Ogre

Cutting-edge
AI forecasting solution

Boosting the energy transition

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Ogre is a technology company specialized in Forecasting and Energy Management

Mission

Revolutionize the energy sector with cutting-edge AI forecasting and energy management technology, providing comprehensive, integrated solutions that enhance efficiency, reliability, and sustainability across the entire energy value chain.

Vision

To be the global leader in AI-powered energy solutions. We envision a future where our integrated solutions platform seamlessly connects all facets of the energy value chain, from generation and distribution to consumption, driving innovation, reducing environmental impact, and creating value for all stakeholders.

Founded in 2021

Bucharest & London

First Financing Round 2022

24 FTEs

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Why Ogre

Expert Team

Our team boasts exceptional industry and AI / ML expertise together with academic and professional resources, with professorship at Oxford University and gold medalists in both international mathematics and informatics Olympiads.

Applied knowledge

We have vast expertise in both electricity and gas sectors, with applied knowledge across the whole value chain: generation, supply and transport and distribution. We work with very large utilities such as ENEL, Engie and E.ON.

State of the Art Forecast Engine

Utilizing the forefront of AI innovation, our forecasting tool is ahead of the curve and produces a customized forecasting engine for every asset or every consumer of every supplier, sometimes producing millions of individual engines for a single client.

Data Proficiency

We excel in integrating complex systems. We are not just data users but creators, boasting proprietary data sources including an in-house developed meteorological model that enriches our forecasting capabilities.

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Challenges Faced by Energy Operators

Real-Time Data Processing   EV adoption   Market Regulations

Energy Transition   Short term variability and ramp events   Balancing market penalties
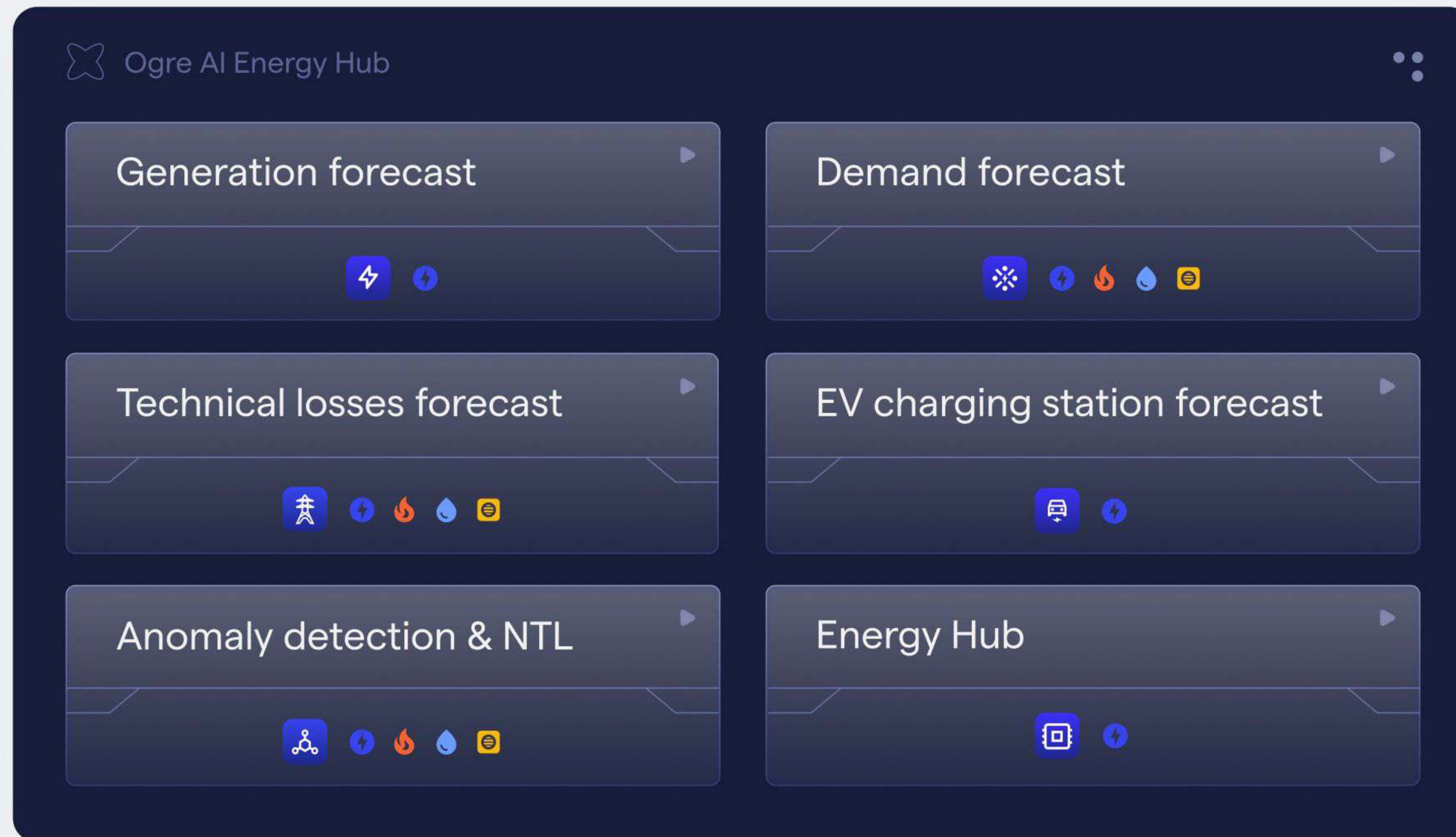
Forecast horizon challenges   RES adoption   Data Quality and Availability

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Our integrated platform offers a diverse range of AI modules, uniquely tailored for the needs of our valued partners
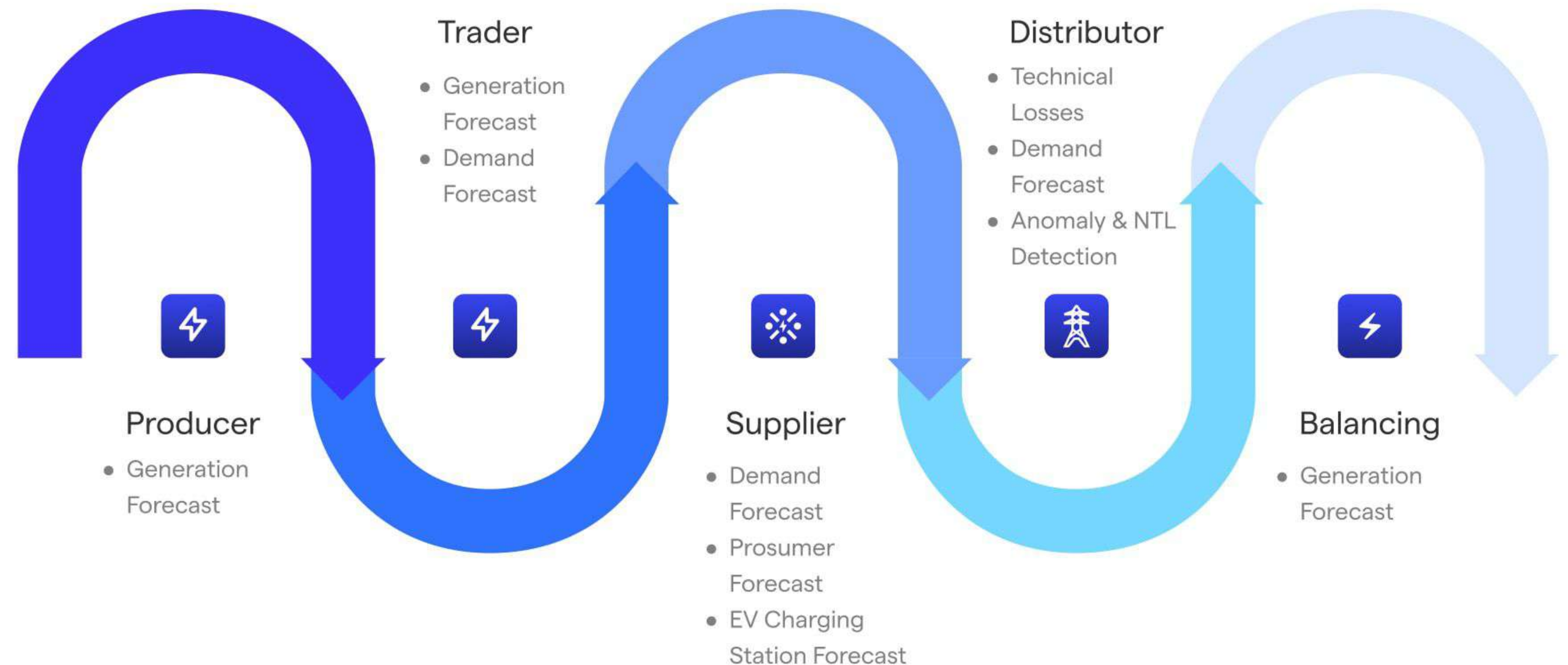
Our utilities industry and machine learning expertise can be leveraged to integrate complementary AI modules, seamlessly adapted to different domains or players and with a clear eye on scalability

Every module is a product in itself, and we are already selling and integrating them for some of the world leading utilities.

Ogre AI Energy Hub

Generation forecast

Demand forecast

Technical losses forecast

EV charging station forecast

Anomaly detection & NTL

Energy Hub

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Comprehensive Coverage: spanning the entire Energy Value Chain from Generation to Consumption

Producer
- Generation Forecast

Trader
- Generation Forecast
- Demand Forecast

Supplier
- Demand Forecast
- Prosumer Forecast
- EV Charging Station Forecast

Distributor
- Technical Losses
- Demand Forecast
- Anomaly & NTL Detection

Balancing
- Generation Forecast

Generation Forecast Module

Introducing the next generation in renewable energy forecasting: an AI powered solution that leverages advanced machine learning algorithms to accurately predict energy generation from renewable sources

Our innovative solution uses real-time data from weather sensors, satelite imagery, and other sources to deliver highly accurate forecasts, allowing energy providers to optimize their operations and reduce costs. It also makes use of our proprietary weather model.

Assets

No	Type	Name	Country	Location	Total capacity	Latest forecasts	Status	Expiry date	Accuracy	Actions
01	☀	CEF OGRE 1	AU	Arad	6.3 MW		Active	-	99%	...
02	☀	CEF OGRE 1	AU	Arad	6.3 MW		Active	-	99%	...
03	☀	CEF OGRE 1	AU	Arad	6.3 MW		Active	-	99%	...
04	☀	CEF OGRE 1	AU	Arad	6.3 MW		Active	-	99%	...
05	☀	CEF OGRE 1	AU	Arad	6.3 MW		Active	-	99%	...
06	☀	CEF OGRE 1	AU	Arad	6.3 MW		Active	-	99%	...
07	☀	CEF OGRE 1	AU	Arad	6.3 MW		Active	-	99%	...
08	☀	CEF OGRE 1	AU	Arad	6.3 MW		Active	-	99%	...
09	☀	CEF OGRE 1	AU	Arad	6.3 MW		Active	-	99%	...
10	☀	CEF OGRE 1	AU	Arad	6.3 MW		Active	-	99%	...
11	☀	CEF OGRE 1	AU	Arad	6.3 MW		Active	-	99%	...

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Generation Forecast Module

Features

- Real-time data processing
- Accurate forecasts
- Data visualization
- Integration with existing systems
- Cybersecurity
- User-friendly interface
- Virtual Power Plants
- Scalability
- Continuous improvement

Benefits

Improved grid integration

Enable renewable energy assets to integrate more smoothly into the grid, providing operators with reliable information on expected energy production.

Boosted storage management

More efficient usage of storage by determining the best times to store energy or release it back into the grid.

Reduced operational & balancing costs

and ancillary services, as well as decreased imbalances due to forecast accuracy.

Maximized energy production

Helps operators predict the optimal times for energy production & allows for the adjustment of operations to maximize output during peak price periods, increasing revenue.

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CEZ GROUP

Background

The leading producer was in need of a more efficient solution to improve the forecasting results for its 600 MW wind farm

Challenge

The geography and size of the wind farm as well as the local grid limitations brought great difficulties in predicting power output

Solution

We implemented our generation forecast solution together with the Ogre reporting tool.

Our partner now has access to leading real time forecasting as well as an easy to use reporting tool.

Results

17% Forecast error reduction

5-12% NMAE 15 mins

3-5% NMAE monthly

Testimonial

"I am incredibly impressed with the AI solution used for our 600 MW wind farm operations.

Its accurate forecasts have optimized our resource planning and generated significant financial gains, making it an invaluable tool for our company."

Ondrej Safar
CEO

Demand Forecast Module

This module supports energy market operators to accurately forecast Demand / Load and provides built in reporting support

Our solution leverages advanced analytics, AI, and machine learning to provide precise energy demand forecasts. By analyzing historical data and incorporating real-time inputs, we empower utilities to optimize their operations and reduce costs

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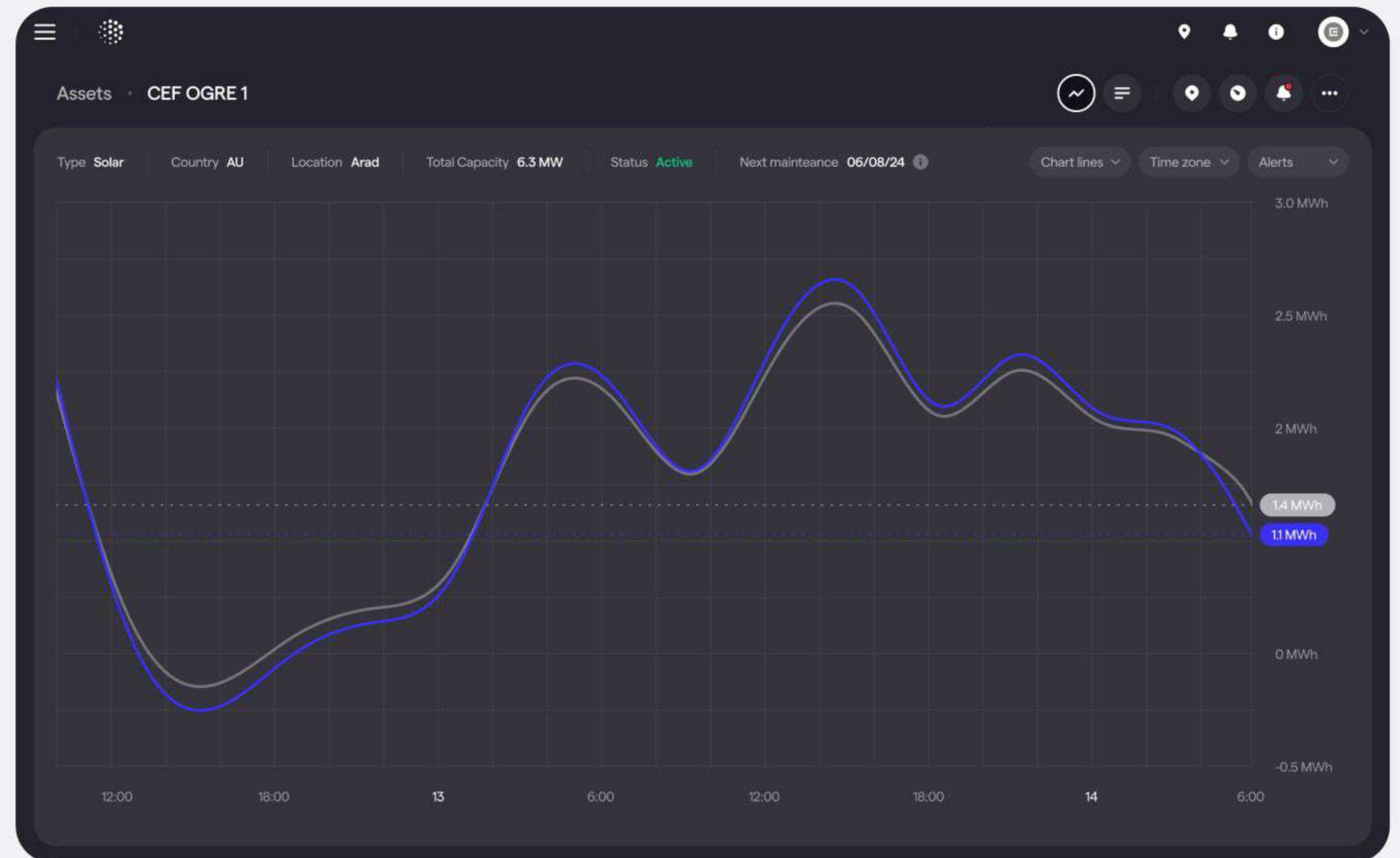
Demand Forecast Module

Features

- Reporting
- Weather, economic & social data integration
- Consumers, Clusters, Segments forecasting
- Advanced AI algorithms
- Historical Data visualization
- Performance tracking & Forecast accuracy metrics
- Role-based access control
- Notifications & Alerts
- Continuous Learning
- Prosumer Integration

Benefits

Enhanced economic efficiency

Allows for more strategic energy purchasing decisions while suppliers can buy energy at the most favourable prices and optimize their portfolios.

Facilitation of RES adoption

Operators can better manage the variability associated with renewable energy generation, ensuring that the grid can accommodate these sources without compromising reliability.

Enhanced consumer service

Allows for tailored demand response programs and improved customer satisfaction with cost-effective services

Accurate demand predictions

Our proprietary AI algorithms offer precise predictions of energy demand.

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Background

The supplier needed a forecasting solution for accurately predicting the consumption of its 3.4M consumers in order to reduce balancing costs and boost profitability

Challenge

We were faced with a very limited implementation duration for our project, due to extremely complicated local market conditions - Ukraine war at the border and unfavourable regulations

Solution

For this supplier we have implemented our full stack solution composed of the data integrations and data management modules, our leading AI forecast engine and the Ogre reporting tool.

The full solution for 3.4M consumers was implemented in just a few months, within our partner's Azure cloud infrastructure system.

Results

26% Forecast error reduction

2-6% MAPE 15 mins

1-2% MAPE monthly

Testimonial

"The AI-driven solution we adopted to address profit margin problems has been transformative for our energy company.

The impressive efficiency gains and heightened sustainability practices have placed us at the forefront of innovation."

Claudia Griech
CEO

Technical Losses Forecast Module

This module forecasts technical losses with high precision, considering factors like load flow, network configuration, and equipment efficiency

This module is designed to accurately predict and analyze energy losses in the distribution and transmission network. It provides energy companies with actionable insights to reduce the associated balancing costs and improve overall energy management practices.

Assets · CEF OGRE 1

No	Date	Time	P10 (MWh)	P25 (MWh)	P50 (MWh)	P75 (MWh)	P75 (MWh)
01	31.08.2023	03:00	0	0	0	0	0
01	31.08.2023	03:00	0	0	0	0	0
01	31.08.2023	03:00	0	0	0	0	0
01	31.08.2023	03:00	0	0	0	0	0
01	31.08.2023	03:00	0	0	0	0	0
01	31.08.2023	03:00	0	0	0	0	0
01	31.08.2023	03:00	0	0	0	0	0
01	31.08.2023	03:00	0	0	0	0	0
01	31.08.2023	03:00	0	0	0	0	0
Total	All	All	Total (MWh) 91.349	Total (MWh) 91.349	Total (MWh) 91.349	Total (MWh) 91.349	Total (MWh) 91.349

Technical Losses Forecast Module

Features

- Accurate forecasting
- Historical consumption data visualization
- Weather integration
- Advanced Machine Learning Algorithms
- Forecast accuracy metrics
- Personalized reporting
- Role-based access control
- Notifications & Alerts
- Continuous Learning

Benefits

Improved financial performance

Less energy needs to be purchased or generated to meet customer demand, directly reducing the cost of energy procurement.

Improved Grid Reliability

Reducing technical losses contributes to the overall reliability of the power supply.

Boosted quality of service

Contributes to the overall reliability of the power supply and helps mitigate scenarios that lead to significant losses.

RES integration support

Enable DSOs and TSOs to better predict and manage losses, facilitating the integration of renewables into the grid.

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Background

The client was in urgent need of a forecasting solution to reduce losses from operating the service in its 3 local DSOs. High price volatility as well as high balancing costs affected the business greatly.

Challenge

Historical data problems due to the Covid pandemic and war in Ukraine made it difficult to reach the project KPIs.

Solution

The three DSOs received our demand forecast and technical losses forecast solutions, together with a customized reporting platform built in Tableau.

Results

36%
Forecast error reduction

3-7% MAPE 15 mins

1-2% MAPE monthly

Testimonial

"As CEO of a very large DSO, I can attest that the AI application we implemented for reducing technical losses has revolutionized our operations.

Our efficiency has skyrocketed, and we are now leading the way in sustainable energy management."

Monica Hodor
CEO E-Distribuție

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Transelectrica®

Background

Transelectrica wanted to improve its forecasting capabilities for demand and technical losses in order to decrease balancing costs and energy waste. The company was facing great financial losses and risk due to the challenges in energy balancing, increased number of prosumers and a much greater adoption of renewables.

Challenge

Limited data automation and availability for data analytics readiness as well as high operational complexity during shifting regulations. We had to implement a comprehensive data science and management activity in order to have the building blocks for our cutting-edge tech.

Solution

The TSO implemented our demand and technical losses forecast solutions, together with a highly customized reporting tool. The solution greatly improved forecasting accuracy and helped the operator in both reducing operational costs as well as balancing related penalty costs.

Results

25% Forecast error reduction

4-7% MAPE 15 mins

1-2% MAPE monthly

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Anomaly Detection & NTL Forecast Module

This module uses AI to detect abnormal patterns within historical and real time consumption data to inform and deploy the workforce in an intelligent way

Our solution tackles non-technical losses head-on, reducing revenue leakage and boosting recovery rate, while also improving operational efficiency and enhancing customer satisfaction
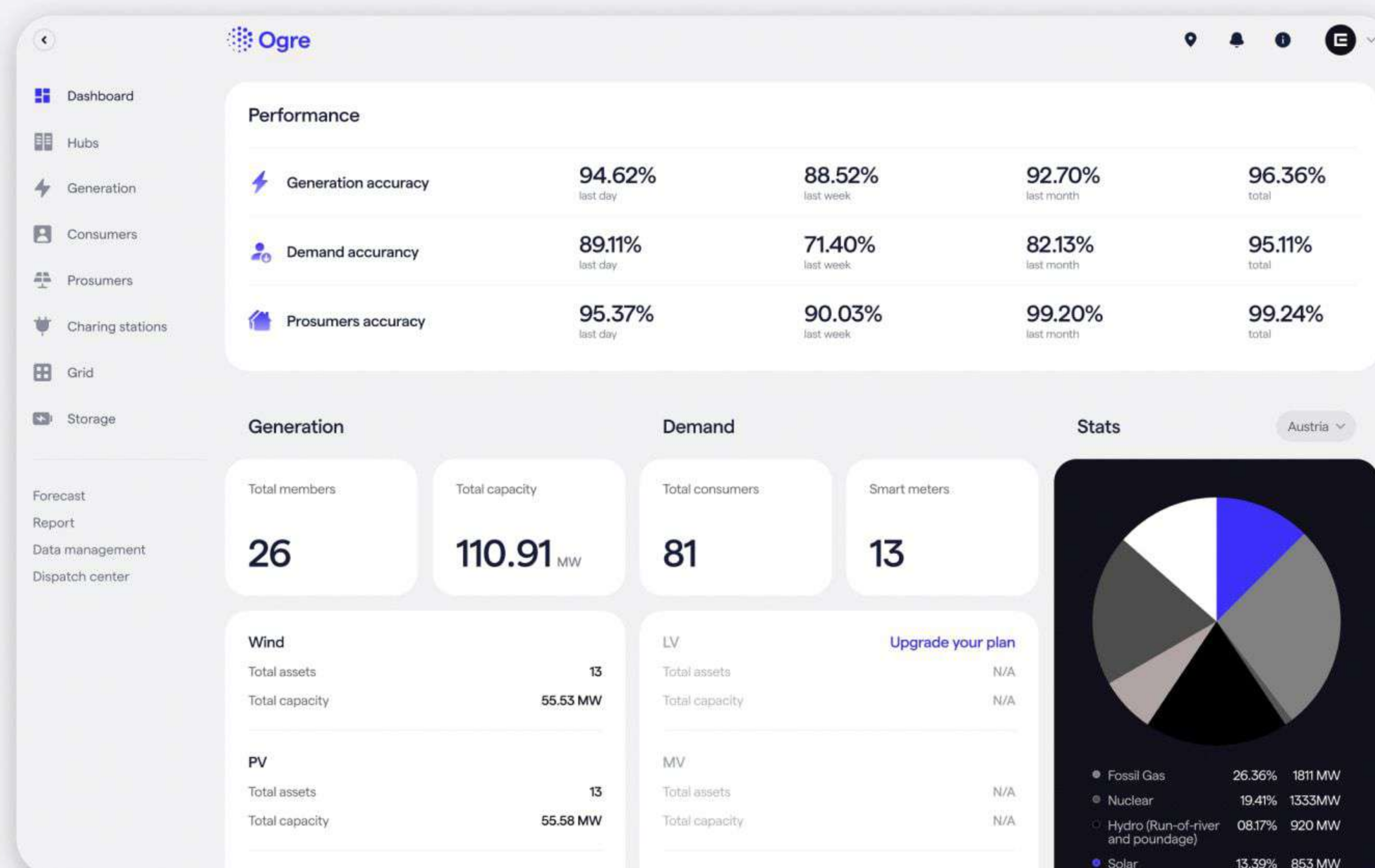
Anomaly Detection & NTL Forecast Module
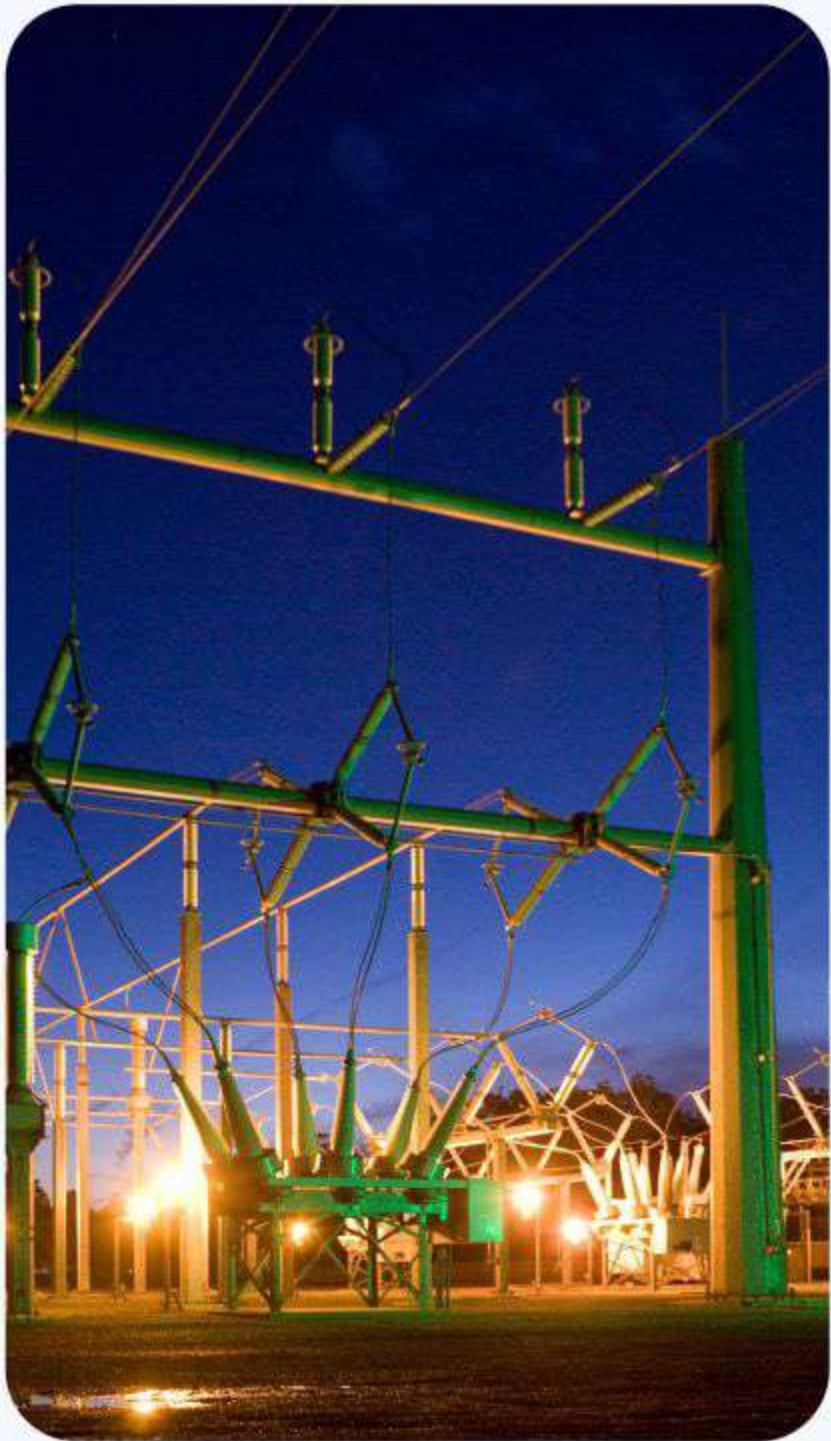
Features

- Reporting
- Automatic detection of NTL events
- Weather, economic & social data integration
- Historical Data visualization
- Advanced AI algorithms
- Workforce development signals
- Role-based access control
- Notifications & Alerts
- Continuous Learning

Benefits

Boosted grid stability

Enable predictive maintenance strategies by identifying equipment showing signs of wear or malfunction.

Increased safety and security

Prevents situations that may pose safety risks, such as equipment overloads or failures leading to fires or other hazards.

Automated monitoring

Automates the monitoring of vast amounts of grid data, significantly reducing the manual effort required and allowing for real-time anomaly detection across the grid.

Early detection of faults

Operators can take preventive action, reducing downtime and maintaining a stable supply of electricity to consumers.

DELGAZ grid

Background

The distributor needed a solution to fully automate anomaly detection in the grid and to improve the consumption anomaly detection capabilities for the 54 SRMs along the whole distribution network.

Challenge

We were faced with incomplete non real-time data as well as a great variability in the patters. On top of that, the aging infrastructure had leaks and made it difficult to both identify anomalies as well as verifying the output of our solution.

Solution

We implemented our full blown tool for anomaly detection and used four main methodologies for detection including change point detection and clustering and unsupervised learning.

We also implemented our kanban workforce management module and automated alarms and checks for anomalies with high probabilities of occurrence.

Results

87% Detection Accuracy

145% Detection Boost

450% Faster Workforce deployment

EV Charging Stations Forecast Module

Introducing a sophisticated AI solution that forecasts and integrates EV charging stations networks with high accuracy

Our EV Charging Stations Consumption Forecasting Model is a state-of-the-art solution designed to predict the electricity consumption of EV charging stations across various scales and locations. It enables operators to efficiently manage energy resources, ensuring the reliable operation of the infrastructure
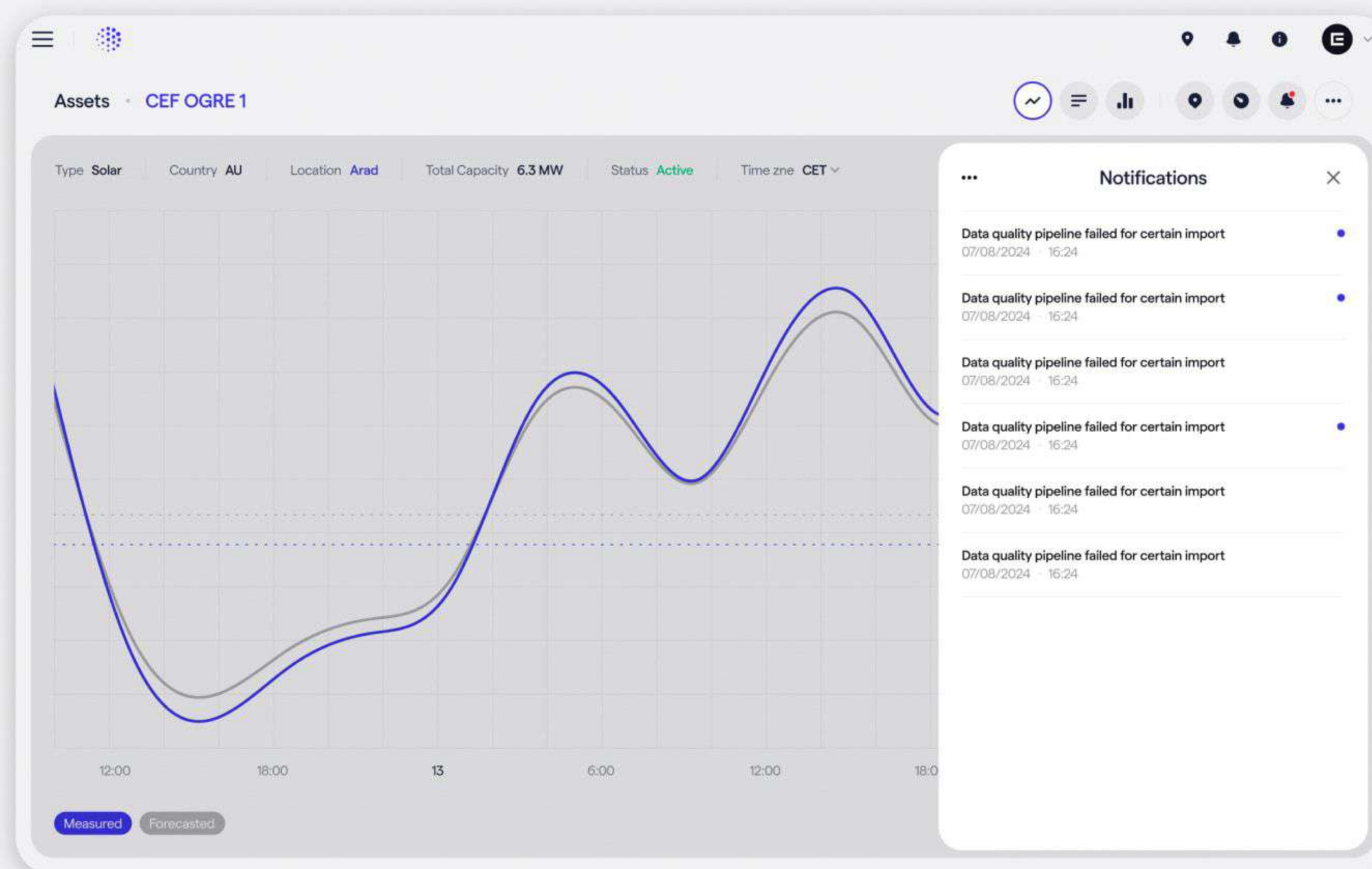
EV Charging Stations Forecast Module

Features

- Real-time forecasting
- Accuracy reporting
- Forecasting at charging station and cluster level
- Interactive dashboard and map
- Cybersecurity
- Customizable notifications

Benefits

Improved Demand Forecast

Accurately predict peak demand periods for EV charging, enabling operators to manage electricity procurement more effectively.

Enhanced network management

Operators can optimize the utilization of their charging infrastructure, ensuring that chargers are adequately used without being overburdened.

Boosted cost savings

Helps reduce balancing costs associated with energy purchasing related to the EV stations network consumption.

Dynamic pricing

Operators can implement dynamic pricing strategies that encourage EV charging during off-peak hours, helping to balance the load on the electrical grid.

Verbund

Background

The operator needed a solution to fully automate the forecasting process and to increase the accuracy of the predictions for a network of 1000 EV charging stations.

Challenge

The difficulties of the project were related to the numerous charging stations from rural areas that had little usage and very limited historical data.

We also had challenges in terms of the varying data types - quality, format and granularity.

Solution

We made real time data connection to all of the stations and implemented our fully automated AiI forecast tool dedicated to EV charging stations operators - integrations, powerful AI forecast engine and reporting modules.

We also had to build sophisticated new AI models in order to better predict the demand at the stations and achieve the results desired by our partner.

Results

+60% Boosted accuracy

2-30% MAPE 15 mins   **1-15%** MAPE monthly

Testimonial

"Partnering with Ogre AI on demand forecasting for our EV charging network has been highly beneficial. Their technical expertise in data analysis and predictive modeling has led to more accurate forecasts and improved operational efficiency. Given the challenges of the energy transition, particularly the prediction of volatile renewable energies, Ogre AI is a valuable partner for integrating renewable energy and enhancing our energy management."

Franz Zöchbauer
Head of Corporate Innovation

Ogre Platform keeps cost at a minimum while still delivering results and optimal performance of our systems and machine learning proprietary models

High Level Architecture
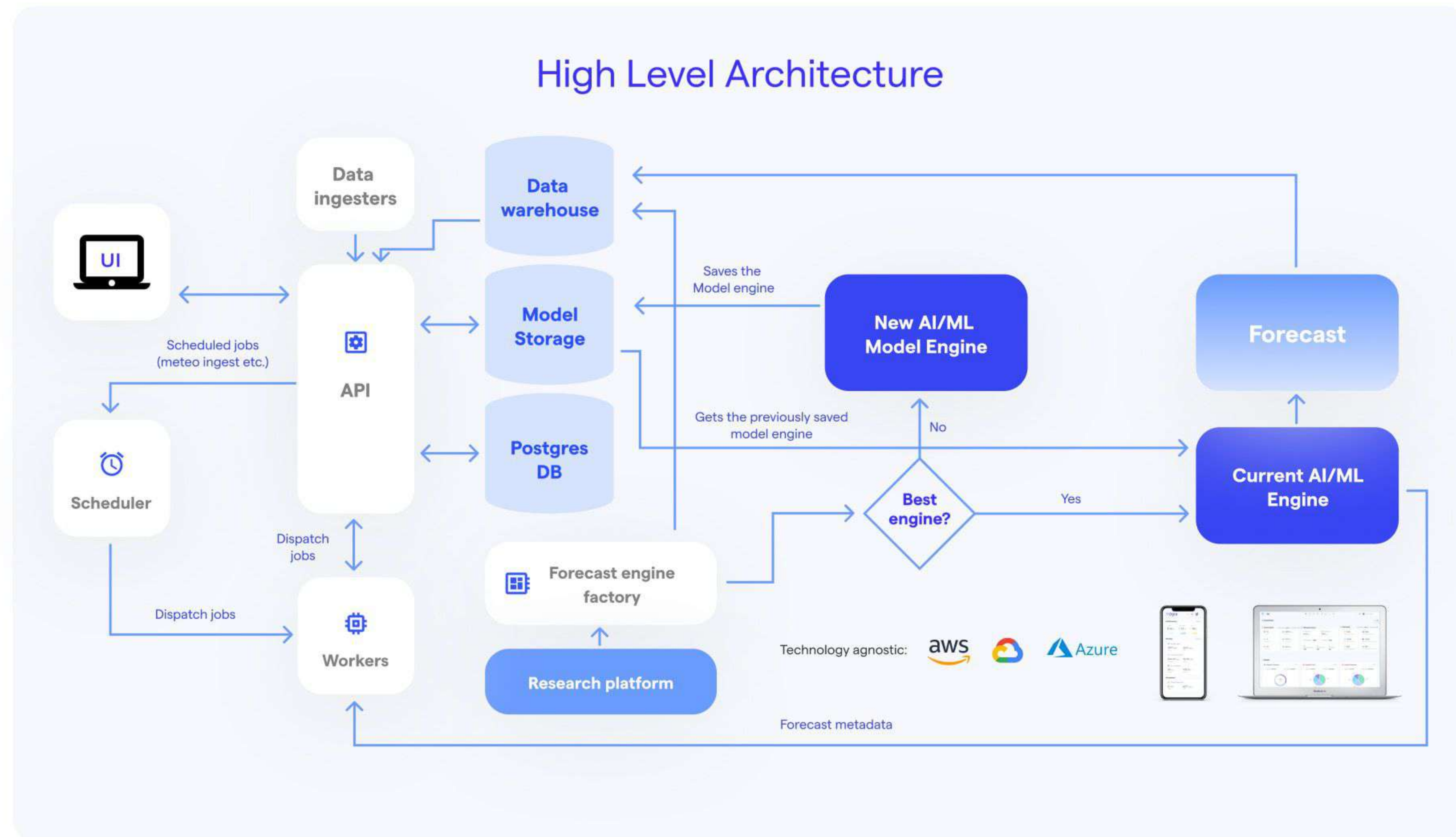
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Ogre Forecasting Engine is an assembly of individual smaller pieces, that can have various roles in the Forecasting Process

Data Set calibrators:

- Some data sets need specific calibration to incorporate client specific information.
- E.g calibrating the meteorological data for a specific geography terrain or equipment properties.

Data set ingestors:

- To make accurate forecasts, Ogre forecast engine needs relevant and comprehensive historical data.
- This data can be collected from several sources, such as databases, smart meters or consumption monitoring devices.

Forecast Algorithms:

- The core of the Ogre forecast engine
- Used to generate forecasts and predictions based on historical data.
- Various types: linear regression algorithms, machine learning algorithms or time series algorithms

Data processing:

- Data is processed in a format compatible with forecasting algorithms.
- This includes removing atypical or erroneous data, and/or performing other cleaning and processing operations. Automated processing is essential.

Model Aggregators:

- Given a set of sub-engines compute an ensemble forecast by various methodologies, ranging from simple model stacking to more complex aggregation neuronal networks.
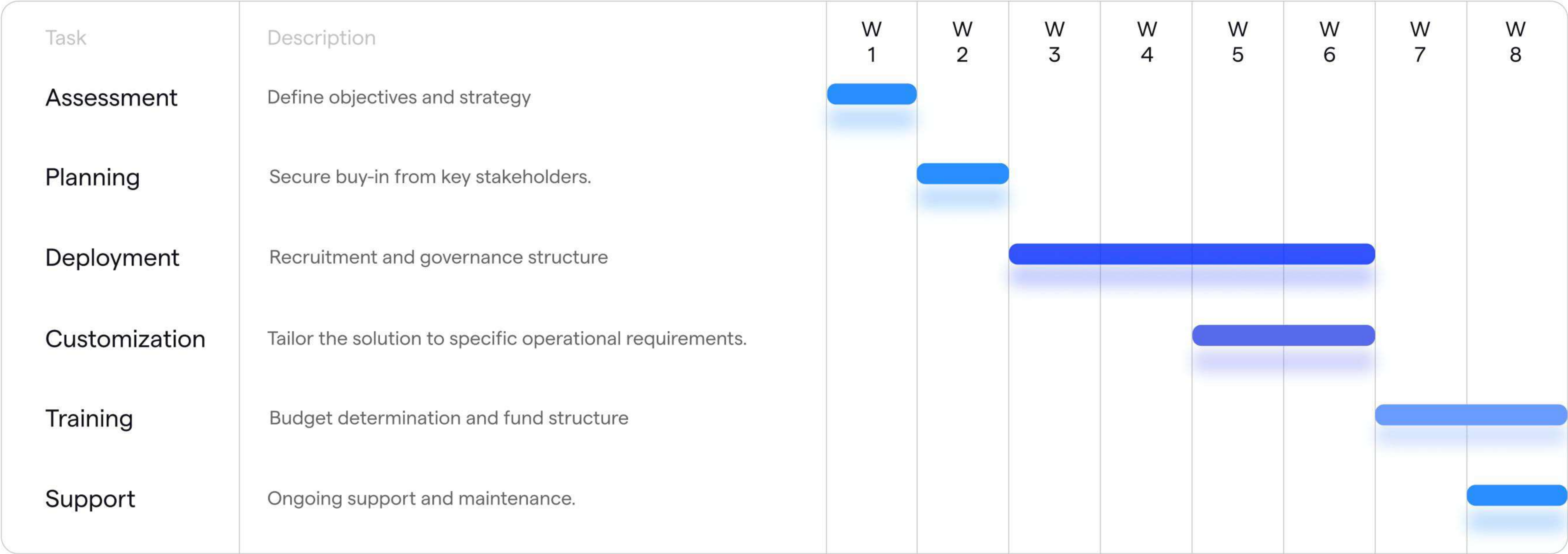
Forecast Transformations:

- Smoothing, regularizations and other transformations of the forecasting time-series to respect given constraints that are imposed by client specifications and technical knowledge.

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Task	Description	W 1	W 2	W 3	W 4	W 5	W 6	W 7	W 8
Assessment	Define objectives and strategy	███							
Planning	Secure buy-in from key stakeholders.		███						
Deployment	Recruitment and governance structure			████████████████				
Customization	Tailor the solution to specific operational requirements.					██████			
Training	Budget determination and fund structure							██████	
Support	Ongoing support and maintenance.								███

Business Model Overview - from Pilot stage to Yearly license

Test

Pilot program

Limited to 1-3 months

Ogre solution

Yearly Subscription

- Unlimited usage
- One time payment for integration
- Monthly / Yearly / Multi-Year Payments

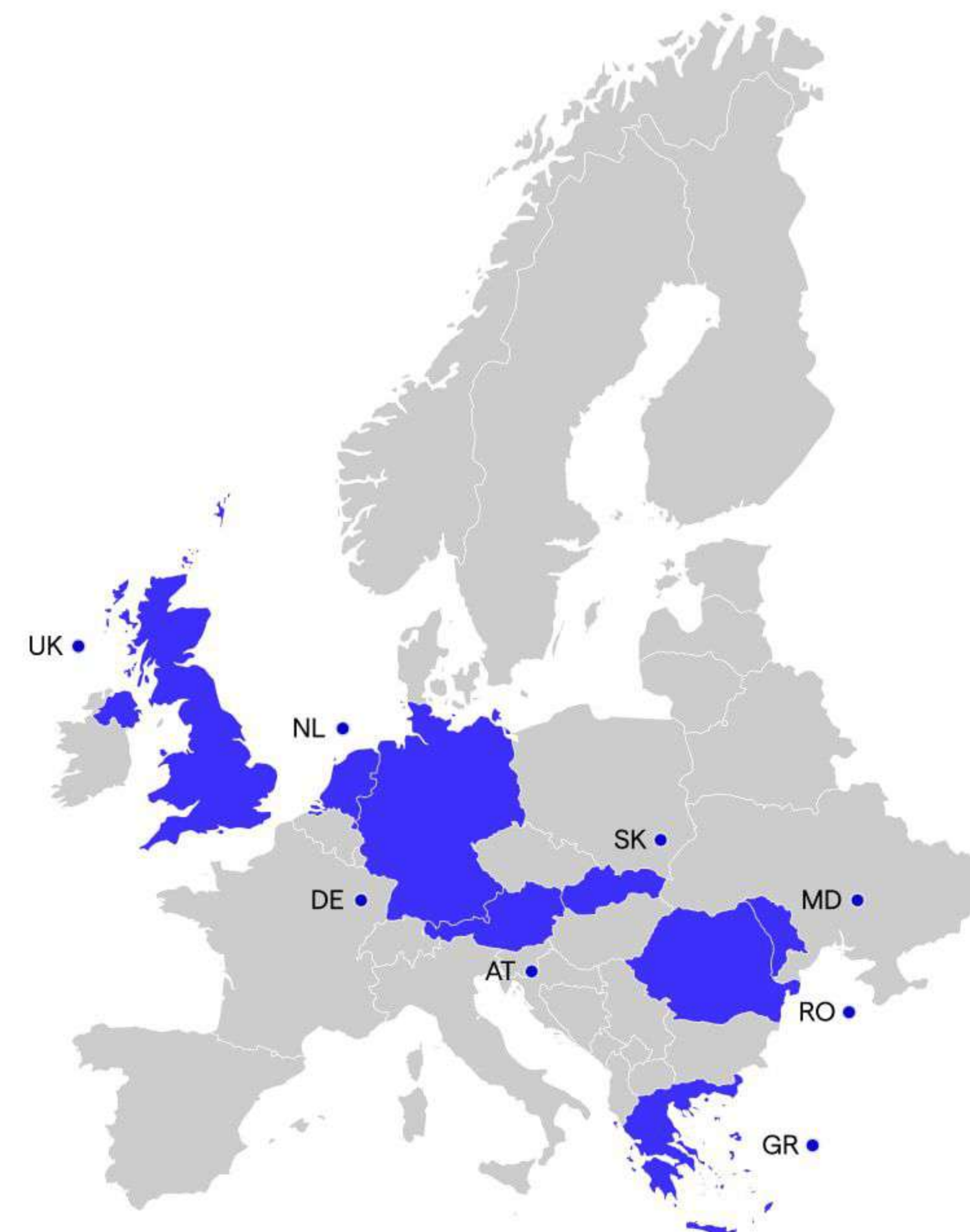Flexible pricing

Opex vs. Capex

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We have a presence in several European markets

Providing accurate forecasting for energy companies in the UK, Netherlands, Germany, Austria, Greece, Romania, Slovakia, Moldova

UK
NL
SK
DE
MD
AT
RO
GR

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We have all the relevant ISO certifications

45001

Certificate S-MC
nr. 2906, SR EN
ISO 45001:2018

27001

Certificate SI-MC
nr. 1103, SR EN ISO
27001:2018

14001

Certificate M-MC
nr. 3517, SR EN ISO
14001:2015

9001

Certificate C-MC
nr. 3286, SR EN ISO
9001:2015

37001

Certificate
SR EN
ISO 37001:2016

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The AI platform for
energy management

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