Rebuilding the Datacenter Markt for AI – A case for Nuclear Energy as the building block for Energy Hubs.

Nuclear Innovation Conference 2026 (3rd Edition)

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The market is being rebuilt *around AI*

Three macro signals every partner should be planning around

$7T

Global investment

Expected investment in building and upgrading data centres worldwide through 2030

~2×

Power demand by 2030

Grid power to data centres will nearly triple from ~860 TWh to ~1,587 TWh by 2030

6×

DC interconnect bandwidth

40-60% CAGR in the networks that move data between facilities in the same time frame

Sources: McKinsey & Company 2025 [1]; 451 Research 2025 [2]; Ciena 2025 [3]

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Substantial levels of CAPEX are needed for AI Revolution

AI demands exponential levels of investments so utilization and ROIC are key

Datacenter Investment

1.500 M

150 MW

Traditional IT Stack

6.000 M

Customer Investment excluding software development applications etc

AI IT Stack

10.000 M

Customer investment excluding software and

10×

Power intensity in 10 years

4-6x

IT & other hardware/services needed to run a platform as a service

9-10x

AI GPU, memory and storage to create AI as a service platform.

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Power is the new constraint of AI compute

AI doesn't fit in the data centre footprint built for traditional IT

TRADITIONALLY

8–12 kW

per rack · air-cooled

NOW · 2026

230 kW

per rack · liquid cooling required

NEXT · 2027

600 kW

per rack · NVIDIA Rubin Ultra

10×

Power intensity of AI-optimised servers vs prior generations.

47%

Of new server racks liquid-cooled in 2026.

800 VDC

Emerging standard. Legacy 208 VAC cannot power 150+ kW racks.

Sources: Gartner [9]; TrendForce 2026 [10]

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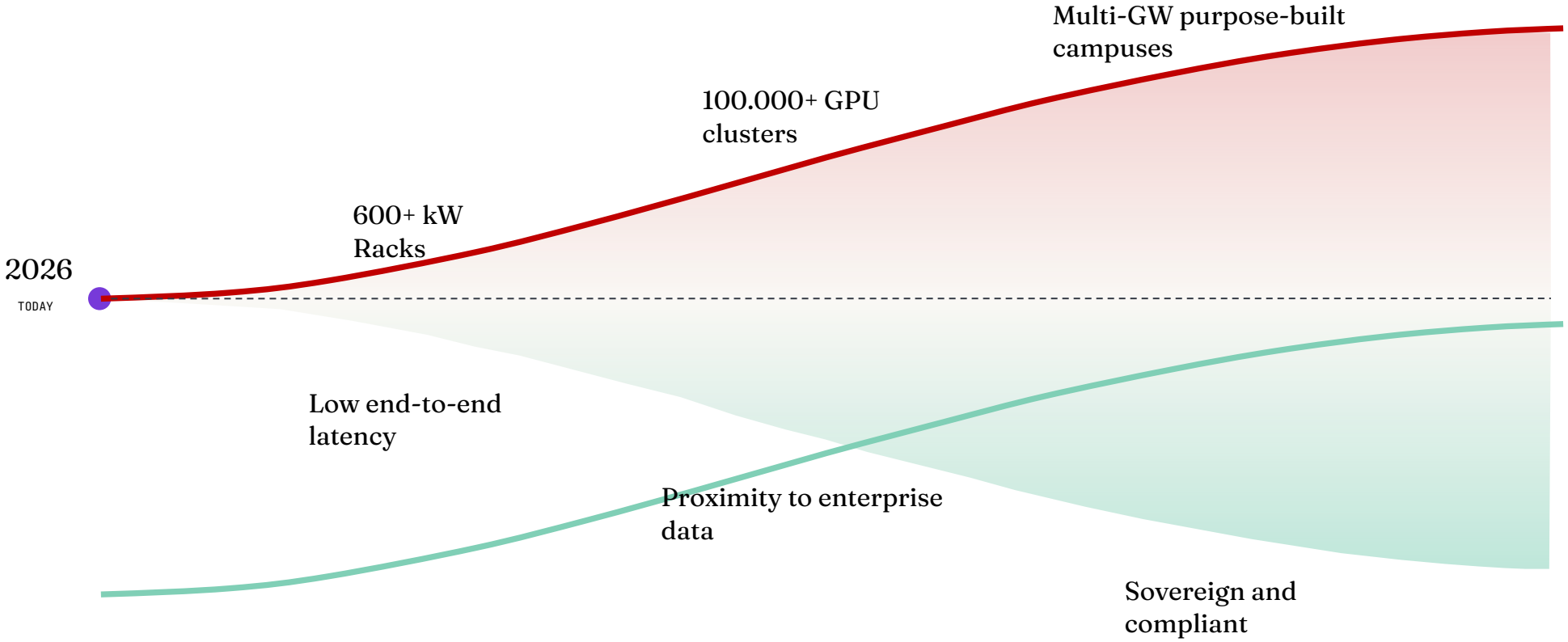
One market, *two* destinations

Market bifurcation into two dominant infrastructure patterns



Hyperscale AI.

Massive, concentrated infrastructure.

~10
hyperscaler customers worldwide

$1.6T
annual capex by 2031

Enterprise AI.

Distributed everywhere, follows data.

M's
of enterprise customers served

$350B
inference market by 2030

Forces driving AI infrastructure decisions

Some forces pull infra together. Others push it apart. AI must do both at once.

← CONCENTRATING

DISTRIBUTING →

Scale economics

Training and frontier models reward the biggest single facility that can be built

Latency

Real-time inference, agentic chains and multi-modal apps need <10ms response time end-to-end

Power density

230 kW racks, liquid cooling, 800VDC. Most facilities cannot host AI at all

Data Gravity

Data is heavy. Mode the model to the data, not the data to the model

Capital efficiency

Multi-billion data centre builds reward consolidation, not sprawl

Sovereignty

EU AI Act, GDPR, national data laws. What runs where is now regulated

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The *most important shift* in AI

Inference changes the infrastructure game

TRAINING

Periodic.

Model builds happen on a schedule. Massive compute, finite time window, then the capacity is released.

INFERENCE

Continuous.

Every ChatGPT response, every Copliot suggestion, every AI-powered search result. Always on, everywhere

Up to 100×

More inference calls per task with Agentic AI

Sources: McKinsey — Next Big Shifts in AI Workloads [4]; Deloitte — AI Infrastructure Reckoning [5]

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The Dutch Grid Crisis - A System at Its Absolute Limit

Structural Congestion: Major economic hubs, including the Amsterdam Metropolitan Area, have placed strict limits on new large-scale datacenter grid connections since mid-2023.

Timeline to Relief: Large-scale national grid capacity expansions by operators like TenneT and Liander are projected to take until at least 2035+ to fully resolve local bottlenecks.

Relying solely on central grid expansions will stall the Netherlands' digital economy for the next decade. Decentralized, localized power generation is urgently required.

The Datacenter Power Dilemma:
Exponential Demand vs. Intermittent Supply

Surging Consumption: Datacenters account for approximately 4.6% of total Dutch electricity consumption, reflecting a 37% increase between 2021 and 2024.

The AI Multiplier: The rapid deployment of Artificial Intelligence training and inference, requires significantly higher power provisioning.

The Intermittency Trap: Solar and wind cannot independently guarantee the 99.999% uptime required by modern tier-structured datacenters without massive, costly battery storage.

Forcing highly concentrated, constant AI workloads to rely entirely on weather-dependent energy sources creates an unsustainable operational and financial risk.

The Strategic Convergence of Energy and Digital Infrastructure

The Gridlock: The Dutch electricity grid is structurally congested, capping the growth of critical digital infrastructure.

The Baseload Gap: Renewable energy expansion (wind/solar) introduces volatility, whereas datacenters require 24/7/365 uninterrupted baseload power.

Nuclear energy, specifically Small Modular Reactors (SMRs), serves as the missing link to achieve zero-emission, reliable digital growth.

Bridging the gap between the energy sector and digital infrastructure is no longer just an environmental goal; it is a strategic economic imperative for national digital sovereignty.