



# Making Autonomous Grids a Reality

How Gridscale X is shaping the next era of grid intelligence

**SIEMENS**

# The next demand wave is moving fast

Electrification is accelerating. AI data centers and hyperscalers are now the main drivers of concentrated new loads and demand for fast, reliable grid connections. The grid must keep pace with the markets it enables.

3x

Electricity consumption from AI-focused data centers is projected to triple within the next four years, based on reference year 2025.

Reference: IEA (2026),  
[Key Questions on Energy and AI](#)

## 2,500 GW of ambition. One shared bottleneck: the grid.

According to the IEA, more than 2,500 GW of projects are stalled in queues worldwide.



Reference: IEA (2026),  
[Electricity 2026](#)

# Speed is becoming a competitive advantage

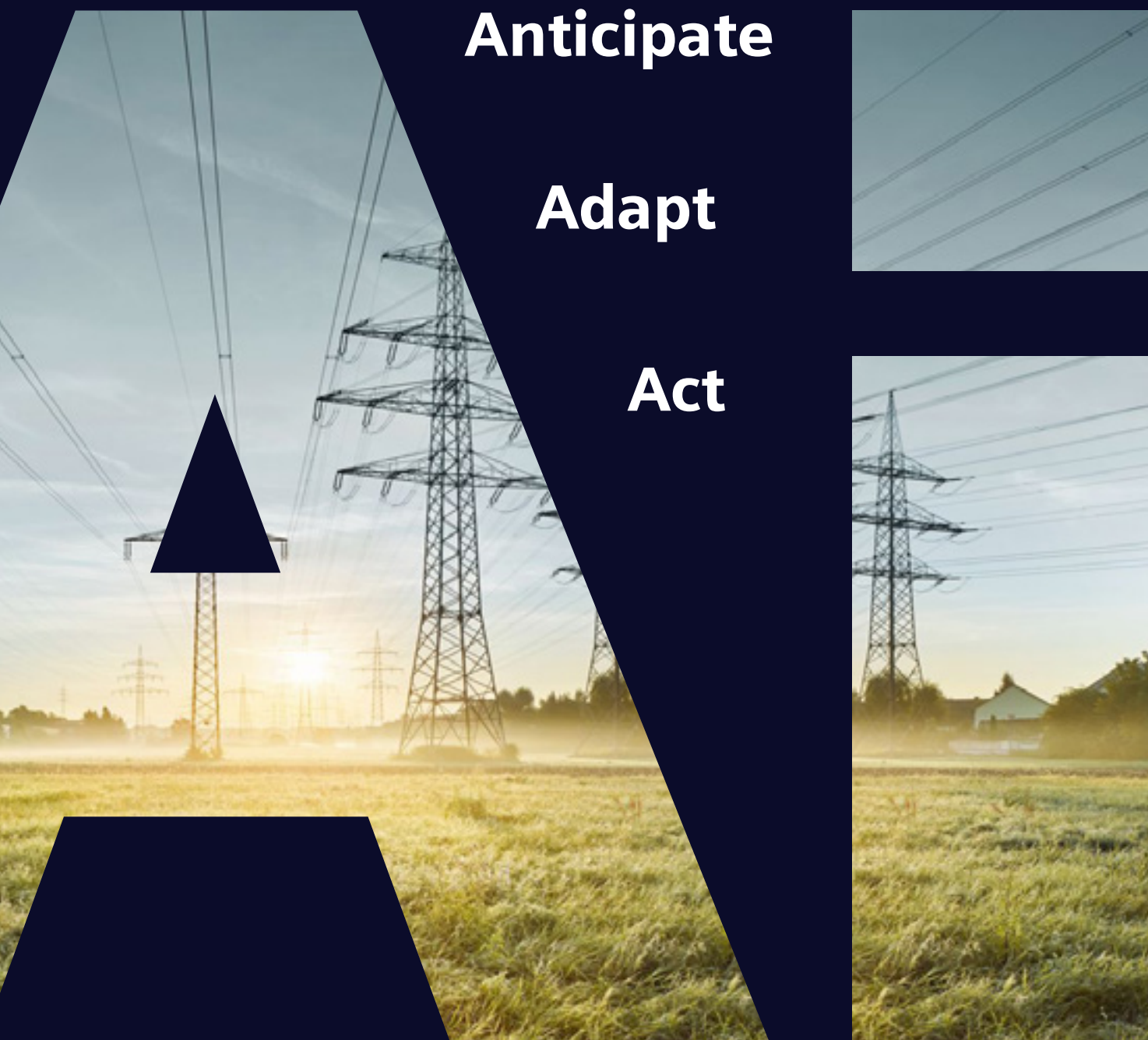
Fast, reliable grid access increasingly influences where industries invest, where data centers are located, and where economic growth happens. The challenge is no longer limited to how much infrastructure can be built. It is about unlocking more capacity from the grid that already exists while accelerating the planning, approval, and connection of new projects.



# Intelligence needs the whole picture

To move faster, power utilities need a shared view of the grid. When planning and operations work with disconnected data and models, valuable insights remain trapped in silos. Proactive grid management starts with one coherent foundation for better decisions.

**A problem arises when every team sees a different version of the grid, and even the best technology cannot rectify this entirely.**



**An autonomous grid does not simply react faster. It builds foresight into how the energy system is planned and managed.**

# Imagine a grid that stays one step ahead

Autonomous grids are a progressive evolution toward systems that anticipate constraints, adapt to changing conditions, and enable faster, more resilient decisions. Digital technologies, AI, and emerging agentic capabilities support this shift by strengthening foresight and accelerating how the grid is planned, managed, and optimized as demand grows.

# Planning at the speed of AI

As connection requests surge, planning teams need to evaluate more scenarios in less time. AI-supported agentic planning can accelerate complex workflows by bringing together data, simulations, and engineering tasks around clearly defined objectives. So teams can assess requests faster, prioritize with greater clarity, and focus their expertise on what matters most.

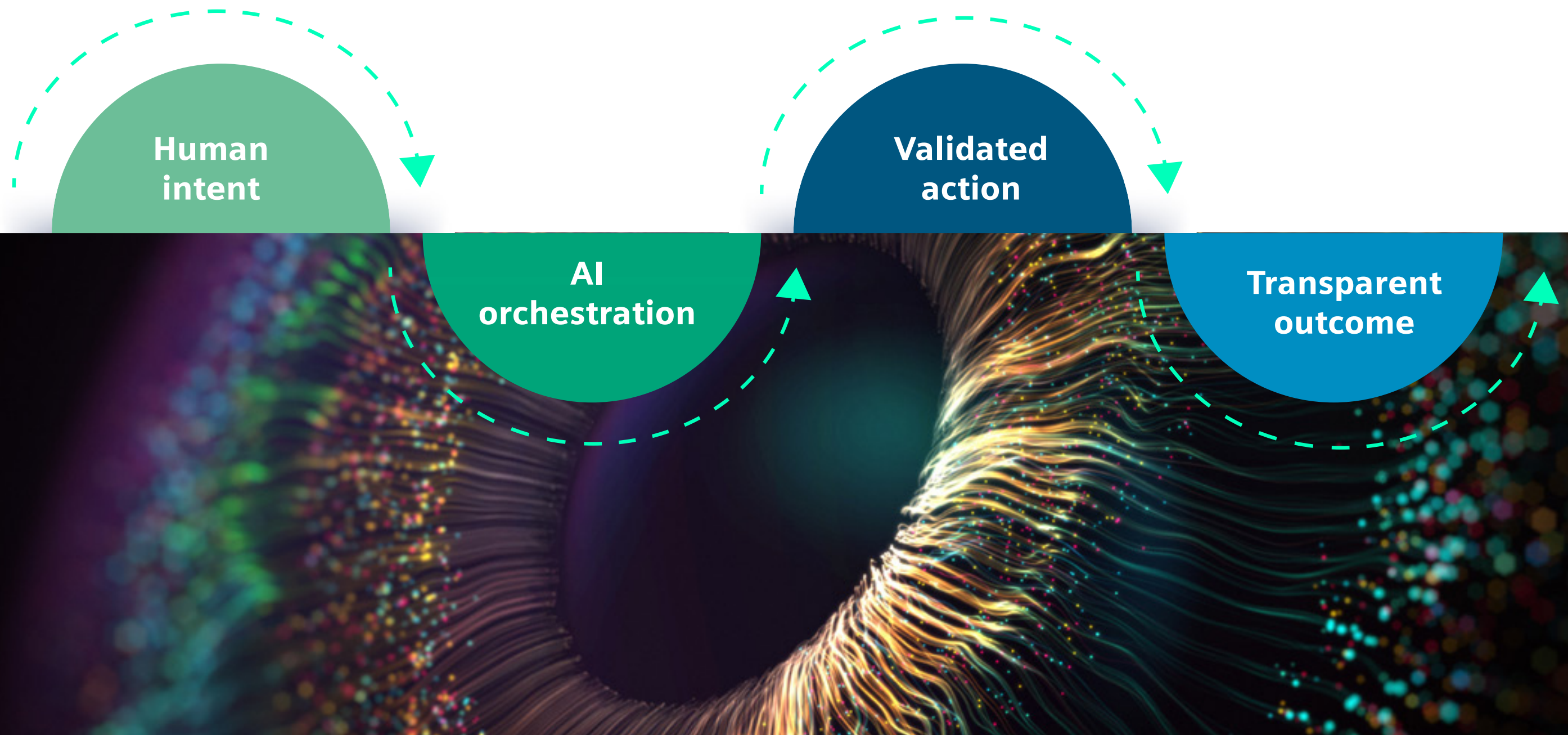
AI could unlock up to 175 GW of additional transmission capacity from existing infrastructure.

Reference: IEA (2025),  
[Energy and AI](#)

# Expand your capabilities

## Empower your experts

Digital and AI-enabled capabilities broaden what teams can monitor, assess, and manage. They empower experts without replacing human judgment or authority. Engineers and operators define objectives, boundaries, and approval levels, while technology helps them work faster, more efficiently, and at greater scale.



**One shared foundation.  
Every step connected.**

**Planning**

**Operations**

# **Gridscale X: One digital platform for true system operations**

Gridscale X brings planning and operations together on an open, scalable platform. Shared grid data, digital twins, and interoperable, AI-powered applications create a continuous link between planning and execution – helping utilities to make faster decisions, act on insights sooner, and manage the grid more proactively.

# Autonomy starts paying off now

The journey toward autonomous grids is not a long-term technology bet. With Gridscale X, it creates business impact now: greater speed, stronger resilience, leaner operations, and more capacity from the grid already in place.

↑ **20%**

Gridscale X helps to **increase** grid capacity utilization by up to twenty percent ...

**Get more out  
of the grid you  
already have.**

↓ **40%**

... while **reducing** reinforcement costs by up to forty percent.

# Take the next step toward autonomous grids

Discover how Gridscale X helps to turn data, intelligence, and expertise into more proactive grid management.

[Learn more about Gridscale X](#)

Published by Siemens AG  
Smart Infrastructure  
Grid Software Humboldtstrasse 59  
90459 Nuremberg, Germany

For the U.S. published by  
Siemens Industry Inc.  
100 Technology Drive  
Alpharetta, GA 30005, United States

Article No. SIGSW-B10127-00-7600

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