficiency and control advantage at scale, but there are challenges, too.



[NVidia paper - 800VDC architecture for AI infrastructure](#)

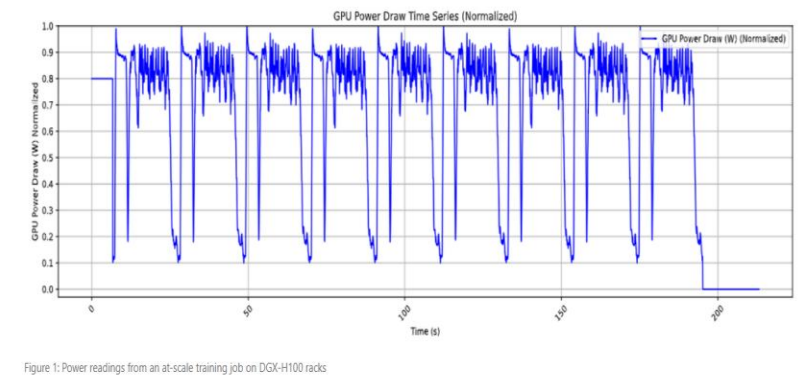
Next Generation internal power architecture design
LVDC technology



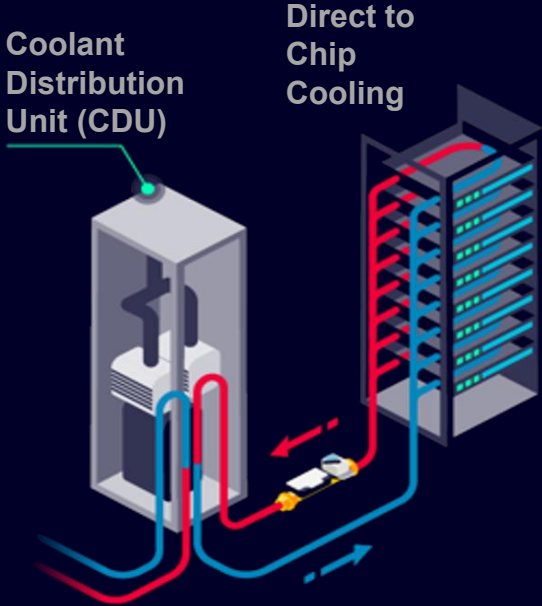
Sentron 3QD2 SCCB

Further understandings

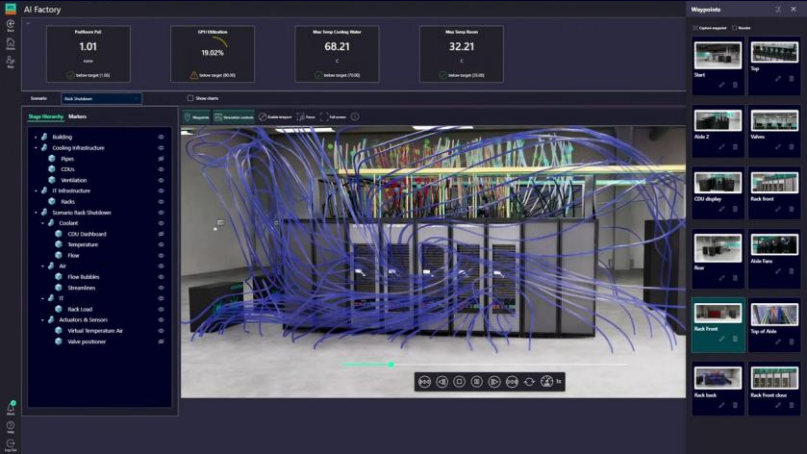
Grid connection and load variability



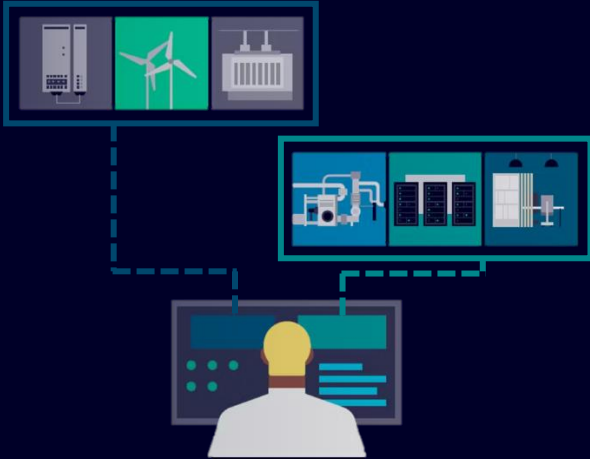
Cooling limits performance



Digital Twin from chip to grid



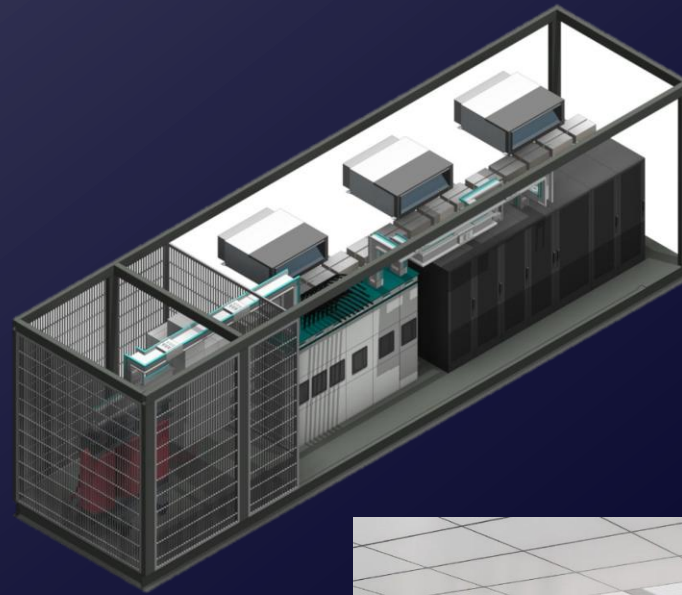
Control & Automation



Design for repeatability

Adapt to evolving AI compute needs with modular, scalable and phased deployment.

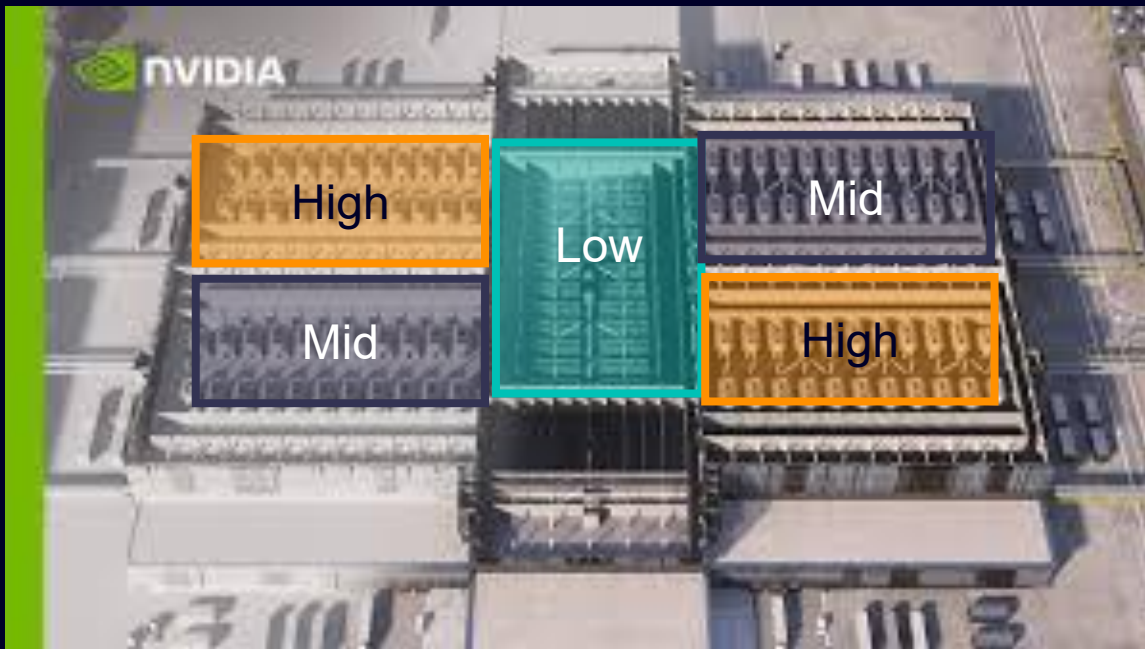
GPU infrastructure is very expensive. Capital efficiency demands rapid deployment, at scale. Build it like a product.



The AI Factory of the Future

The Building is a Mix of Densities

(for optimum efficiency)



Density drives technology choice

Ex/	Low ≤50 kW	Mid 50–500 kW	High ≥500 kW
Circuit Breaker	60 amp AC	125 amp AC	200 amp DC
Busway	800 Amp AC	4k Amp AC	10k Amp DC
Distribution Transformer	2.5 MVA AC Type	5 MVA AC Type	Solid State Transformer
Cooling	Air Cooled	1 Phase Liquid	2 Phase Liquid
Backup	UPS	UPS+ BESS	3 scales of BESS

The bottleneck **is** power

Opinion **Business Insight**

What if the AI race isn't about chips at all?

Availability of electricity to keep models running is becoming the critical factor in technology's development

JUNE YOON [+ Add to myFT](#)



Jensen Huang, chief executive of Nvidia. The chipmaker stands to gain the most from any narrative that encourages the US to step up its investment in AI © I-Hwa Cheng/AFP/Getty Images

June Yoon

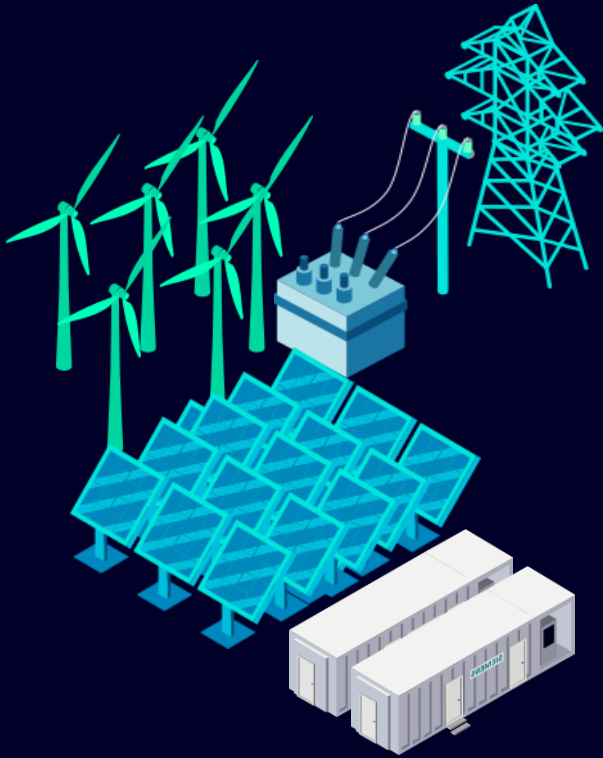
Published NOV 12 2025



[Article Link: www.FT.com](https://www.ft.com)

*“Availability of electricity to keep models running is becoming the **critical factor** in technology’s development”*

The surge in demand exposes Energy system



Grid (& Generation) keeping pace

Bottlenecks (e.g. FLAP-D)

Disconnect of energy strategy

FDI interprets to uncertainty

A strategy of **conditional growth** for data centres



Moratoria incoming

Amsterdam municipality (renewed mid 2025)

Frankfurt designated clusters

Singapore capacity strictly rationed

USA **Zonal** moratoria

Dublin region (ended 2025)

Execution risk at 1 GW scale in Europe



1. The lesson

2. The reality check

“Political blessing” ≠ bankable schedules

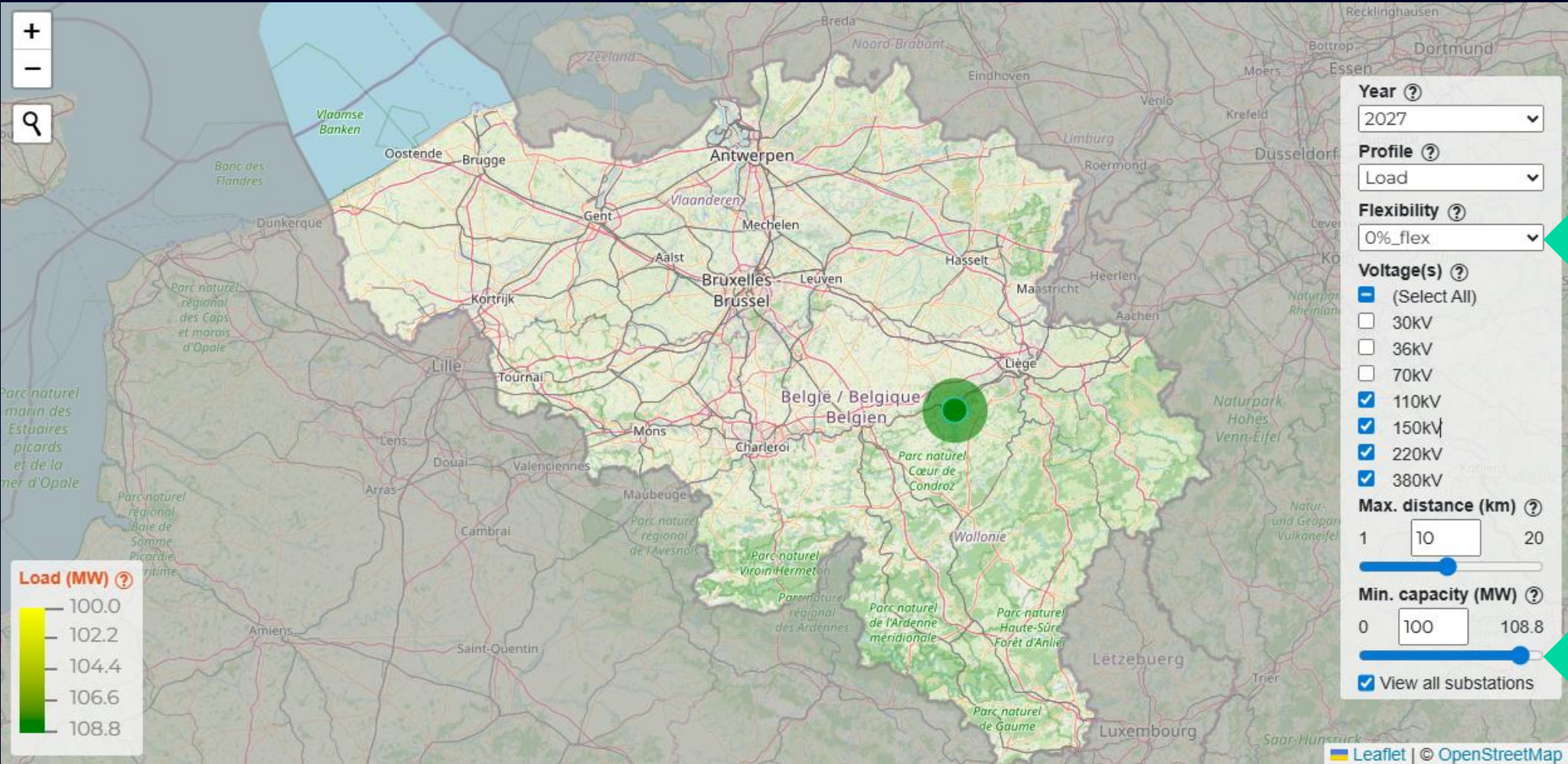


What FluidStack has helped define for Europe

European **AI** Compute Model

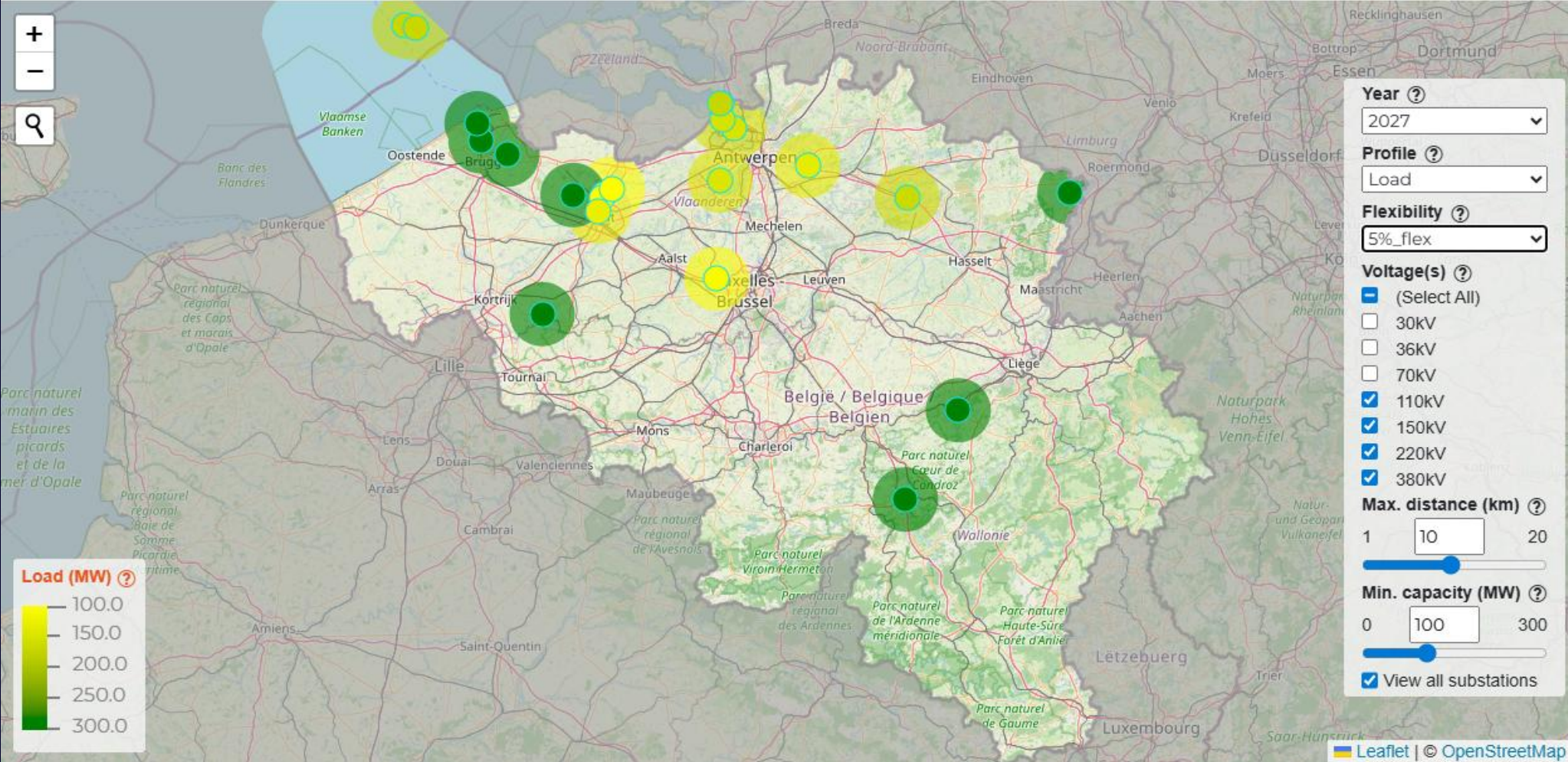
Sovereign & Strategic

2027: 100MW, 0% flexibility, 1 onshore location



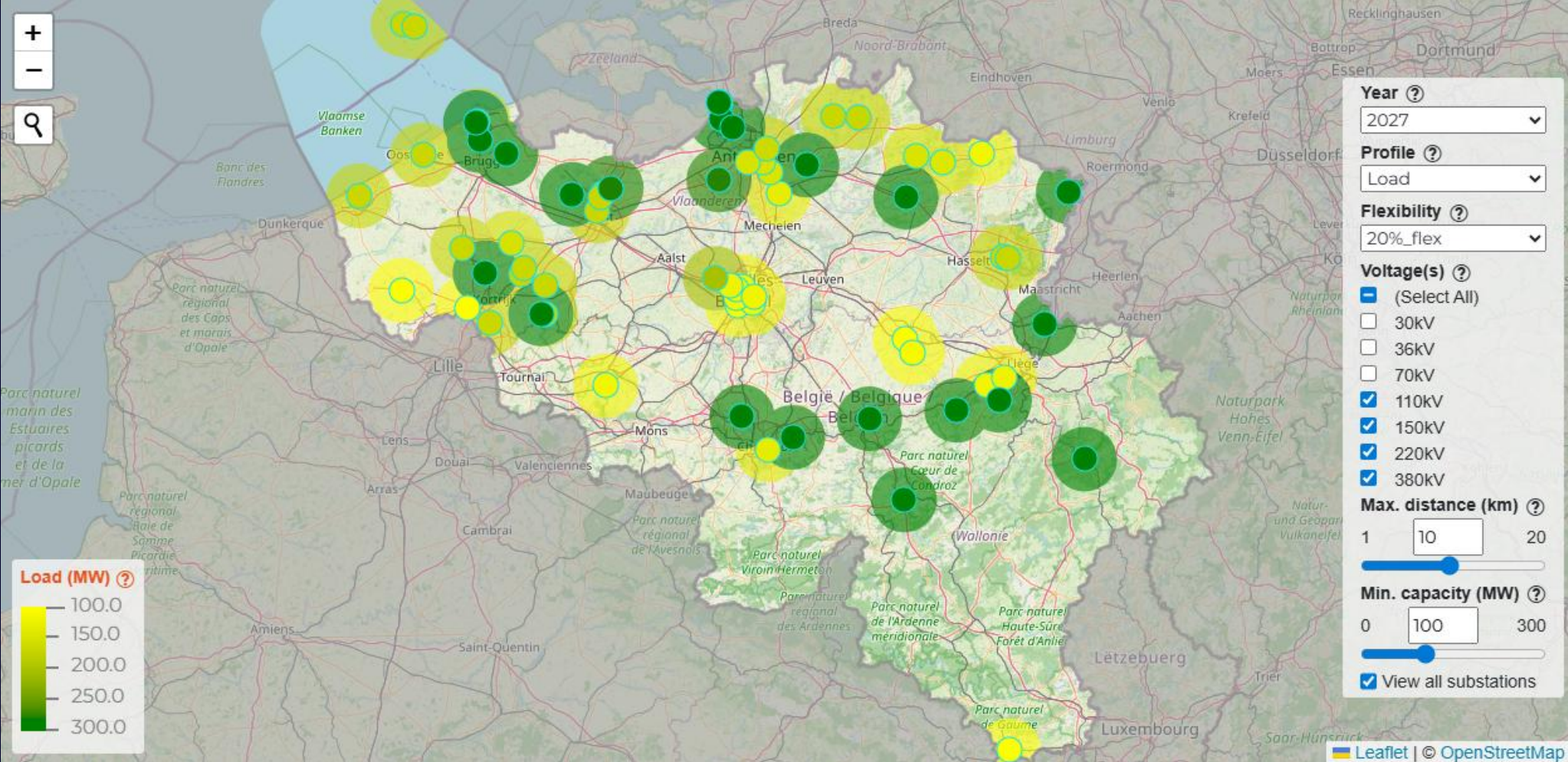
Elia Belgium - Grid Hosting Capacity Map

2027: 100MW, 5% flexibility, 16 onshore locations



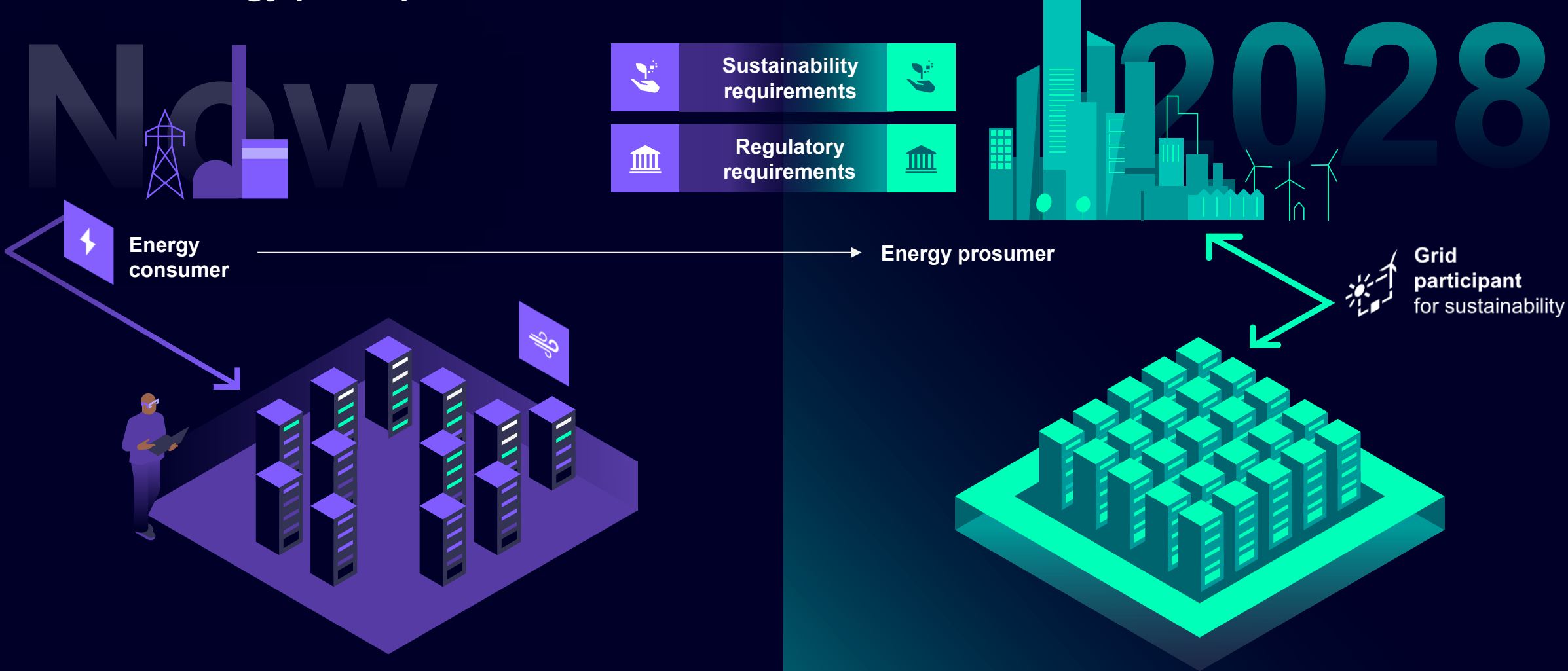
Elia Belgium - Grid Hosting Capacity Map

2027: 100MW, 20% flexibility, >50 onshore locations



Elia Belgium - Grid Hosting Capacity Map

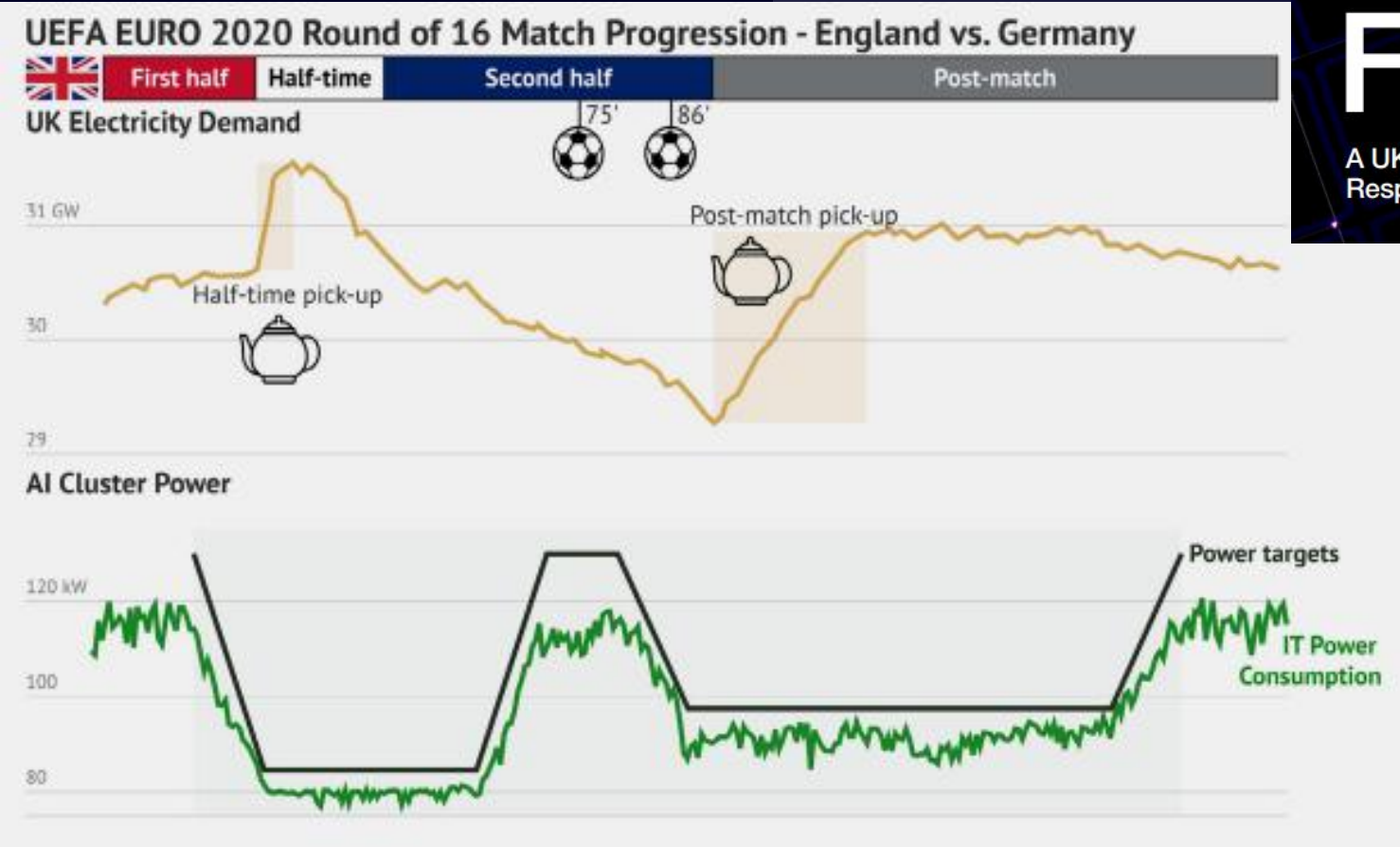
An active Energy participant future



Flexibility through Demand Response

Power-Flexible AI Factories

A UK-First Demonstration of Grid-Responsive AI Infrastructure

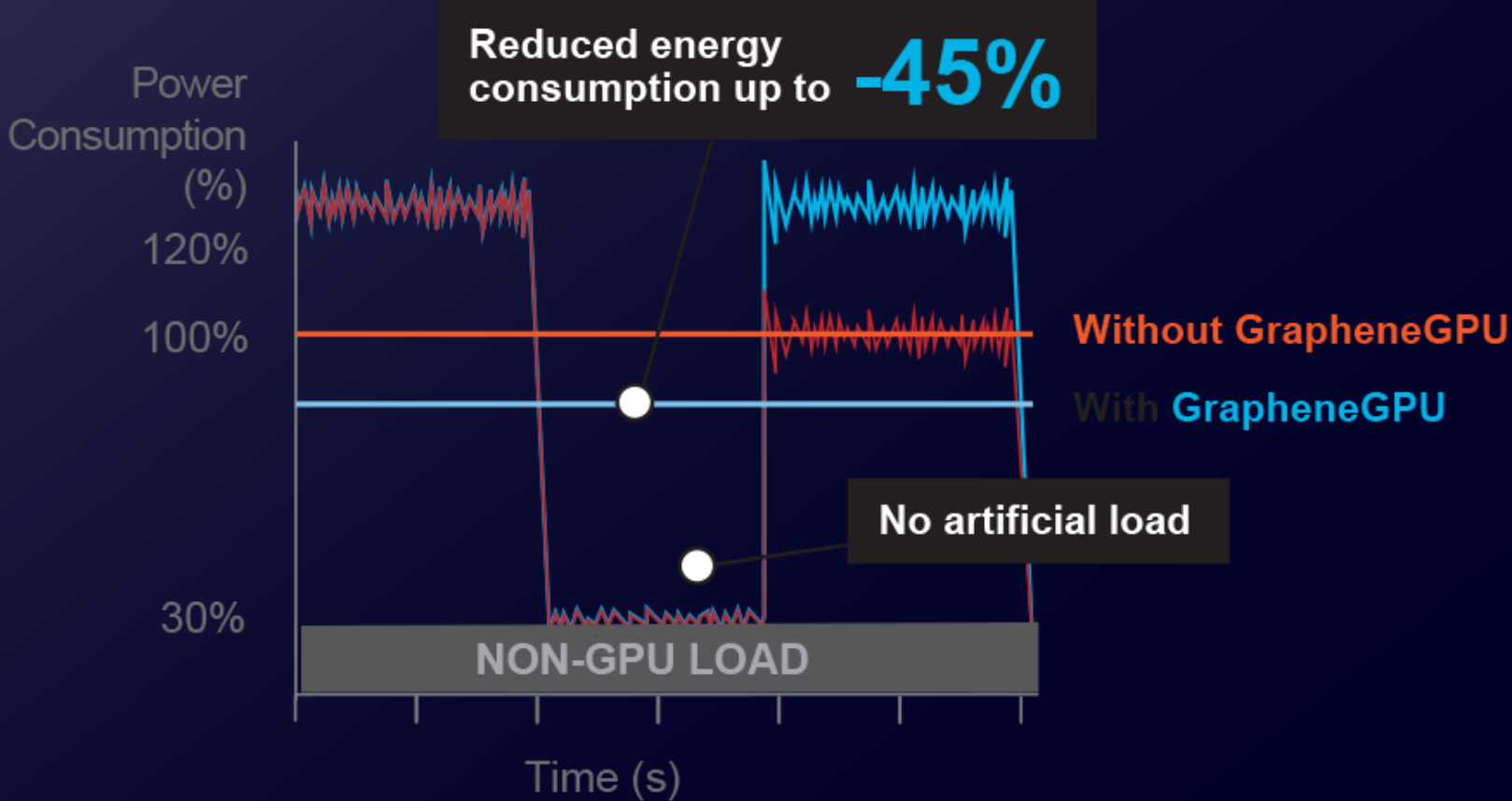


[national Grid & Emerald-ai - march2026](#)

Innovate with storage technologies



[Skeleton Technologies - GrapheneGPU](#)



Bring your own Capacity (BYOC) and μ Grid

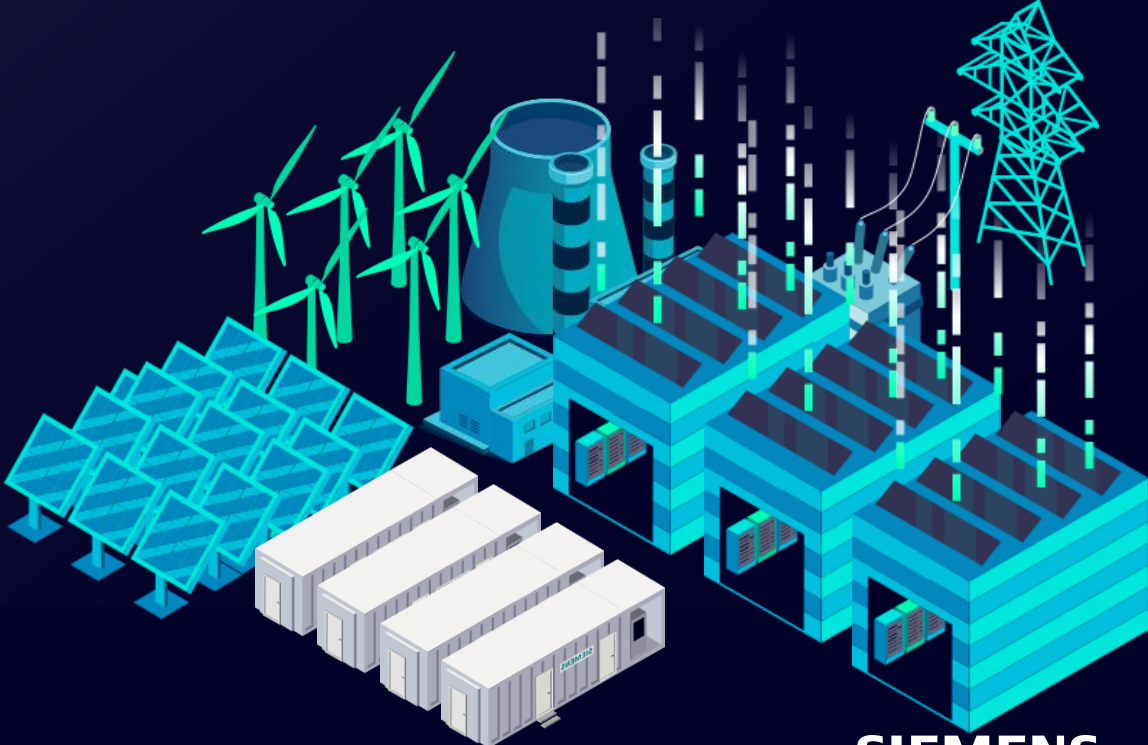
Europe's first, large-scale,
110 MW on-site microgrid,
developed to support
early-phase site operational
resilience.



[Pure DC deploy Europe's First Data Centre Microgrid](#)

Policy shift on planning and Grid participation

Plan-led System + Grid participation



The broader national system approach

Build in less **congested** Grid locations

Aim for **efficient** Infrastructure investment

Look to **Integrate** with Climate Action plans

Revise policy and regulatory approach

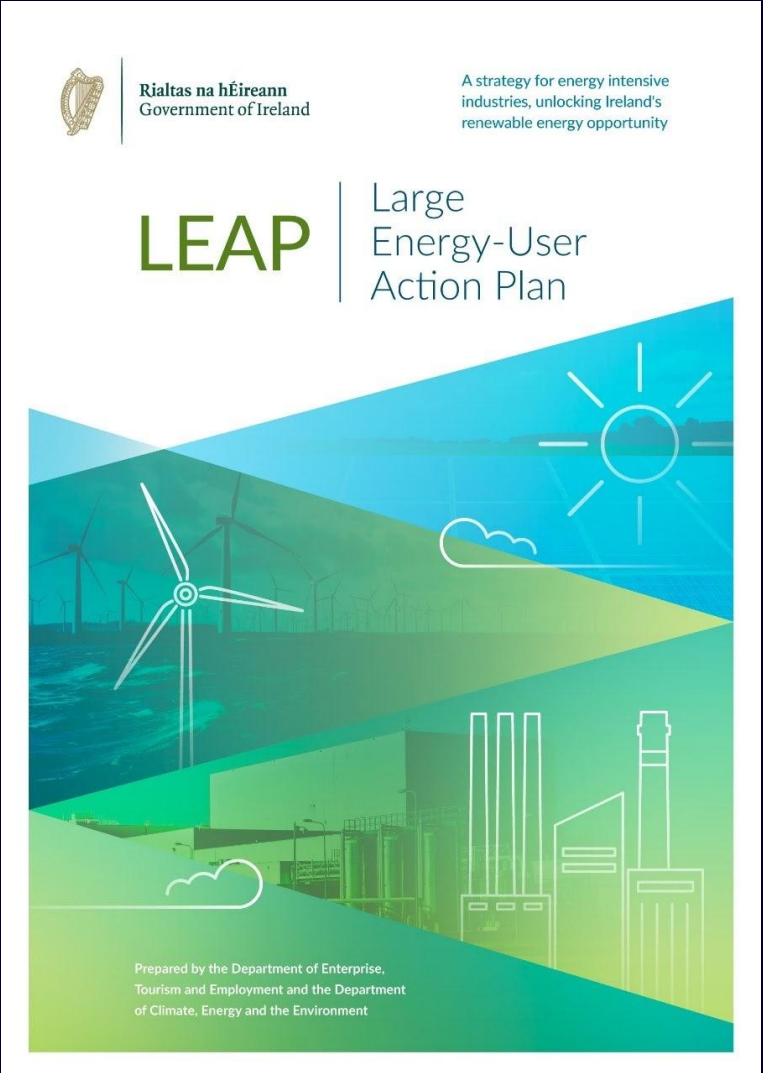


The Irish Model



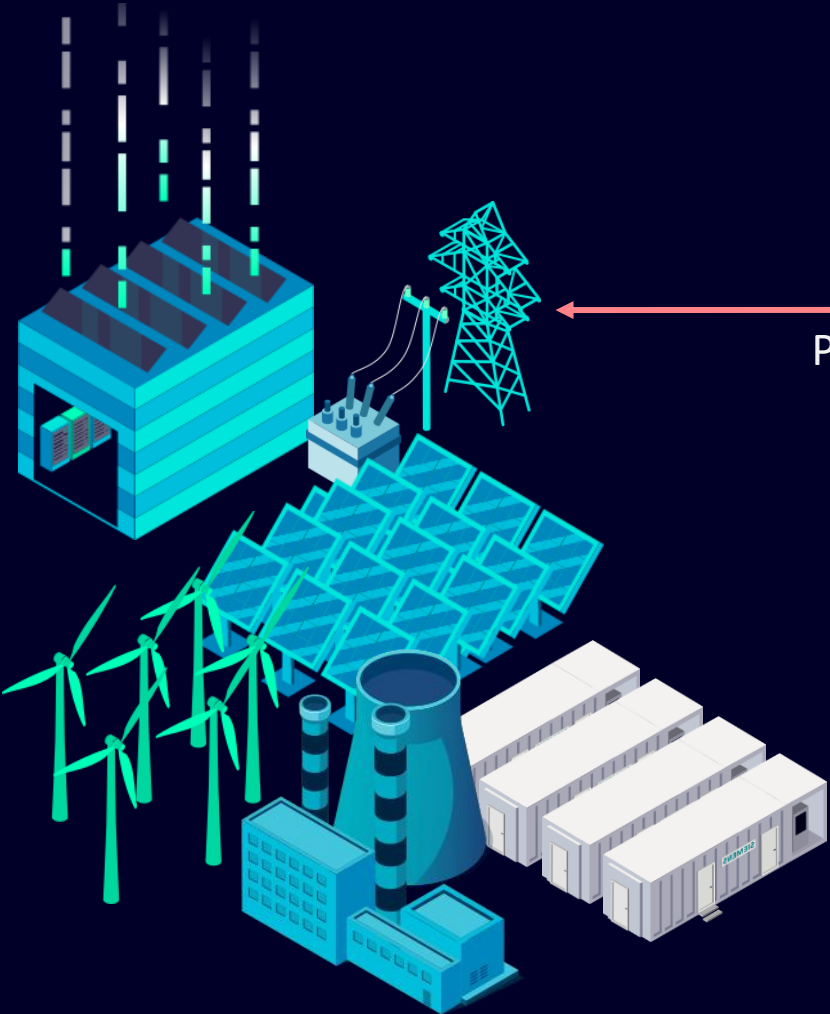
Accelerated
Infrastructure
(delivery) review

Large Energy User
(LEU) connection
decisions

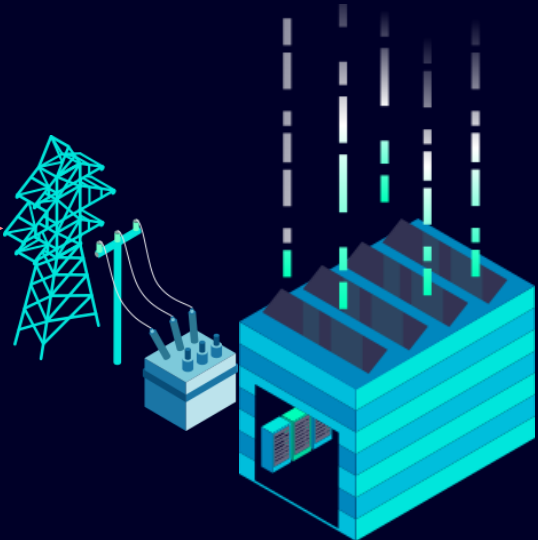


[LEAP – Large Energy User Action Plan - DETE](#)
SIEMENS

Further complimented by a new Private Wires policy



Licensed
Permission



[Private Wires Policy Statement](#)

Economic geography change and outlook

Green Energy Parks

Indigenous Renewable integration

Aligned on policy/ regulation

iESO entity emerging (controversial)?



The time line is clear for Rollout



First mover in the market

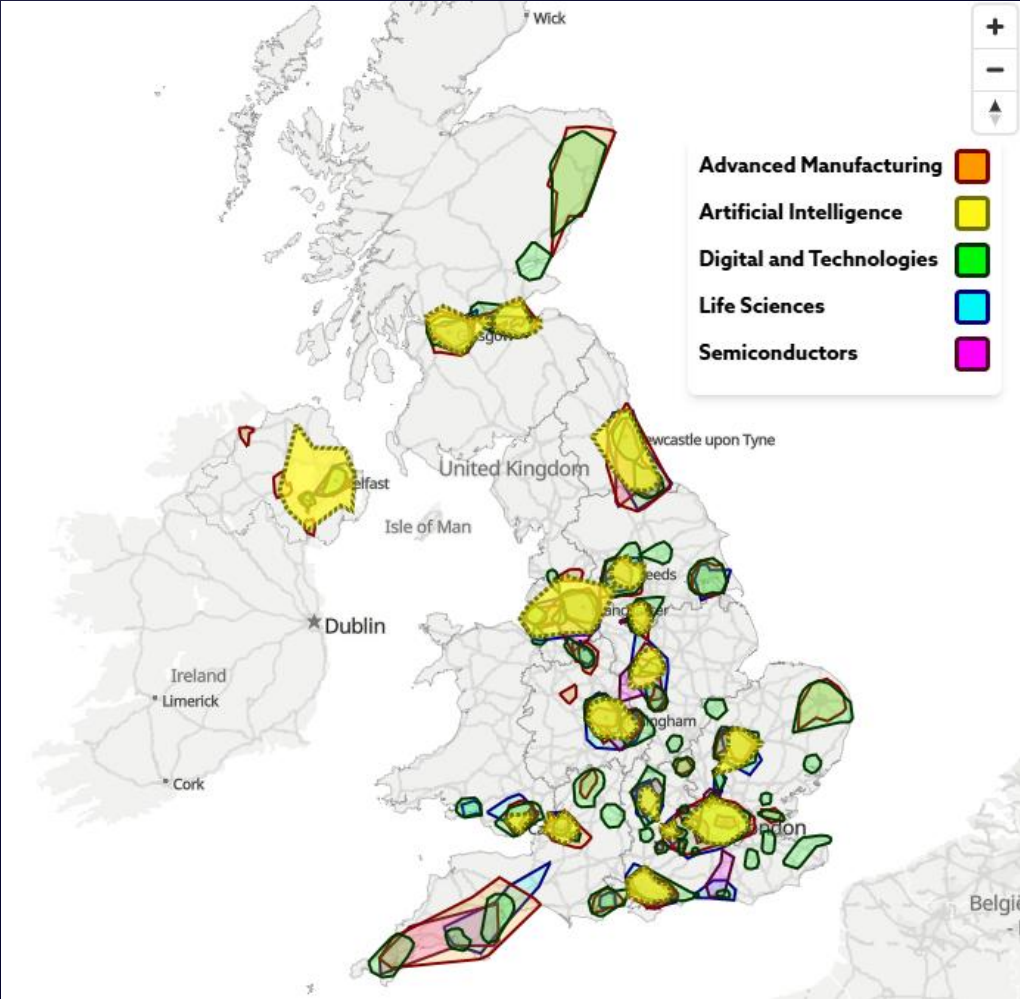
Echelon launches
Ireland's 1st
Green Energy Park
at DUB20



[Echelon Webpage \(Mar 2026\)](#)

Clustering a clear strategic approach

The UK pattern

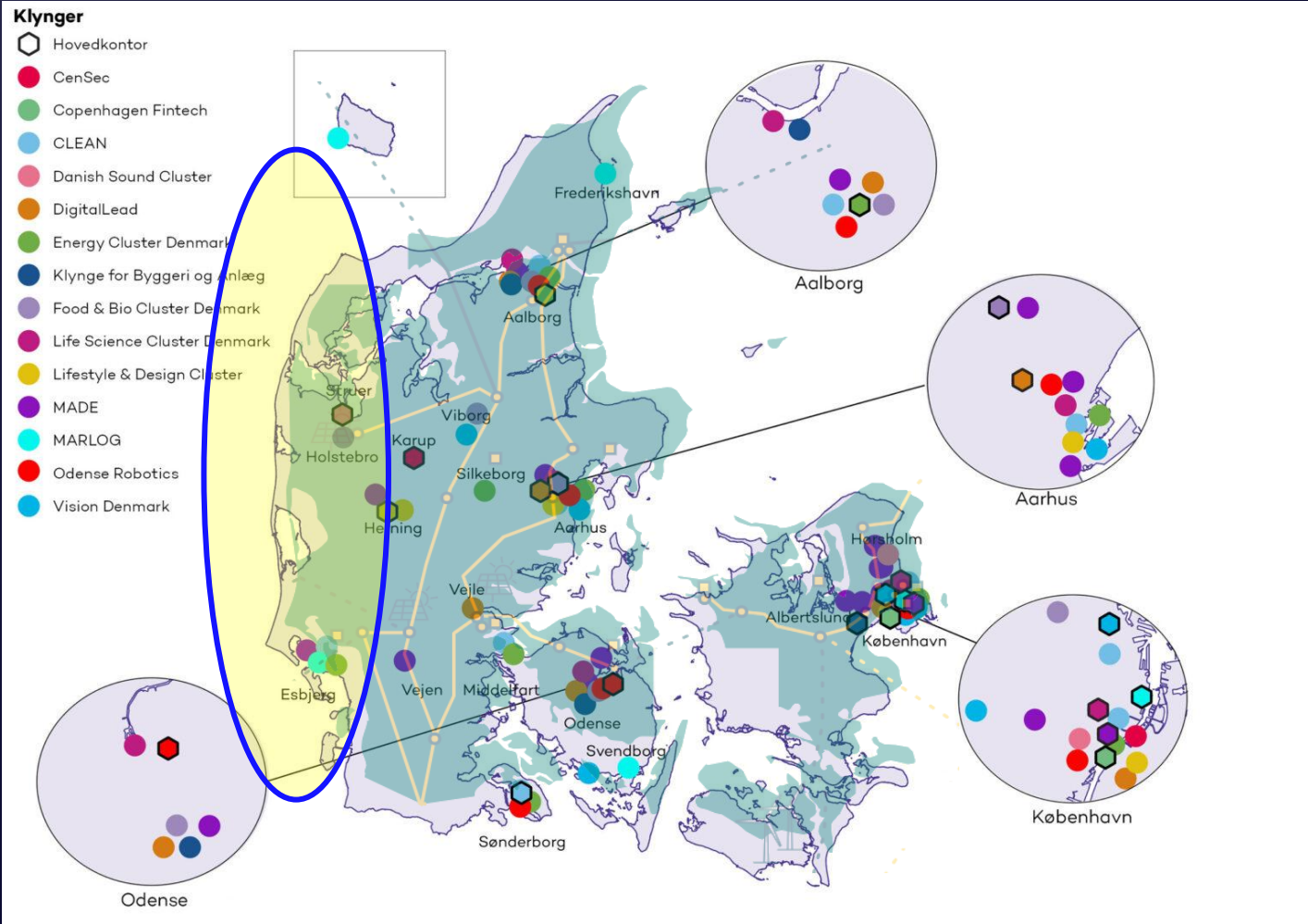


[UK Innovation Clusters Map](#)

Denmark's 14 new business clusters

Ministre glæder sig over fordeling af viden- og erhvervsklynger i hele landet — Uddannelses- og Forskningsministeriet

[TechBBQ](#)

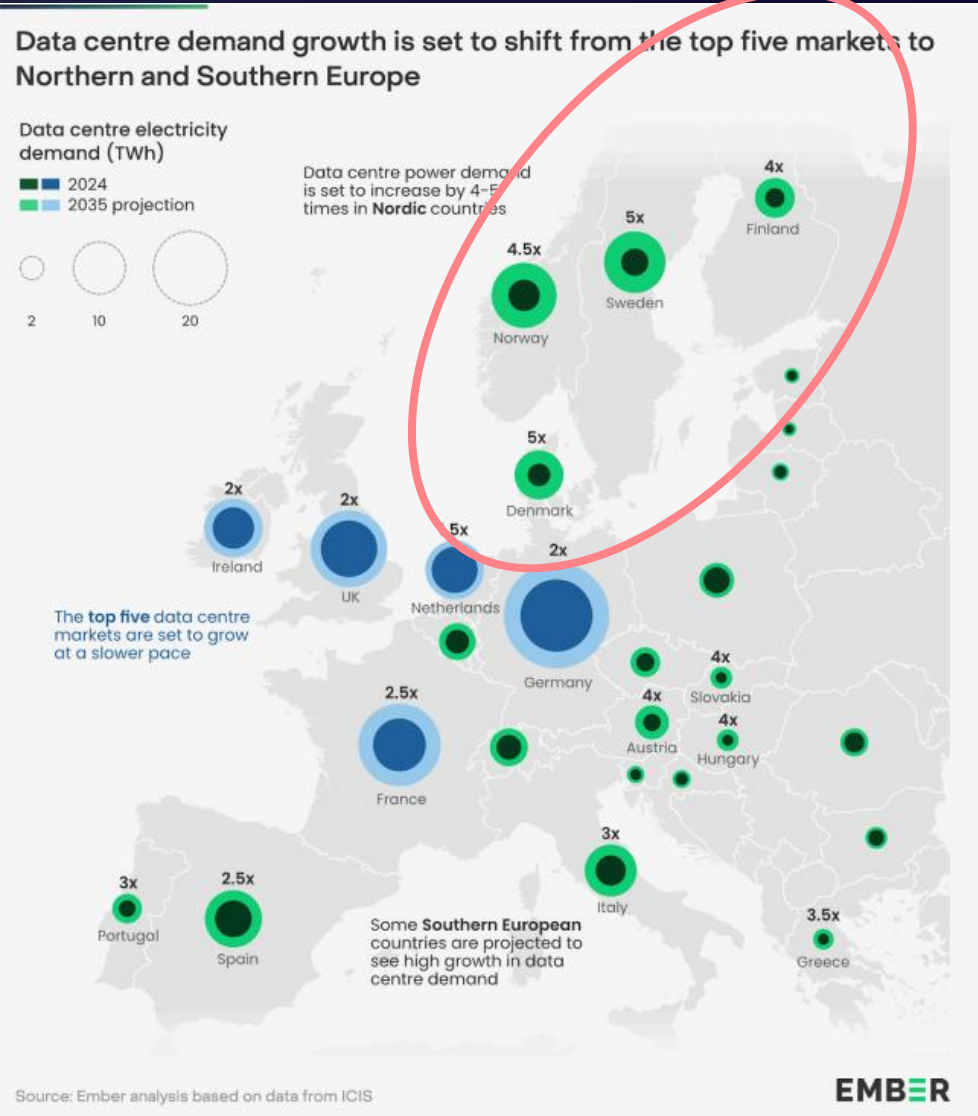


[TechBBQ](#)

Overlay the electricity system

Shifting beyond FLAP-D

The European redistribution



[Grids for data centres ambitious grid planning can win Europe's AI race | Ember](#)

Ireland a “canary in the coal mine”

Can Ireland successfully balance its economic dependence on tech with the urgent necessity of a sustainable energy transition

Opinion Business Insight

What the world can learn from Ireland’s battle to power data centres

Country a ‘canary in the coal mine’ for dealing with strains of boom in energy demand

JUDE WEBBER [+ Add to myFT](#)



Engines inside Europe’s first data centre microgrid in Dublin. Operator Pure Data Centres says it is a ‘creative solution’ to Ireland’s strained electricity grid © Pure DC

[FT.com - What the world can learn from Ireland’s battle to power data centres](#)

Don't turn the power debate into an AI investment brake

BØRSEN ⌚ SENESTE NYT KURSER

DEBAT
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“AI-investeringer kan gå tabt, hvis vi kun ser datacentre som et energiproblem”



Hvis Danmark vil være et attraktivt land for investeringer, AI og datadrevet vækst, må vi gøre op med modsætningen mellem digital udvikling og energistabilitet, skriver Tina Schou.
PR-foto

[Tina Schou, Siemens - Boersen Opinion](#)

It would be a mistake to frame **digital growth** and energy stability as opposites. The advantage lies with those who design them together - and build systems capable of delivering both.

KEY

Contact:
Aiden Cawley
Siemens



At scale, AI infrastructure must be orchestrated & optimized, not just managed.



Plan led and Grid Participation supports continued build



AI revolution versus evolution.

Your Technology Partner for AI Factories



Integrated Solutions

Power, cooling, and compute working seamlessly together.



Scalability & Modularity

Rapid, phased deployment adaptable to evolving AI compute needs.



Efficiency & Sustainability

Maximized tokens-per-watt optimized PUE and responsible grid integration.



De-risked Deployment

Digital Twin and proven designs accelerate projects and minimize time-to-compute.



Global Expertise

Backed by Siemens' worldwide expert network and lifecycle support.



Flexible Financing

Tailored financial solutions and expertise along the data center lifecycle.