

Impresa Insight

The Unified AI Intelligence Platform for Modern Utilities

Overview

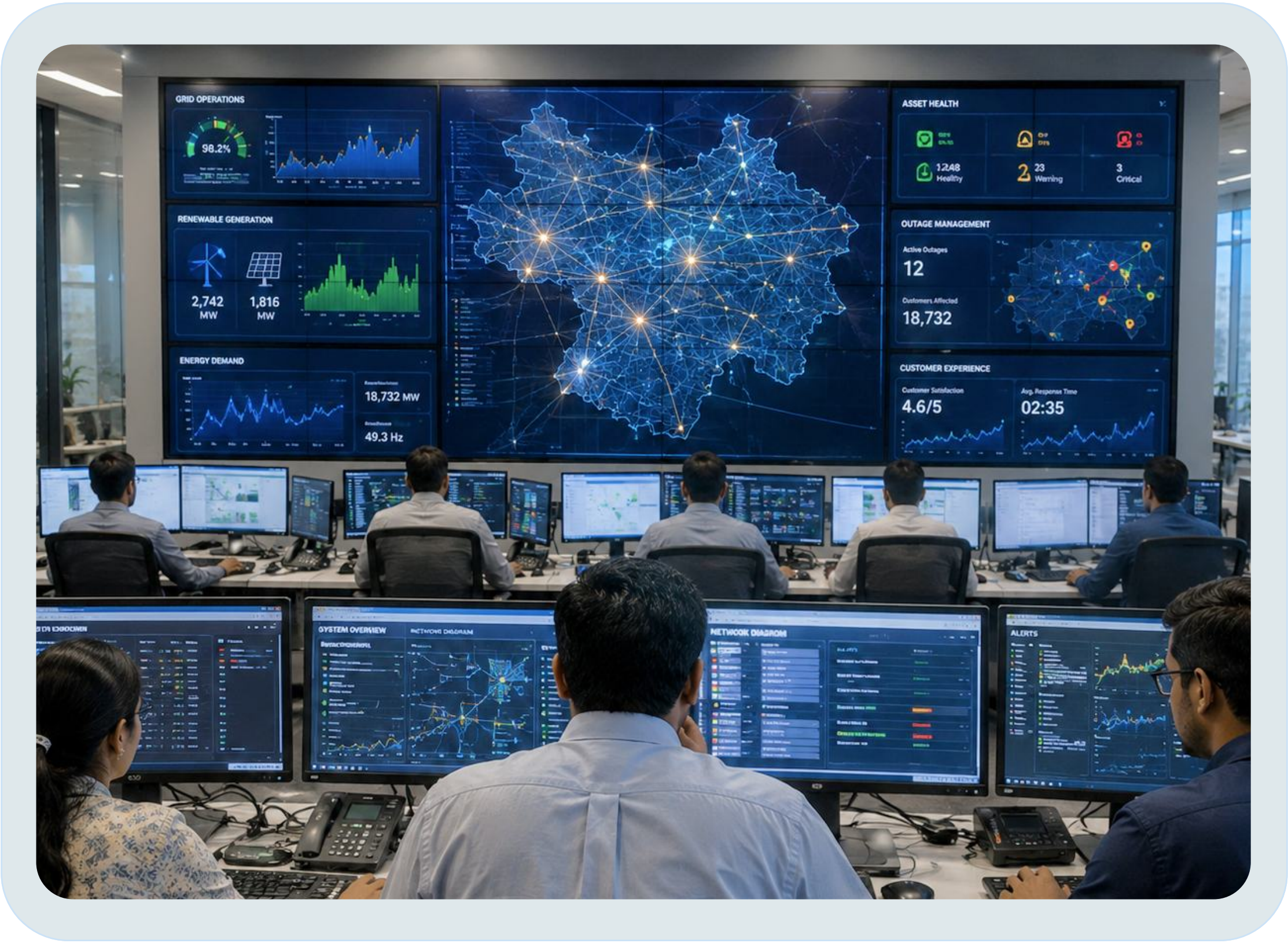
Utilities today run on a constellation of disconnected systems AMI, HES, MDM, SCADA, GIS, OMS, CIS, ERP and field-service platforms each holding a fragment of the truth about the network, the customer, and the business. Impresa Insight is the enterprise AI intelligence platform that unifies these fragments into a single, governed, continuously updated model of the utility, and turns that model into trusted, explainable, and actionable intelligence.

Eight purpose-built intelligence services **Grid Intelligence, Smart Meter Intelligence, Energy & DER Intelligence, Revenue Intelligence, Customer Intelligence, Asset & Field Intelligence, Sustainability & Regulatory Service, and ImpresaLM** sit on one shared semantic foundation. Rather than eight disconnected point tools, utilities get one platform, one data model, and one AI layer that reasons consistently across the grid, the meter, the customer, and the balance sheet.

Impresa Insight is built for the reality of utility data: multi-vendor, multi-commodity (electric, water, gas), high-volume, and mission-critical. It is designed to scale from a single feeder to a national fleet of millions of assets and meters, without compromising on governance, auditability, or explainability.

Key Benefits

- **Unified Enterprise Visibility** - One governed intelligence layer across operational, metering, financial, customer, asset, and regulatory data.
- **Predictive, Not Just Descriptive** - Utility-trained models predict failures, revenue leakage, and outages weeks ahead, ranked by priority.
- **One Semantic Model, Every Service** - Every service reconciles against the same shared semantic model one version of the truth.
- **Conversational, Governed AI** - Plain-language, source-grounded answers via ImpresaLM no analyst or custom query needed.
- **Audit-Ready by Design** - Immutable audit trails and data lineage on every action, calculation, and report.
- **Fits the Stack You Already Have** - Cloud-native and API-first integrates with existing AMI, SCADA, GIS, CIS, and ERP investments.
- **Enterprise Scale** - Scales from a single feeder to millions of meters and assets across electric, water, and gas.



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The Eight Intelligence Modules

Each module is independently deployable and fully interoperable, drawing governed data from the same Impresa Semantic Engine so insights never contradict each other across teams.

Grid Intelligence

Unifies AMI, SCADA, GIS, OMS, OCPP and weather data to reveal emerging failures, hidden losses, and demand strain across the distribution network before they impact reliability.

Smart Meter Intelligence

Unifies AMI, HES and MDM data into a single semantic model of the metering estate, running nine services spanning read rate, meter health, leak detection, tamper, and remote command.

Energy & DER Intelligence

Provides visibility, forecasting, and optimization for distributed energy resources, renewable generation, battery storage, microgrids, and digital-twin grid simulation.

Revenue Intelligence

Unifies operational, metering, financial, and customer data to detect revenue leakage, optimize energy accounting, and improve financial forecasting across the value chain.

Customer Intelligence

Applies AI-based load disaggregation, forecasting, and behavioral analytics to transform smart-meter and customer data into personalized, explainable insight.

Asset & Field Intelligence

Unifies asset intelligence, field-service management, digital inspections, and predictive maintenance to improve reliability and workforce productivity.

Sustainability & Regulatory Service

Unifies ESG data, emissions calculations, efficiency KPIs, compliance analytics, and audit-ready reporting workflows in one platform.

ImpresaLM

The governed language-intelligence layer of the platform natural-language access to every module's data through conversational analytics, Text-to-SQL, RAG, and explainable recommendations.



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Capabilities & Architecture

Architecture - Flexible, Adaptable, Open source

Impresa Insight is architected as an open, modular platform rather than a monolith utilities adopt the modules they need today and extend the platform without re-platforming later.

Modules can be deployed independently or together, and each draws only the governed data it needs from the shared semantic model. Utilities can start with a single service such as Revenue Intelligence or Grid Intelligence and expand across the platform at their own pace.

A configurable KPI catalogue, ontology, and rules engine let utilities encode their own calculation methods, organisational boundaries, and regulatory jurisdictions, instead of forcing operations to conform to a fixed data model.

Built on open API integration, event-driven processing, and open standards (IEEE, IEC, EN, ANSI, CIM alignment where applicable), Impresa Insight is designed to sit inside an existing enterprise architecture integrating with AMI head-ends, SCADA, GIS, CIS/billing, ERP, and field-service systems rather than displacing them.

Capabilities

- Cloud Native
- Open APIs
- Event-Driven
- Multi-Tenant & RBAC
- Model-Agnostic AI
- Utility-Trained AI
- Scalable to Millions of Assets
- Electric · Water · Gas
- High Availability

Security & Governance



Role-Based Access Control

Every user, service, and AI interaction is scoped by role-based access control, so operators, field teams, analysts, and executives see only the data and actions relevant to them.



Auditability & Data Lineage

Every calculation, remote action, and generated report carries a full, immutable audit trail and data lineage back to its source system, meeting the standard utilities need for regulatory evidence.



Governed Actions

High-impact actions remote meter commands, disconnects, regulatory submissions pass through pre-execution safety checks and dual-approval workflows before they execute.



Explainable AI

ImpresaLM's answers are source-grounded and explainable by design: the platform distinguishes measured data from modelled or AI-derived figures, and cites the underlying data behind every recommendation.



Enterprise Security

Deployed with enterprise-grade security controls and designed for private, secure enterprise deployment, including multi-tenant isolation for utilities managing multiple business units or jurisdictions.



Data Quality & Validation

Configurable data validation, reconciliation, and exception management ensure inconsistent or incomplete source data is flagged before it reaches a report, dashboard, or regulator.



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The Impresa Insight Data Platform

Storage - Lightweight, Disaggregated, Enterprise-Ready

Beneath every Impresa Insight module is a single data platform purpose-built for utility-scale telemetry, transactional, and enterprise data designed to be simple to operate, fast to query, and open enough to avoid vendor lock-in.

Lightweight, Disaggregated, Performance-Oriented

Compute and storage are decoupled, so each intelligence service scales independently against the volume it actually needs. A smart-meter fleet ingesting millions of interval reads a day does not have to share resource contention with quarterly regulatory reporting jobs. The platform favors a small set of well-understood, high-performance components over a sprawling toolchain, keeping operational overhead low while sustaining near-real-time throughput across electric, water, and gas networks.

Simple by Design

A single ingestion and storage pattern is used across every data source AMI, SCADA, GIS, CIS/billing, ERP, and field service so new systems are onboarded through configuration rather than bespoke pipelines. This consistency is what allows the Impresa Semantic Engine to normalize, validate, and map every source onto one estate model without a proliferation of one-off integrations.

Enterprise Data Lakehouse, Best-of-Breed Stack

Impresa Insight is built on a modern lake house architecture: open table formats for governed, versioned storage of both raw and curated data; a semantic and KPI layer on top that gives every module a consistent, business-meaningful view of the same underlying facts; and a best-of-breed technology stack selected per workload high-throughput ingestion for telemetry, columnar analytics for reporting, and graph/ontology structures for asset and network relationships. The result is one governed store of record instead of the fragmented data marts most utilities operate today.



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Advanced AI Driving the Impresa Insight Data Platform

AI is not a layer bolted on top of Impresa Insight it is trained directly against the shared semantic model, so every prediction, explanation, and recommendation reasons over the same governed facts as the dashboards and reports.

- **Predictive Analytics**

Utility-trained models score assets, meters, and feeders continuously, predicting failures, revenue leakage, and outage risk by root cause, often weeks before an incident would otherwise surface.

- **Generative & Conversational AI**

ImpresaLM grounds natural-language interaction in the platform's ontology and knowledge graph, giving operators and executives a conversational copilot Text-to-SQL, retrieval-augmented generation, and root-cause explanation instead of static dashboards.

- **Digital Twin & Scenario Simulation**

Simulation and digital-twin capabilities let planners test scenarios new DER connections, EV adoption, storm impact against the live semantic model before committing capital.

- **Model-Agnostic Foundation**

The architecture is model-agnostic, allowing utilities to adopt new foundation models over time without re-architecting the data platform underneath them.



Why Utilities Choose Impresa Insight

- Purpose-built for electric, water, and gas utilities, not a repurposed generic analytics platform.
- One semantic model shared across all eight intelligence modules, so every team works from the same version of the truth.
- Explainable, source-grounded AI that utilities can defend to regulators and auditors.
- Open, API-first architecture that integrates with rather than replaces existing enterprise systems.
- Proven across grid, meter, revenue, customer, asset, and sustainability domains, with a single platform to deploy, govern, and scale.

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