SIEMENS energy

The operating intelligence for modern power generation

How the Omnivise ecosystem helps energy companies increase transparency, stay in control, improve flexibility and protect operational value



Operational excellence and commercial performance are no longer separable.



The reality of today´s power generation

Operational complexity and commercial pressure are rising in parallel

The environment in which energy companies operate has changed fundamentally. What was once predictable generation is now shaped by volatile markets, hybrid asset setups and growing regulatory, cybersecurity and operational requirements. Power plants are increasingly exposed to changing operating regimes – shifting from stable baseload operation to peaking, cycling and highly flexible, market driven dispatch.

As a result, operations teams are expected to run assets reliably and profitably under far more dynamic and demanding conditions. At the same time, asset owner must react faster to price signals, system constraints, and market opportunities. Often with shorter decision cycles and higher financial exposure.

However, the operational setup behind these tasks frequently remains fragmented. Assets, control systems and data are spread across different technologies, vendors and locations, often operating in isolation. As a consequence, transparency across plants and fleets is limited, dispatch decisions are harder to optimize and operational risks and costs increase.

These challenges directly shape commercial outcomes and risk exposure. Dispatch performance directly impacts revenue, while flexibility determines access to markets and services. Limited transparency and rising cyber threats increase financial exposure and security risk.

Figure 1 Power plants are shifting from stable baseload operation to higher volatility with more cycles and load changes and an increasing rate of starts and stops

What energy companies are facing today:

- **More volatile markets** and shorter decision cycles
- **Hybrid and mixed fleets** with different operating regimes
- **Limited real-time visibility** across assets,plants and fleets
- **Increasing pressure** on availability, cost, compliance and cybersecurity
- **Stronger interdependence** between operations, dispatch and revenue

From operational complexity to commercial impact

What energy companies need to stay in control across markets and operations



Figure 2 Increasing shares of renewable energy sources lead to heterogenous fleets with complex integration challenges

The question is no longer what has changed in the energy landscape. It is how energy companies can remain competitive and in control as complexity and commercial pressure continue to increase.

In today´s environment, operational decisions directly shape cost structures, system reliability and plant efficiency. Insufficient transparency, limited flexibility and fragmented decision-making increase financial and operational risk.

Market participation has become more dynamic and operationally demanding, with tighter regulatory and compliance constraints. Revenue, margins, reliability and risk exposure increasingly depend on the ability to make and execute fast, well-informed decisions across plants and fleets.

At the same time, operators must manage additional constraints: skills shortages, rising cybersecurity requirements, and stricter compliance obligations.



Figure 3 To manage the higher operational complexity power producers need transparency across assets, plants and fleets

To protect value and unlock new revenue streams, energy companies need to:

- optimize dispatch across assets and technologies
- react quickly to price signals and changing market conditions
- participate profitably in energy and ancillary service markets
- scale market participation without increasing operational risk

Control and commercial value must be built on the same operational foundation to be efficient and sustainable.

To deliver these outcomes consistently, operators need more than isolated tools or local optimizations. They need the ability to:

- access actionable insights across assets, plants and fleets
- support operational and dispatch decisions with reliable real-time information
- expand capabilities step by step as energy portfolios and markets evolve
- protect operations and value in increasingly digital and connected environments

These capabilities do not replace legacy systems or IT infrastructure. They aim to connect them into a consistent and secure operational setup, forming the foundation for reliable modern power operations. The starting point must be simple: connect assets and software quickly to create a single operational view and harmonize data to reduce complexity, then scale step by step.

One modular, digital foundation for modern power generation

Connecting applications, data and workflows across assets, plants to fleets

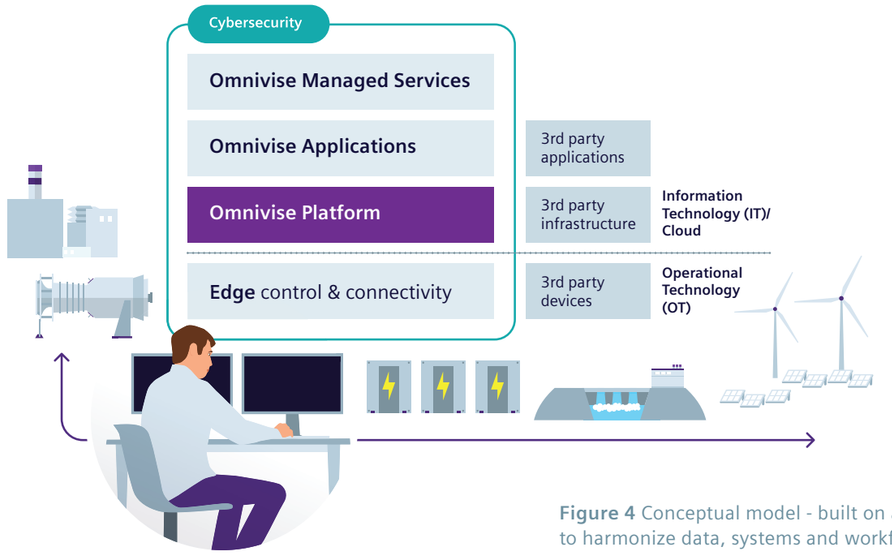


Figure 4 Conceptual model - built on a common platform to harmonize data, systems and workflows and to expand step by step

Energy companies need a setup that can handle diverse assets in increasingly dynamic markets, while meeting growing cybersecurity and digital infrastructure requirements - without compromising reliable and safe plant operation.

The Omnivise ecosystem is Siemens Energy's open, modular platform approach for connecting assets, control systems, digital applications, and workflows into one consistent operational framework across plants and fleets. It establishes a common foundation for connectivity, data management, and shared services, enabling reliable operations and more informed operational and commercial decisions.

Using open, standard protocols and edge technology, the ecosystem securely connects assets and systems close to operations. Its modular building blocks, including platform services, applications, and managed services, can be combined flexibly and extended step by step to support evolving use cases, without redesigning the operational setup.

As asset landscapes become more heterogeneous and market conditions more volatile, the Omnivise ecosystem brings together operational and digital capabilities into a coherent setup to create transparency across energy assets and provide reliable data for decision-making.

This enables energy companies to continuously improve and evolve their operations and generate long-term value - all without disruptive change to existing setups.

How the Omnivise ecosystem works – at a glance:

- **Standardized connectivity across OT and IT:** Securely connects assets, control systems and applications such as optimization, asset, performance or energy management, making operational data available in real-time across plants and fleets. Applications run on the Omnivise platform using shared services.
- **Unified user interface and shared services:** Delivers a consistent user experience, role-based access, standardized workflows, alarms, logging and data services, reducing complexity across different assets and technologies.
- **Open integration of systems and applications**: Enables integration of Siemens Energy and third-party assets and applications where they support the customer's operating model, without lock-in.
- **Consistent data foundation:** Harmonizes operational and market data as well as data handling for portfolio-wide insights and optimization, not only within individual assets or applications.
- **Built-in cybersecurity and compliance:** Designed with secure architecture, role-based access, protected connectivity, and compliance principles across IT and OT environments from the start.

By integrating existing and future assets and systems, the Omnivise ecosystem reduces fragmentation, shortens decision cycles, and creates a scalable path from transparency to coordinated operations and market-oriented dispatch.

With the Omnivise ecosystem, energy companies can ...

... establish a shared operational view across assets, plants and fleets

... turn operational and market data into consistent, executable decisions

... coordinate operations and dispatch across different technologies

... expand capabilities step by step as operational complexity and market requirements grow

... operate securely and compliantly in connected IT and OT environments

Proven in customer projects

How energy companies use the Omnivise ecosystem to adapt their operations to changing market conditions

Siemens Energy is your reliable partner for the energy transition

- Deep domain & OEM expertise and global delivery footprint
- Unique position combining OT foundation, digital applications, and managed services
- Strong digital portfolio & cybersecurity competence
- Only controls provider with power generation OEM expertise

We understand the full energy system – from physical assets to operational processes and digital solutions.

With its integrated ecosystem approach and building blocks across platform, applications and services, the Omnivise solution portfolio delivers tangible value in real-world operations. Siemens Energy works closely with customers to validate architecture principles, workflows and integration concepts in real operational environments across applications and countries.

Customer projects

Maximizing returns from a hybrid fleet

As an industrial power producer, VW Kraftwerk GmbH operates a hybrid portfolio of combined cycle power plants, photovoltaic plants and battery storages. The company is facing growing exposure to volatile prices and increasingly strict cybersecurity requirements. The priority was to avoid financial losses in negative price phases and to better monetize the entire renewable & hybrid fleet.

Using the easy asset onboarding concept to deliver T3000 Edge, the Omnivise ecosystem connects distributed photovoltaic plants and battery storage systems to the customer's central energy management solution.
The result was secure real-time data streaming and a unified operational view for monitoring and alarm handling, while complying with high cybersecurity standards.

Market-driven dispatch center of distributed wind & hybrid plants

A power producer operating a combined-cycle power plant and onshore wind farms follows the ecosystem approach uses the Omnivise platform to establish a centralized fleet management and dispatching solution for its renewable sites. The objective: gain fleet operations transparency, reduce operational costs and transition from feed-in tariffs to energy market participation.

Seven onshore wind farms (~250 MW) become connected via Omnivise T3000 Edge devices, enabling secure real-time data streaming into a cloud-based remote operations and analytics environment. A single user interface unifies fleet monitoring, alarm handling and supervisory control, creating the transparency needed for coordinated market dispatch complying with TSO procedures. The setup supports forecasting, dispatch and bid optimization, to maximize the participation in the electricity market in future. Built on open integration, this setup provides a scalable path that can be extended towards energy management functions and hybrid technologies such as solar or storage.

Across these examples, the pattern is consistent: Traditional operating models are increasingly challenged by market volatility, hybridization and digital risks. Customers respond by adopting the Omnivise ecosystem approach, using the Omnivise platform as a scalable operational foundation to integrate and evolve solutions from the Omnivise portfolio. This enables them to manage complexity, reduce operational risk, and remain compliant and secure as fleet structures and operating models evolve.

The projects show that managing complexity does not require disruptive change. It requires a solid operational foundation that scales with fleet complexity and market requirements and reduces fragmentation, supporting reliable operations today and enabling continuous improvement tomorrow.

What this means for your power operations

Implications for modern energy systems

No power generation fleet is exactly alike. Each is defined by its own scale, technology mix and market context.

But the underlying operational challenges and questions are increasingly similar:

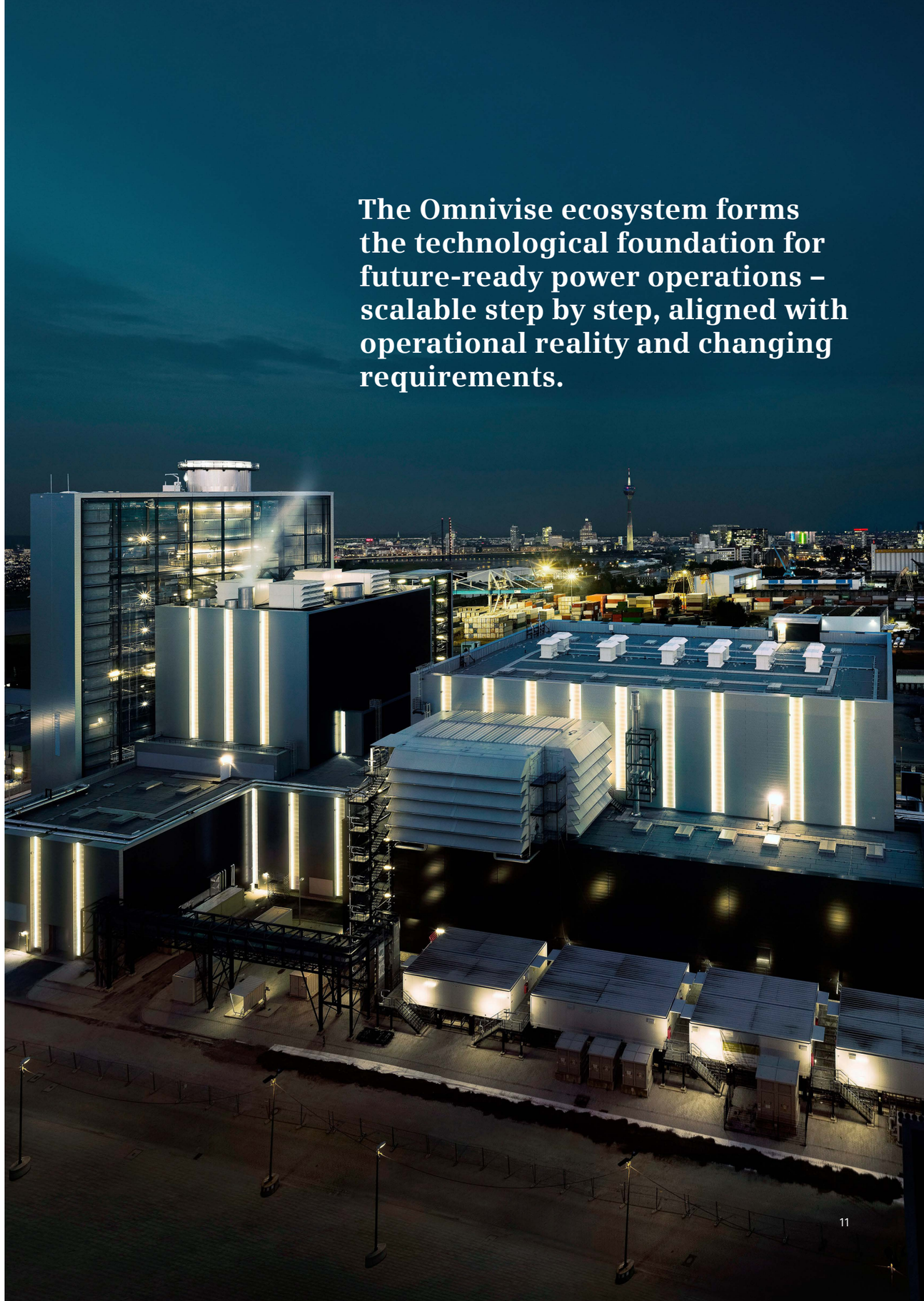
- How do we stay in control as operational complexity continues to increase?
- How do we protect reliability, compliance and cybersecurity while managing cost pressure and skills shortages?
- How do we unlock commercial value through optimized dispatch and market participation?
- How do we move from asset-level optimization to coordinated fleet operations?

These questions are not about individual tools or short-term fixes. They are about establishing a unified operational foundation that can evolve over time and support the transition from isolated assets to coordinated fleets.

By leveraging the Omnivise ecosystem, energy companies can begin by connecting assets and applications to the Omnivise platform to gain actionable insights and create a shared operational view. From there, additional digital applications from the Omivise portfolio can be added as requirements evolve aligned with operational priorities and market requirements – from asset coordination and optimization to fleet-wide orchestration.

Let’s explore what this could mean for your operations.

The Omnivise ecosystem forms the technological foundation for future-ready power operations – scalable step by step, aligned with operational reality and changing requirements.



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