Ogre

Cutting-edge AI forecasting platform

Boosting the energy transition

Ogre

Market Challenges

Challenges Faced by Energy Operators

01 **Energy Transition**

02 **Short term variability and ramp events**

03 **Forecast horizon challenges**

04 **RES adoption**

05 **Data Quality and Availability**

06 **Real-Time Data Processing**

EV adoption

Market Regulations

Balancing market penalties

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Company

Ogre is a technology company specialized in Forecasting for Utility Companies

Mission

Revolutionize the energy sector with cutting-edge AI forecasting 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 forecasting. 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.

Values

- Innovation
- Integrity
- Sustainability
- Collaboration
- Meritocracy
- Customer-Centricity

- Founded in 2021
- Bucharest & London
- First Financing Round 2022
- 14 FTEs
- 6 Solutions for Utility Sector

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.

Distinguished Talent Pool

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.

Established Industry Knowledge

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.

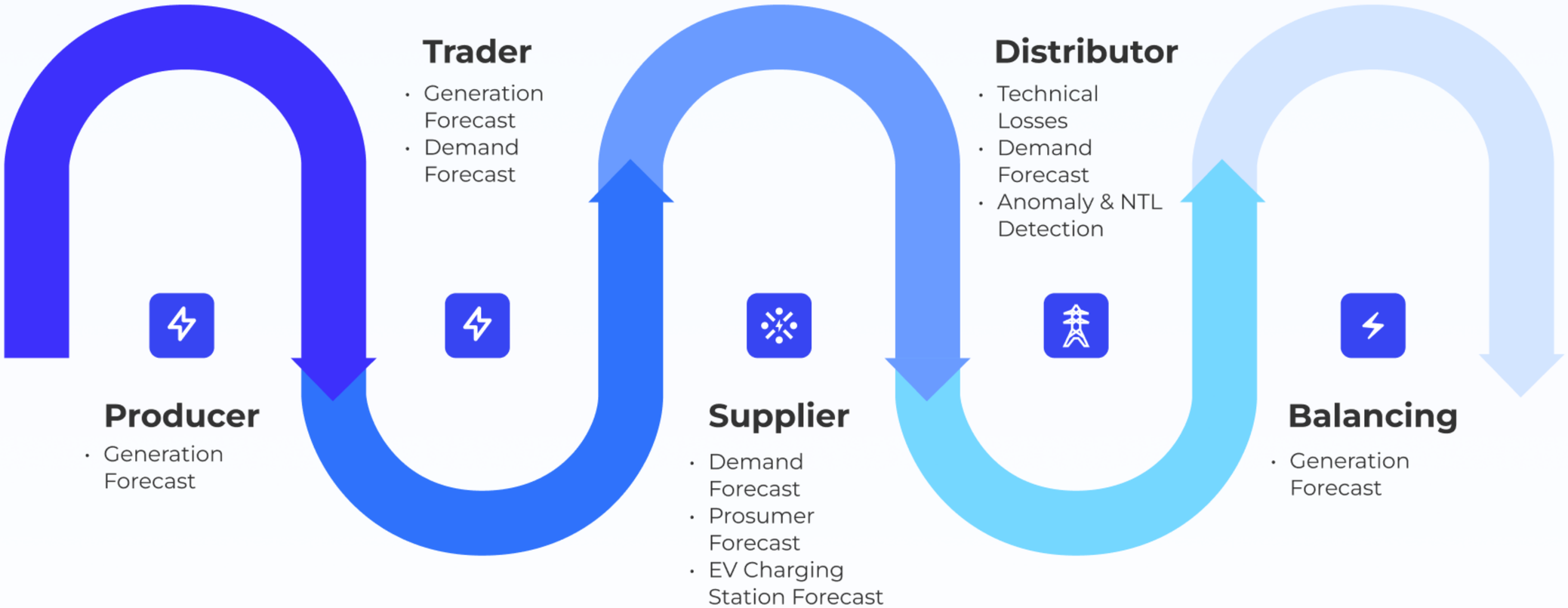
Advanced Forecast Technology

Data Proficiency

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

Data Mastery & Integration

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



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Ogre Solutions

Our integrated platform offers a diverse range of AI modules, uniquely tailored for the needs of our valued partners

Generation forecast

Demand forecast

Anomaly detection & NTL

EV charging station forecast

Technical losses forecast

Prosumers forecast

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.

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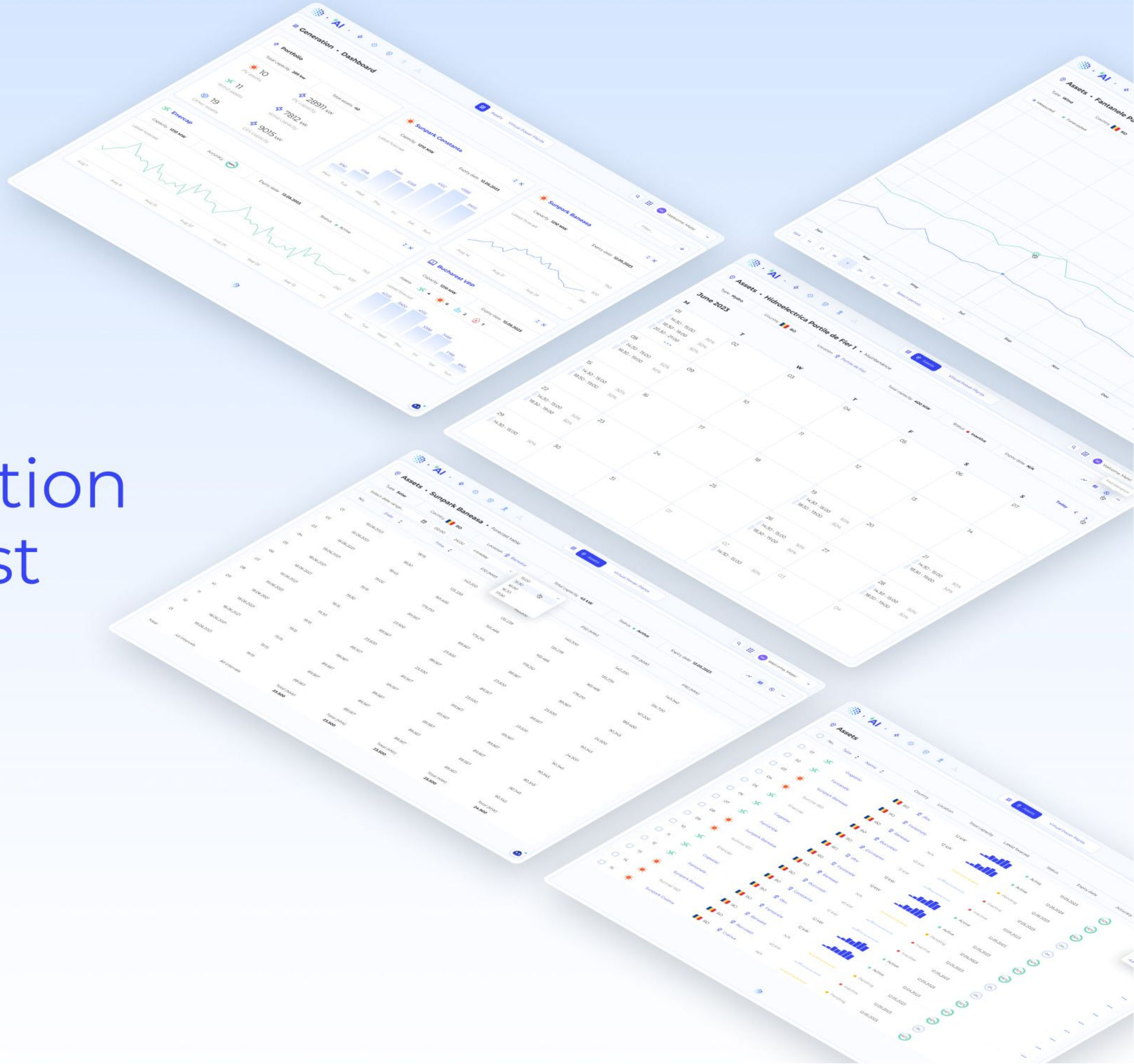
Generation Forecast



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Ogre Solutions

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.

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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Ogre Solutions

Generation Forecast Module Case Study

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

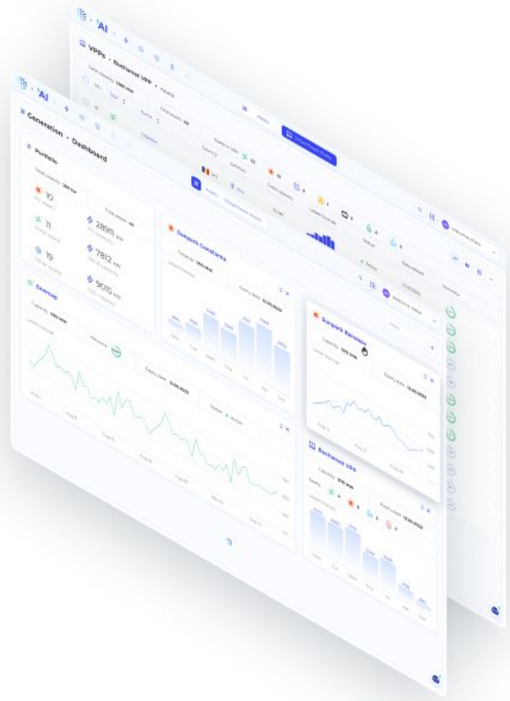
Challenge

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

3-5% NMAE monthly

5-12% NMAE 15 mins

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

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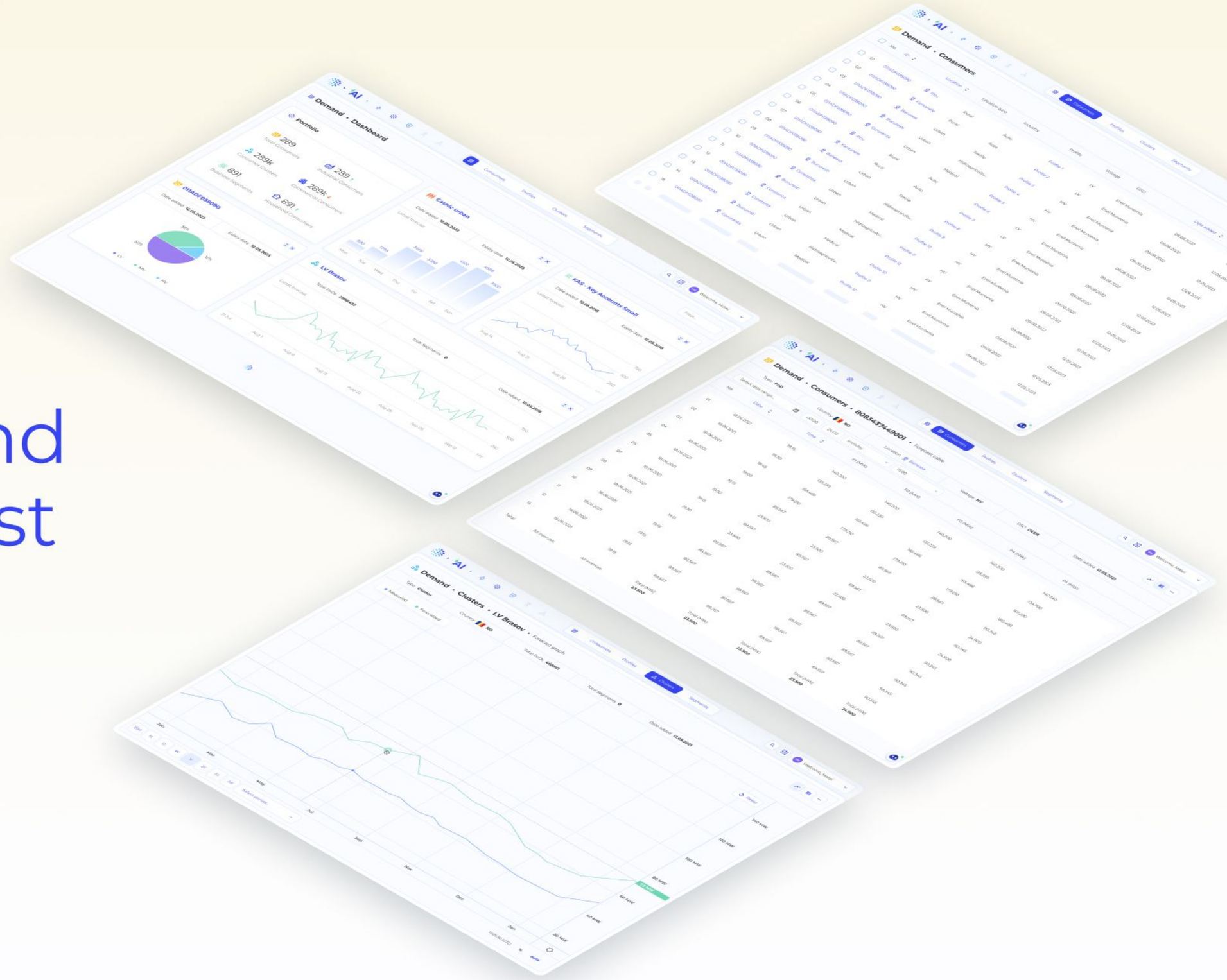
Demand Forecast



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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

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

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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Demand Forecast Module Case Study

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

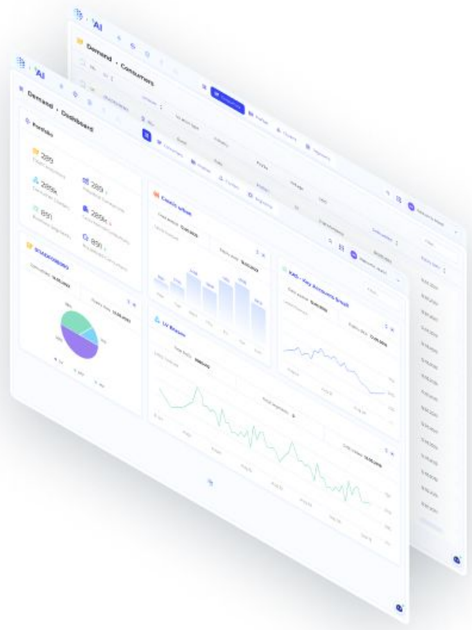
Challenge

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

1-2% MAPE monthly

2-6% MAPE 15 mins

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

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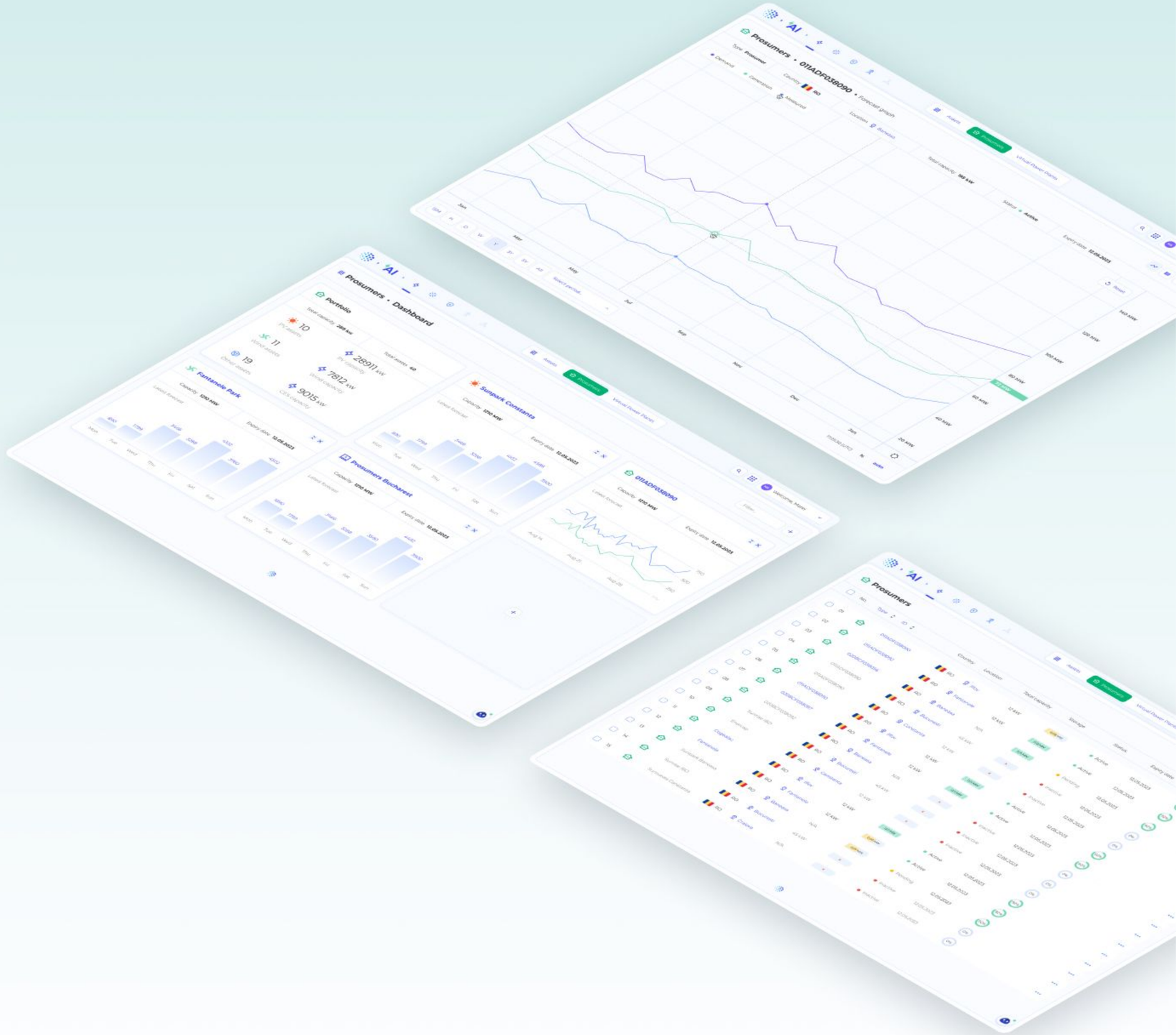
Prosumers Forecast



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Prosumers Forecast Module

Our platform offers a cutting-edge AI module that effortlessly forecasts and integrates prosumers into the consumption portfolios of energy suppliers

Our solution boasts leading predictive analytics and AI to anticipate the production and consumption patterns of prosumers and helps to smartly allocate resources when and where they are needed

Features

- Generation forecasting
- Historical data visualization
- Reporting
- Demand forecasting
- Access to prosumers realtime data
- Environmental impact metrics
- Prosumer integration in consumer portfolio
- Weather integration
- Continuous Learning

Benefits

Optimized energy trading & pricing strategies

Suppliers can implement more dynamic and flexible pricing models enhancing competitiveness and potentially increasing market share.

Reduced operational costs

Reduces the need for expensive peak generation resources by allowing suppliers to rely more on prosumer-generated energy during times of high demand.

Improved customer retention

Provides insights into prosumer behaviours & preferences, enabling energy suppliers to offer custom services, incentives, and tariffs

Enhanced grid management

Allows for more effective grid management, ensuring a balance between supply and demand.

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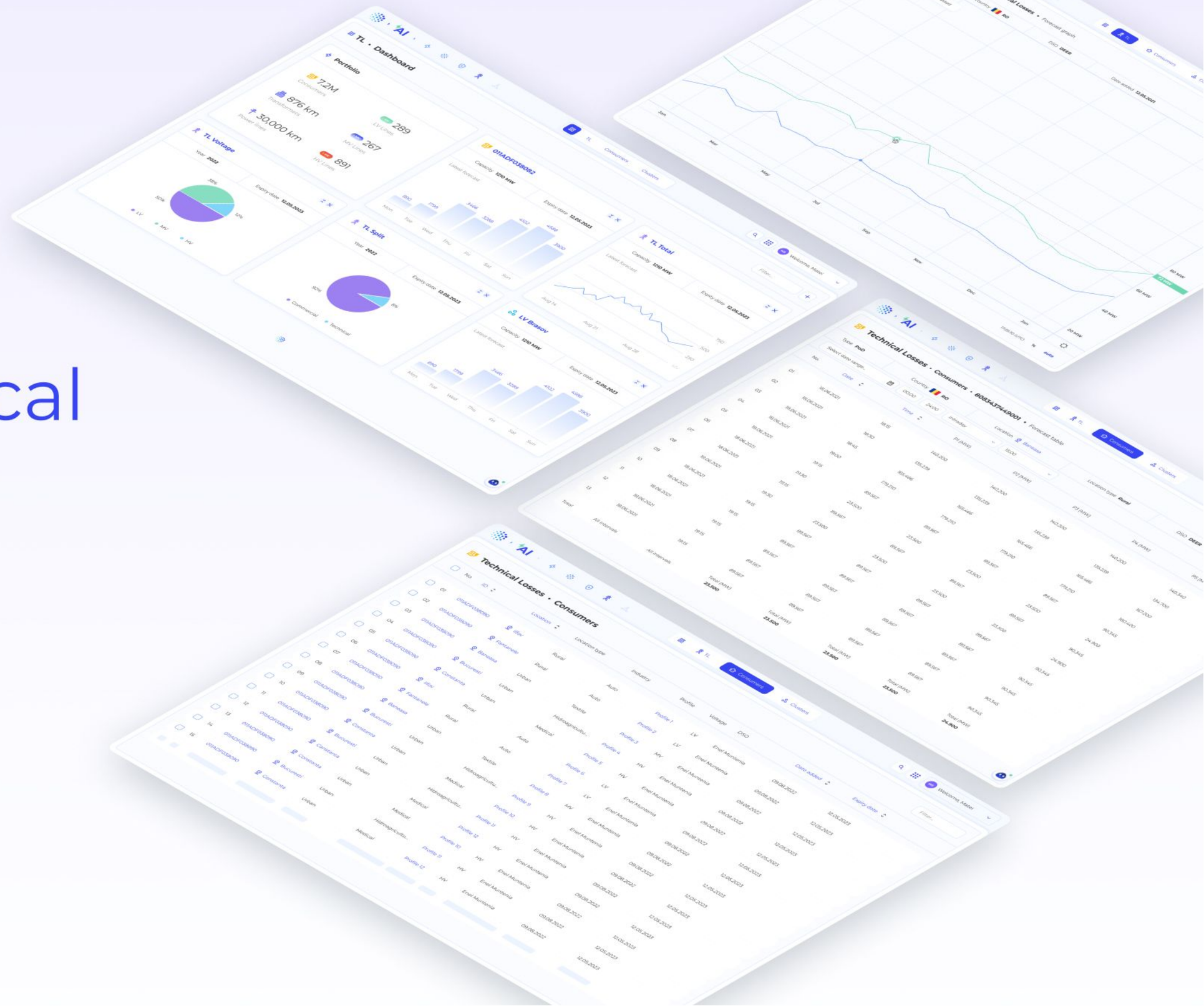
Technical Losses



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Technical Losses 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.

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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Technical Losses Module Case Study

Background

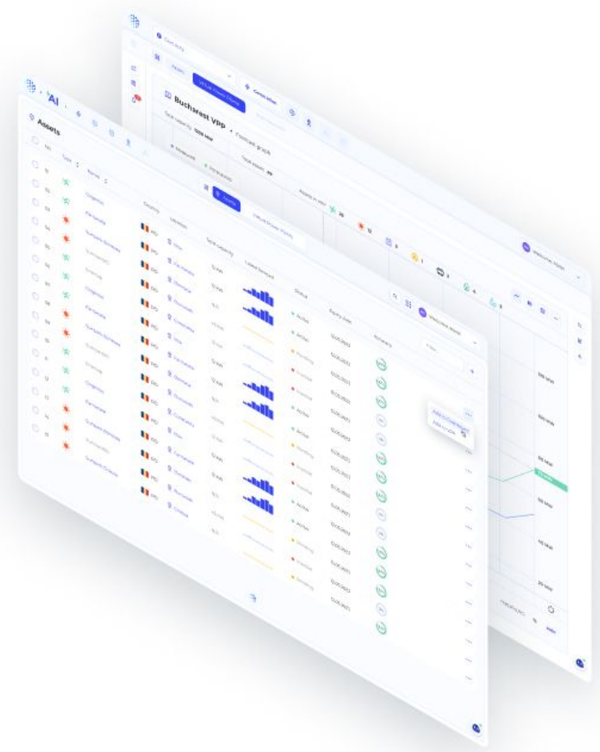
The client was in urgent need of a forecasting solution to reduce losses from operating the service in its 3 local DSOs. High price volatility as well as high balancing costs affected the business greatly.

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:

26% Forecast error reduction

1-2% MAPE monthly

3-7% MAPE 15 mins

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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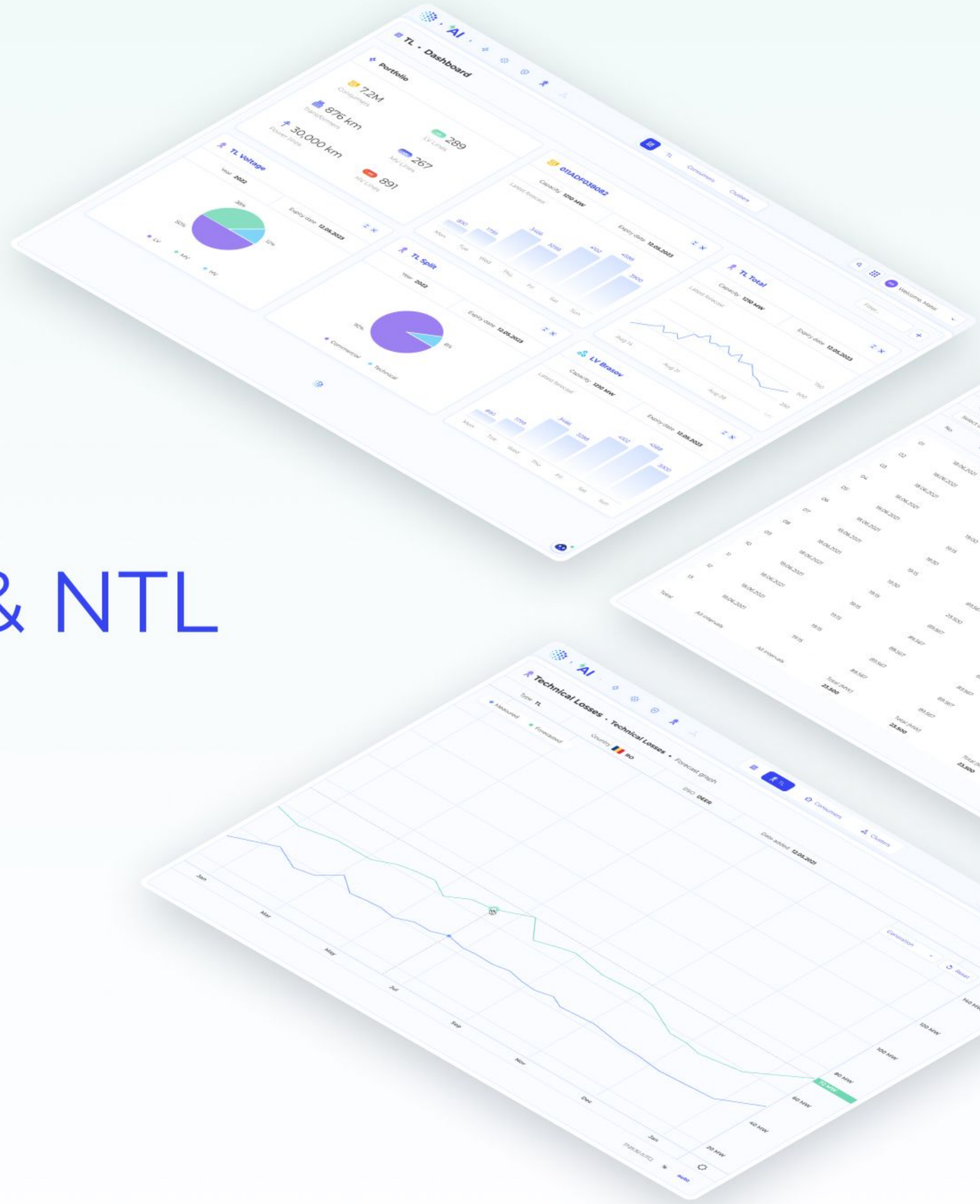
Anomaly Detection & NTL



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Anomaly Detection & Non-Technical Losses 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

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.

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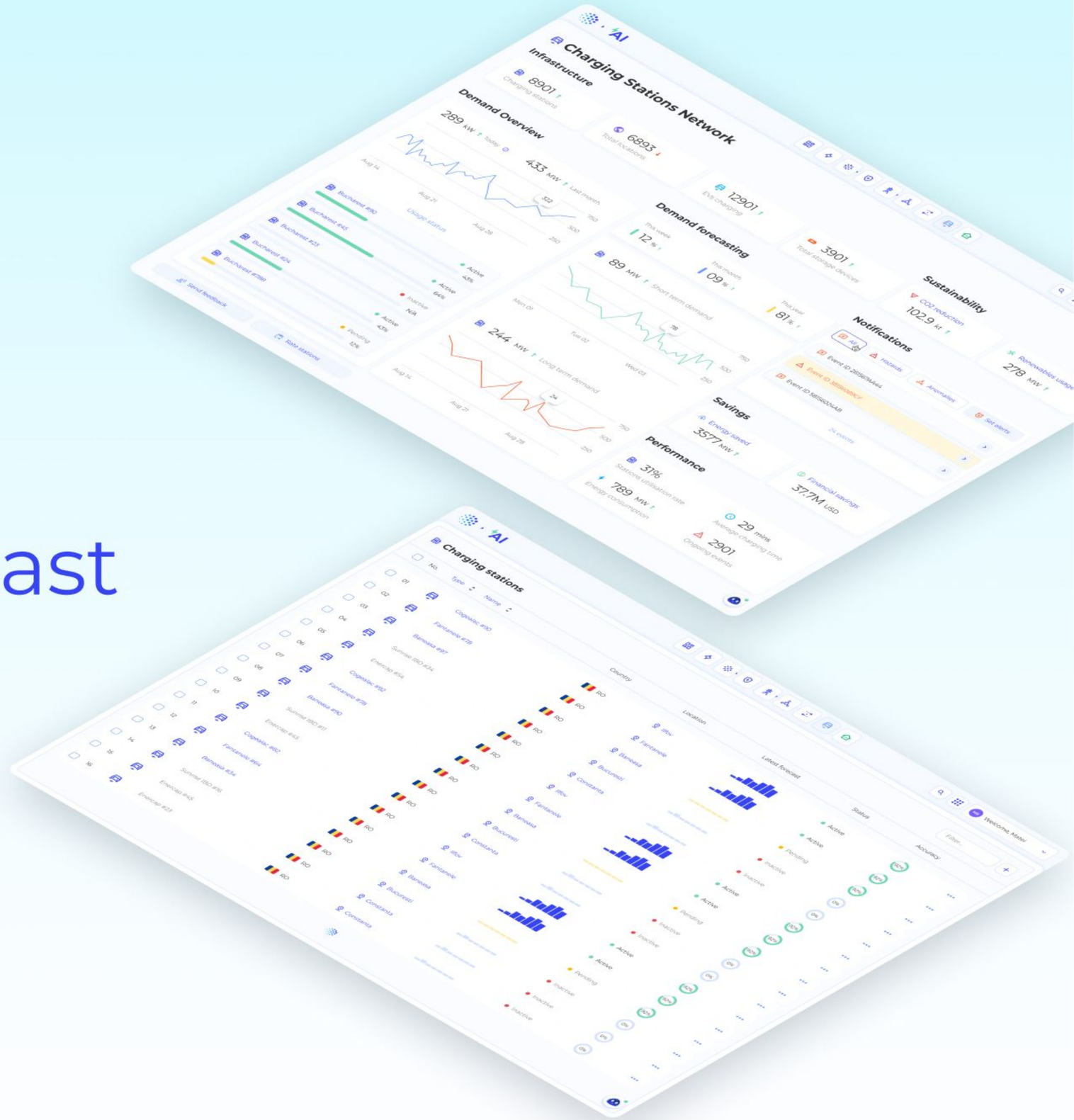
EV Charging Stations Forecast



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Ogre Solutions

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

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

Business Model

Business Model Overview – Monthly Subscription or Yearly License

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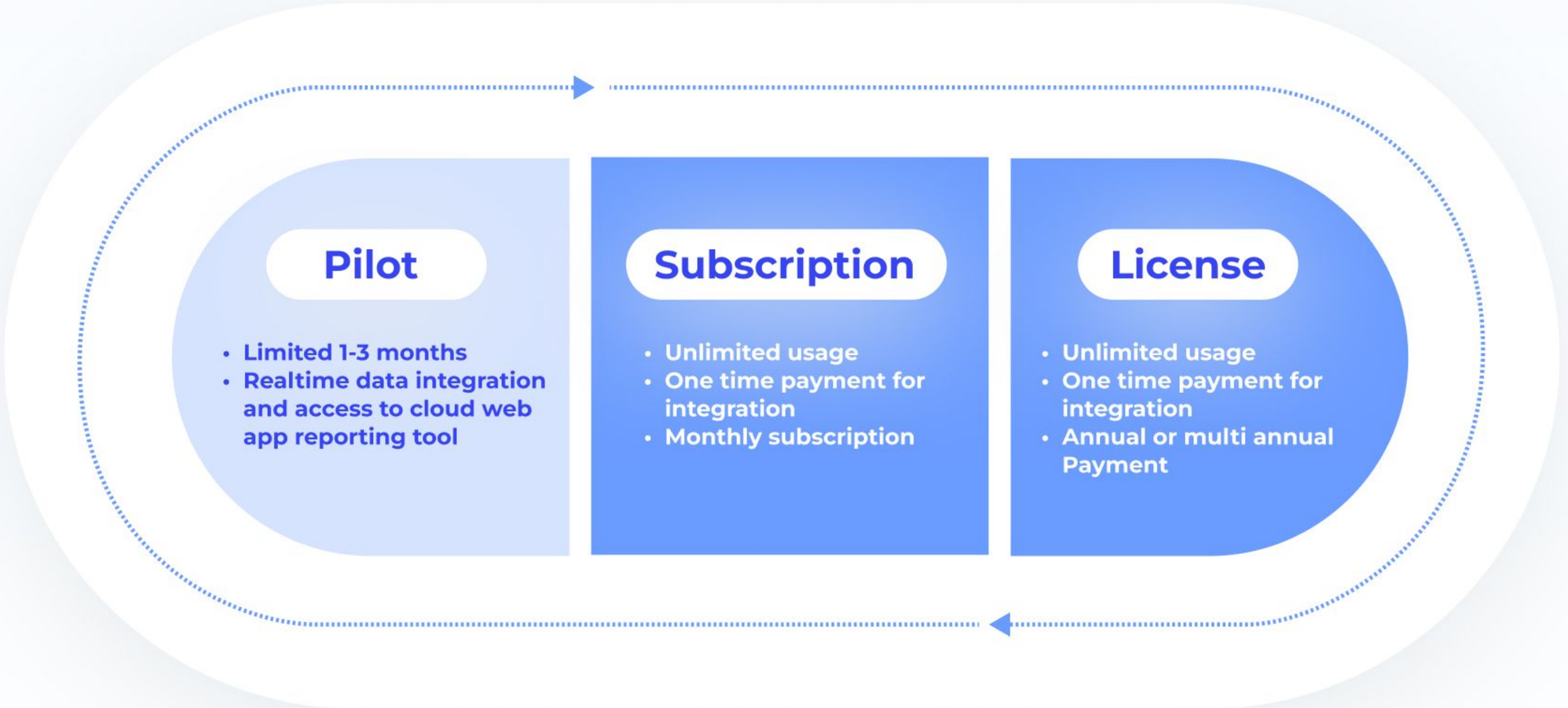

Ogre Forecast Engine

Ogre Forecasting Engine is an Assembly of Individual Smaller Pieces, that can have Various Roles in the Forecasting Process

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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 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.

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.

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 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,

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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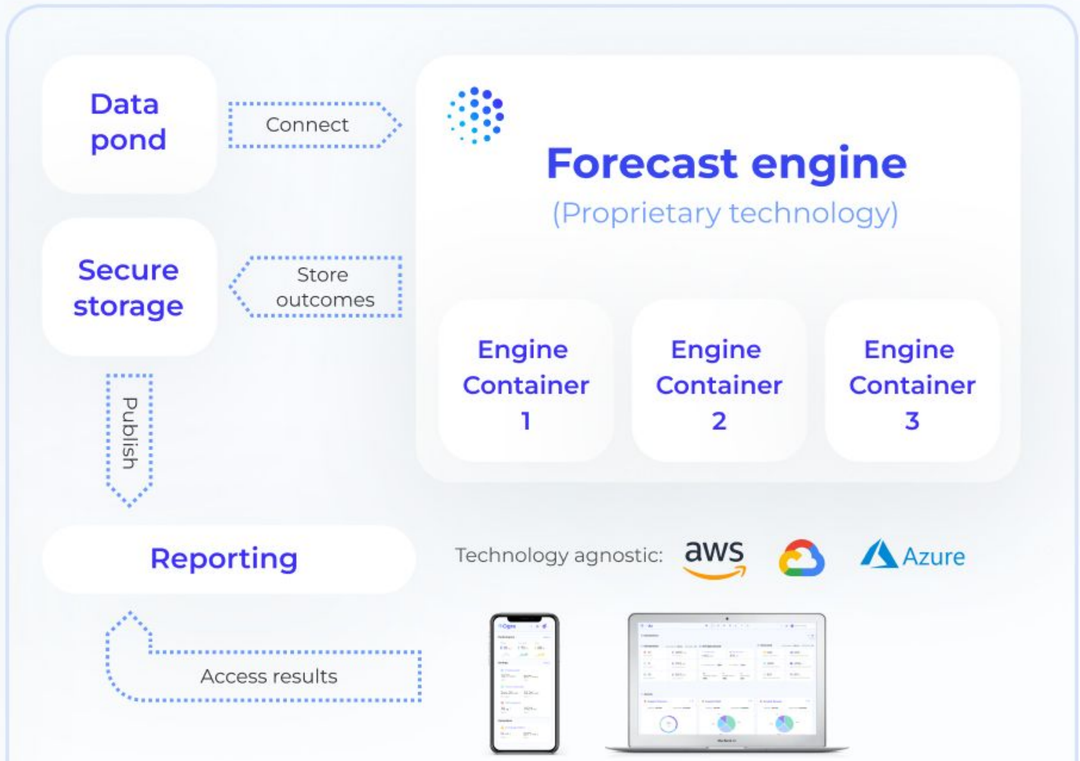
System Architecture

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

- Use internal and available technologies such as: Microsoft® Azure, Google Cloud Platform, AWS, or others for infrastructure & storage and suitable reporting systems that are suitable to each client such as Ogre, Power Bi, Tableau, etc. for reporting & bringing data to live.
- Carve any redundancy that may result from having two simultaneous solutions
- Provide a fully automated forecast solution with limited user interaction or required administration



Solution Implementation Process

At Ogre, we propose an agile project delivery method the following activities

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Implementation

Business Analysis
Define the business needs and identify the data available for ETL & reporting

Data Cleansing
Cleanse the data and prepare it for data marting and forecasting process.

Integrations & Data Mart
Integrations to our partners' desired infrastructure
Technology agnostic

Data Science
Develop state of the art custom AI models which address data quality limitations

Reporting/ UI
A web/internal portal can be built to serve the purpose of analysis and reporting

UAT & Training
Testing the solution and knowledge transfer to dedicated team

Service Agreement

Post-implementation

AI/ML updates

Maintenance

Support

Change Request Implementations

License Agreement - Annual billing cycles

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Credentials

We have built strong credentials with major players in the Utility industry

	enel	Distribuție Energie Electrică Romania	ENGIE
DELGAZ grid	ΔEH	HERON	DISTRIGAZ SUD REȚELE
e·on	PREMIER ENERGY	DISTRIBUȚIE OLTENIA	Verbund

Ogre

The AI platform for energy management

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