CELEBAL TECHNOLOGIES

Hourly Energy Matching & Allocation

Microsoft Solutions Partner

Infrastructure (Azure)
Data & AI (Azure)
Digital & App Innovation (Azure)
Security
Biz Applications

Celebal Specialization and Strength

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Microsoft
AI Partner Of The Year 2023
Global

databricks
Partner Of The Year 2022 & 2023
Asia Pacific and Japan
2 YEARS IN A ROW

databricks
Migrations Partner Of The Year 2023
Asia Pacific and Japan

Partnerships

Microsoft Solutions Partner

databricks Elite Partner

SAP Silver Partner

Red Hat Ready Business Partner

Advanced Specialization

- AI & Machine Learning
- Analytics
- Infra and Database Migration
- Kubernetes
- Cloud Security
- Low Code No Code
- Intelligent Automation

INDIA | USA | CANADA | APJ | MIDDLE EAST | AUS

2800+ Employees

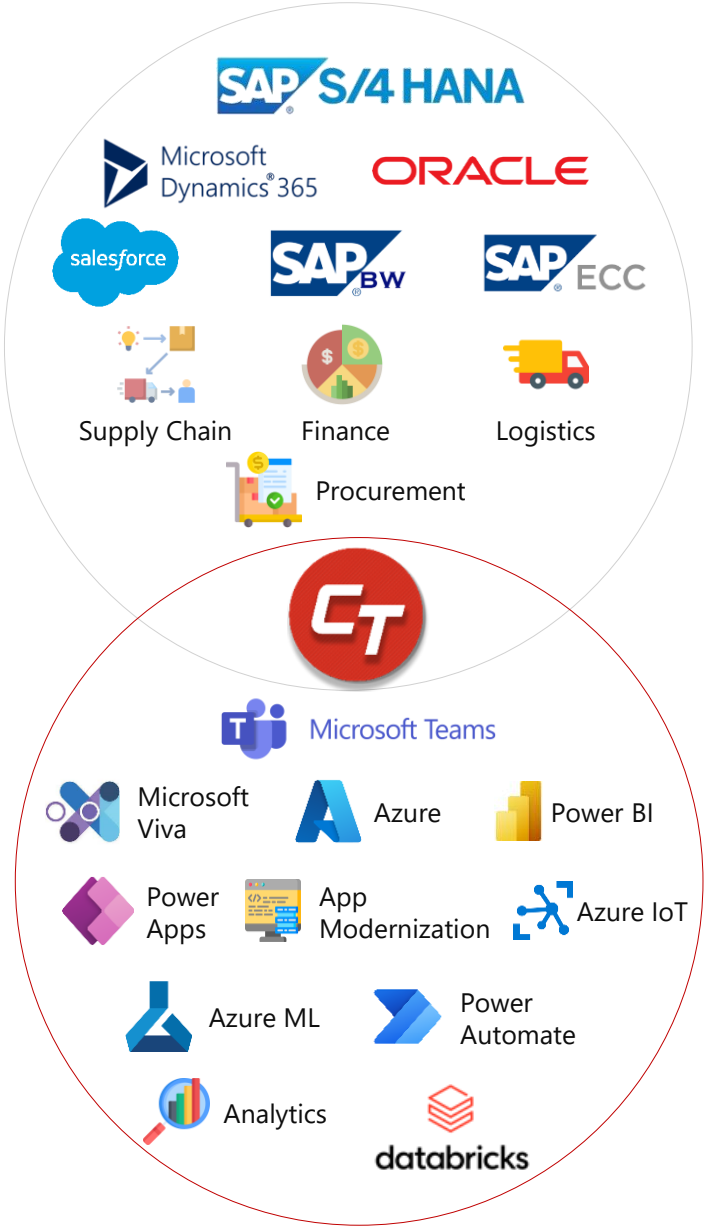
800+ AI experienced professionals

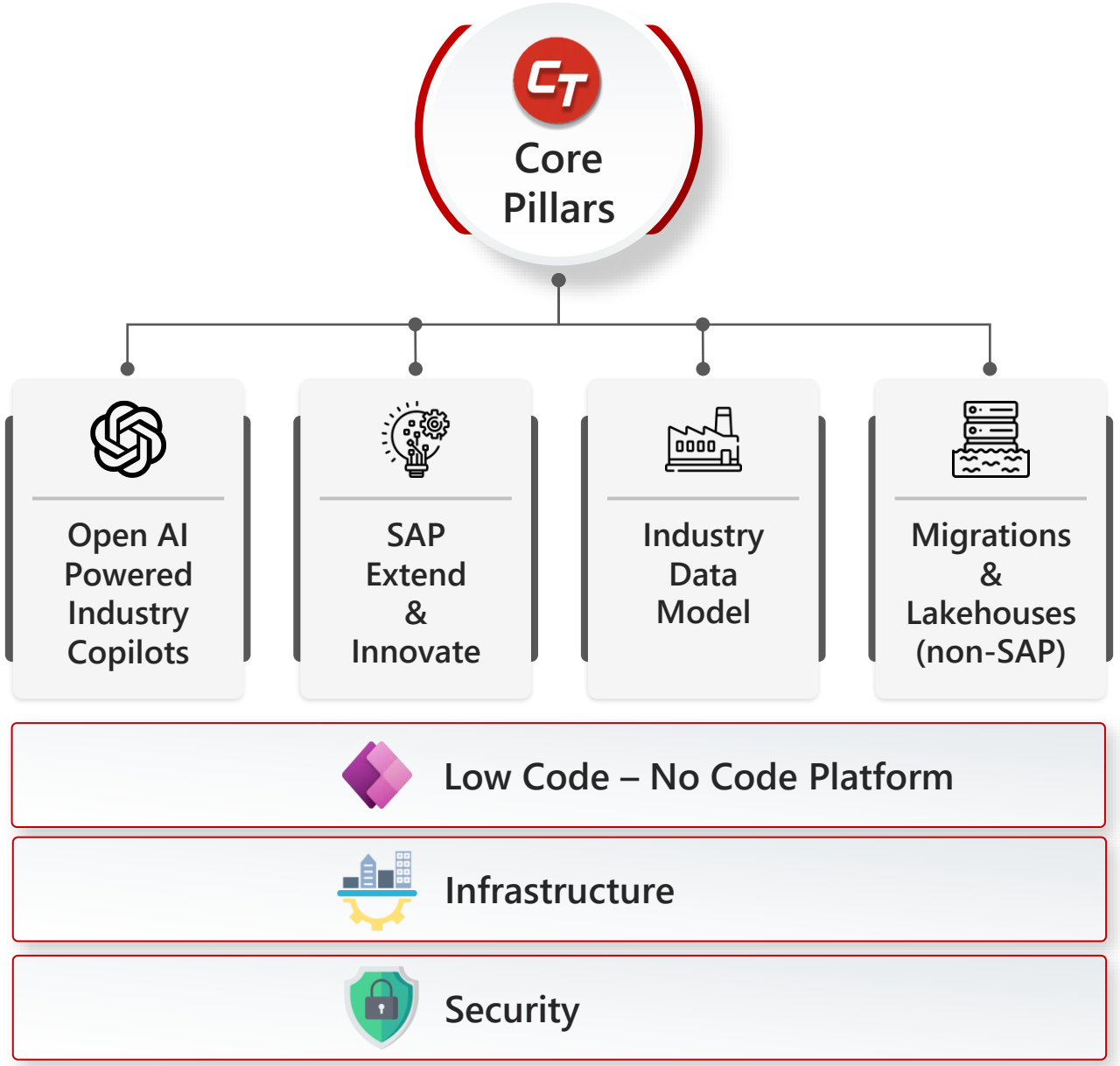
500+ AI Certifications

Industries We Serve

- Manufacturing
- Retail & CPG
- Financial Services
- Energy & Sustainability
- Healthcare & Life Sciences
- Media & Entertainment

Celebal Core Pillars





Hourly Energy Matching & Allocation

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1. Brief Description of the Solution:

Hourly Energy Matching & Allocation is an advanced analytics solution hosted on Azure, designed for energy utilities and suppliers to optimize the allocation of energy resources on an hourly basis. Leveraging real-time data integration and predictive modeling, it facilitates accurate matching of energy supply with demand fluctuations, ensuring efficient energy allocation and operational excellence.

2. Business Problem It Solves:

Utilities and energy suppliers face challenges in dynamically matching energy supply with fluctuating demand patterns on an hourly basis. Traditional methods often rely on static schedules and manual interventions, leading to inefficiencies, increased operational costs, and potential service disruptions. Hourly Energy Matching & Allocation addresses these challenges by providing automated tools to optimize resource allocation and enhance grid stability.

3. Value Add for Customer:

- **Real-Time Demand Response:** The solution uses predictive analytics to anticipate demand variations and optimize energy allocation in real-time, ensuring reliable supply and minimizing grid imbalances.
- **Operational Efficiency:** By automating energy allocation processes and integrating with smart grid technologies, utilities can reduce operational costs, improve resource utilization, and enhance overall grid reliability.
- **Scalability and Flexibility:** Built on Azure, the solution scales seamlessly to handle large volumes of data and adapts to evolving market dynamics and regulatory requirements.
- **Integration with Existing Systems:** It integrates with existing utility management systems and IoT devices, ensuring compatibility and facilitating quick deployment with minimal disruption.

Hourly Energy Matching & Allocation on Azure Marketplace empowers utilities and energy suppliers to achieve optimal energy utilization, mitigate risks, and deliver reliable service to customers in a dynamic energy landscape.

Case Study – India based Client

(24/7 demand supply matching)

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Business Challenges

- The client required accurate forecasted power values to minimize the penalty resulting from discrepancies between the actual power and the forecasted power.

Business Impacts

- Better Accuracy and reduced penalty thereby less revenue loss to the client
- Accurate Forecasting
- Comparative analysis of the data in real time
- Easy monitoring and better tracking of generation and weather data

Solution

Celebal Technologies had proposed a time series model-based solution developed on Microsoft's Power and Utilities framework to help increase their forecasting accuracy and reduce penalty and thereby reduce revenue loss.

For Intra Day Forecast

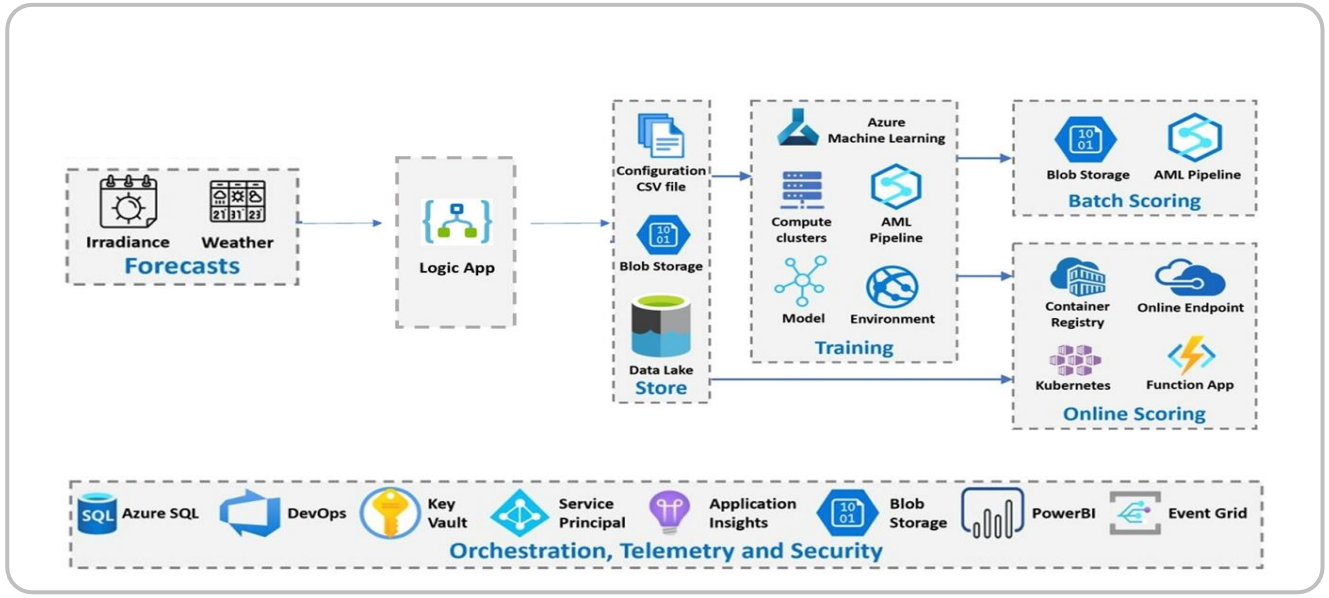
Time Series model was prepared to predict power generation at the below-mentioned specificity.

- Granularity for Prediction was 15 minutes
- Time Range for prediction was in 9-time slots in a day where each slot will be of 6 steps prediction.
- Grace Period mentioned below as per confirmed by client.

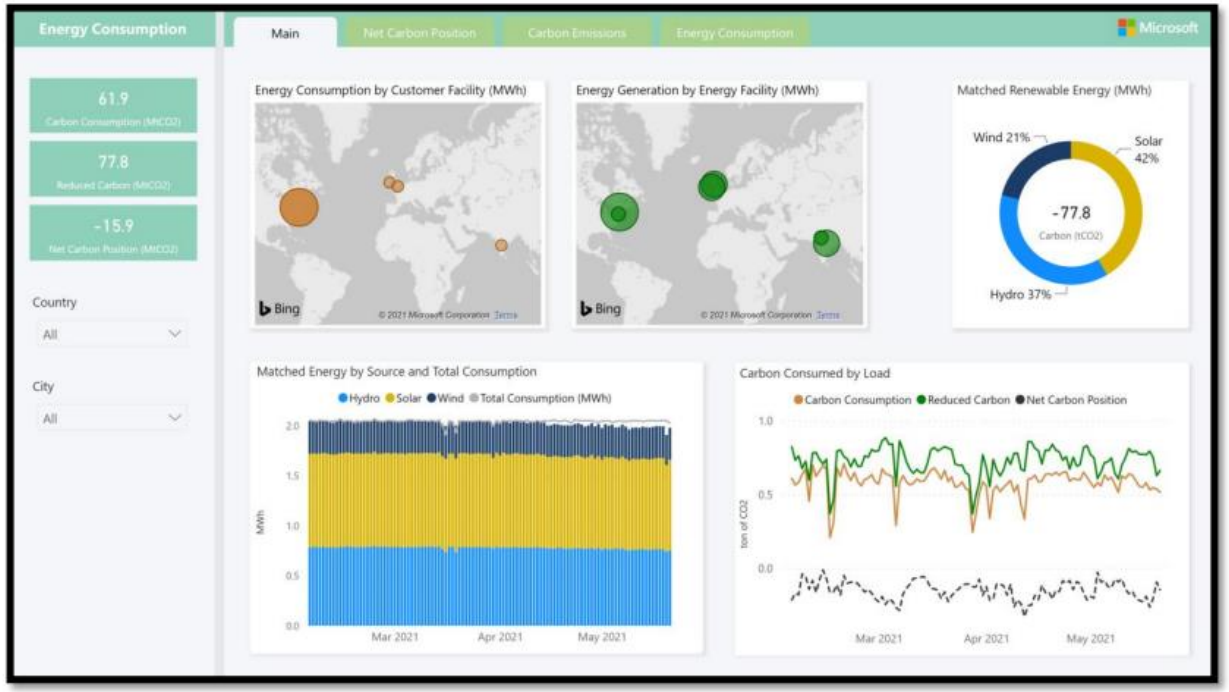
For Day Ahead Forecast

Time Series model using was prepared to predict power generation at the below mentioned specificity.

- Granularity for Prediction was 15 minutes
- Time Range for predicting day-ahead values will be 5:30 AM to 7:00 PM



P&U 24x7 Matching Framework



- Energy Generation monitoring from renewable and storage assets.
- Energy Consumption monitoring by customers.
- Real-time Hourly Renewable Energy matching.
- Matching can be done at finer granularity (eg: 5 min)
- Configurable Matching Rules.

- Adding support with Forecasting and Decision Management frameworks.
- Generates emissions-stamped 24/7 Hourly RECs / GOs.
- Real-Time Global grid CO2 intensity data
- Dashboards showing matched energy and emissions impact.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Thank You