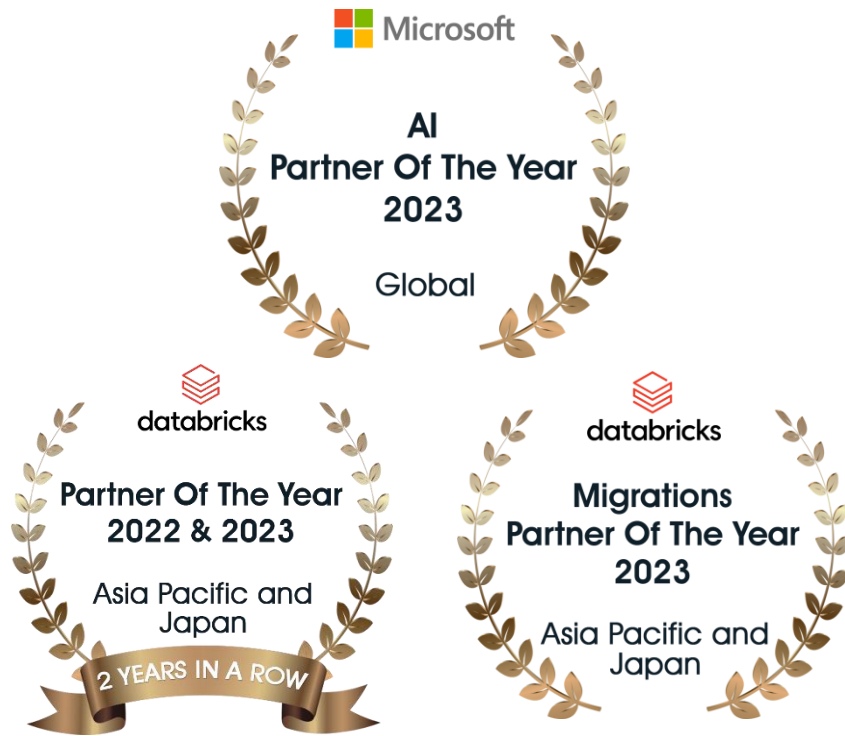**CELEBAL** TECHNOLOGIES

Microsoft

Techno-Economic Optimization Solution

Microsoft
Solutions Partner

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

Celebal Specialization and Strength

Celebal Technologies

Awards

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

databricks
Partner of the Year 2022
Asia Pacific and Japan

databricks
TOP CONSUMPTION PARTNER
Asia Pacific and Japan

databricks
REGIONAL SYSTEM INTEGRATION PARTNER
India
2 YEARS IN A ROW

Microsoft
Singapore Partner 2023

Microsoft
MALAYSIA PARTNER AWARDS 2022
Azure Data & AI Partner of the Year

Microsoft
COUNTRY PARTNER OF THE YEAR India
2 YEARS IN A ROW
2021 AND 2022

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

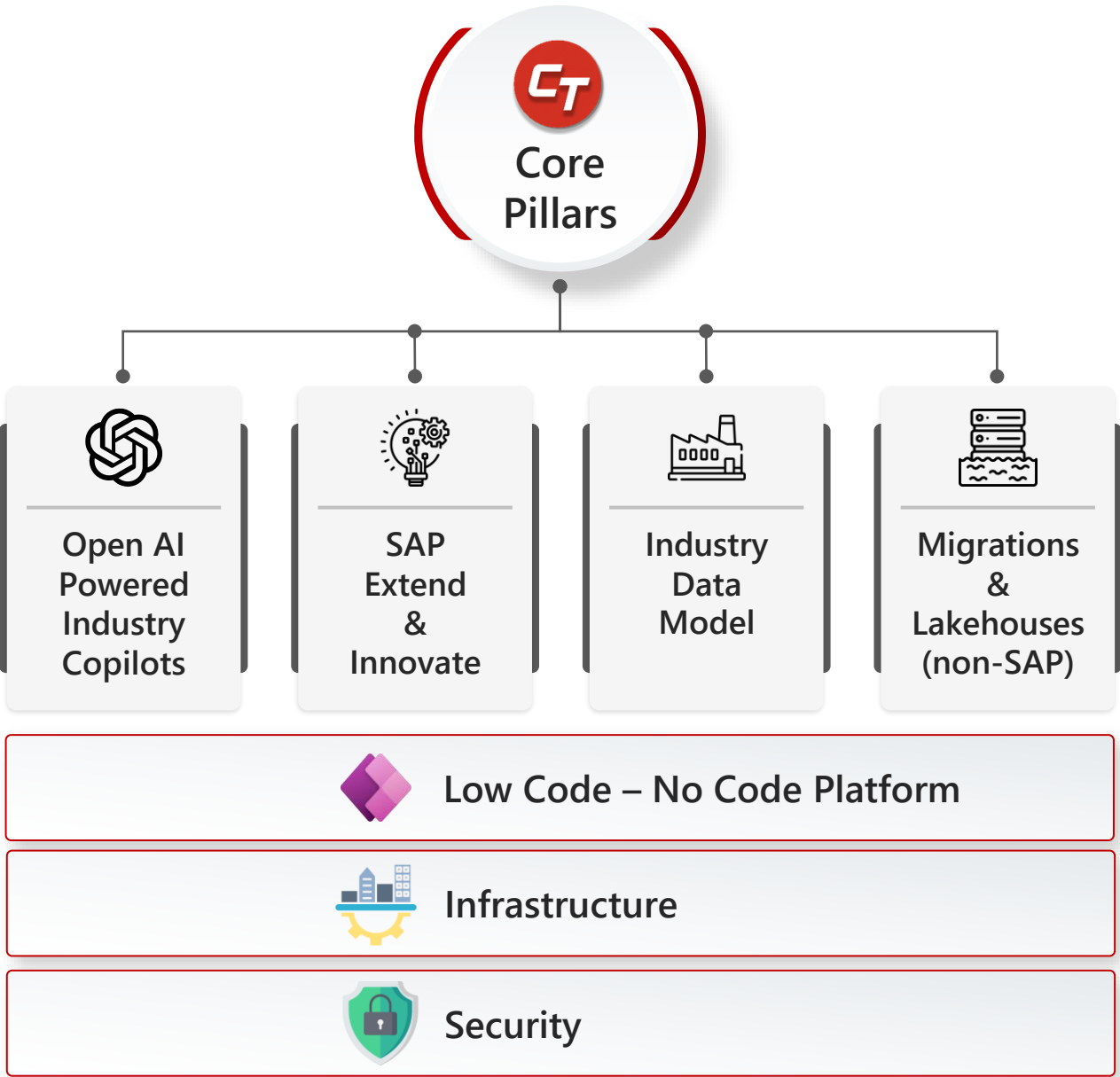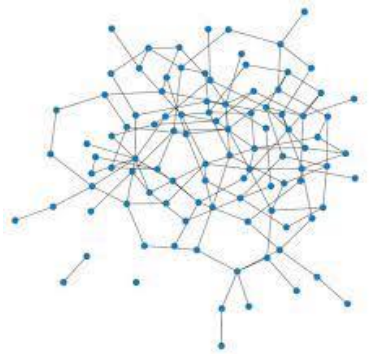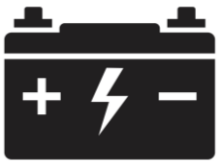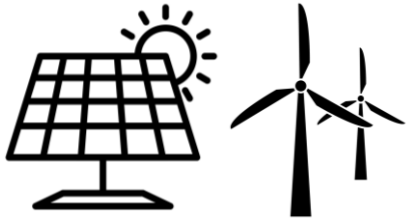Manufacturing | Retail & CPG | Financial Services | Energy & Sustainability | Healthcare & Life Sciences | Media & Entertainment

Celebal Core Pillars

- Techno-economic optimization process for renewable energy projects involves maximizing the efficiency and profitability of the renewable energy plants.

- Optimization problem is defined in terms of the objectives and constraints of the project, such as cost, plant related configurations, storage capacity, tariffs etc.

- Scenarios building by creating a search space that consists combination of different parameters for solar, wind and battery systems.

- Financial modelling for RE plants with LCOE calculations, NPV, inclusion of open access and without open access scenarios.

- Customizable banking rules for handling off peak and on peak load regulations.

- The model is optimized using a suitable optimization algorithm, comparative assessment between heuristic-based approach, linear programming, mixed-integer linear programming, or genetic algorithm, to determine the most cost-effective design for the systems that meet the demand.

1. Brief Description of the Solution:

Techno-Economic Optimization is a powerful decision-support tool hosted on Azure, tailored for energy sector stakeholders to optimize the techno-economic aspects of energy projects. It combines advanced analytics, machine learning, and economic modeling to assess and optimize the lifecycle costs, performance, and profitability of energy investments, ensuring informed decision-making and maximizing ROI.

2. Business Problem It Solves:

Energy project developers, investors, and utilities encounter challenges in accurately assessing the economic viability and optimizing the technical performance of energy projects. Traditional methods often rely on disparate tools and manual processes, leading to suboptimal investment decisions, cost overruns, and missed opportunities for profitability. Techno-Economic Optimization addresses these challenges by providing a unified platform to streamline project evaluation and optimization.
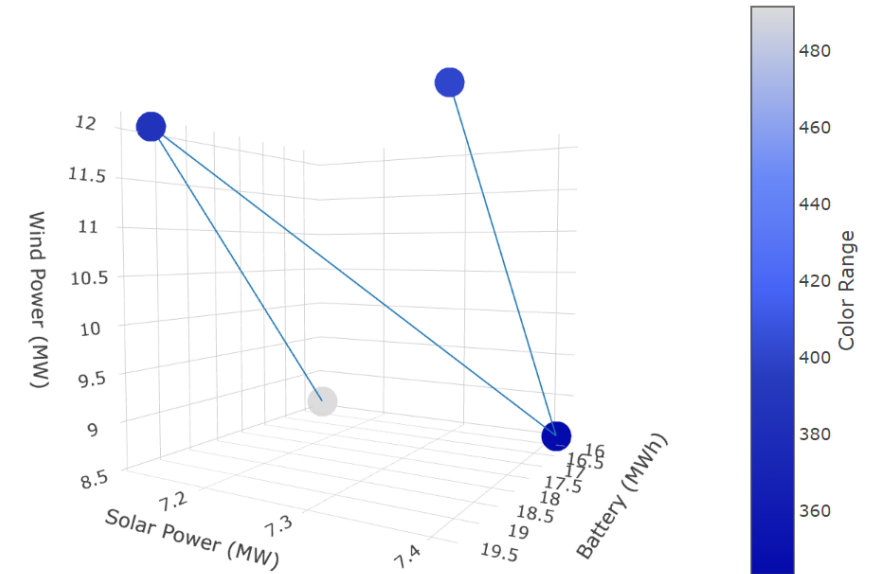
3. Value Add for Customer:

•**Comprehensive Project Evaluation:** The solution integrates technical specifications, cost data, market trends, and regulatory factors to perform holistic techno-economic evaluations of energy projects.

•**Optimized Resource Allocation:** By simulating various scenarios and optimizing parameters such as technology mix, project size, and financing options, stakeholders can maximize project profitability and mitigate financial risks.

•**Real-Time Insights:** Utilizing real-time data analytics and machine learning, the solution provides actionable insights and recommendations to adapt strategies based on changing market conditions and operational performance.

•**Scalability and Integration:** Built on Azure, the solution scales effortlessly to handle complex calculations, large datasets, and diverse energy project types. It integrates seamlessly with existing enterprise systems and supports interoperability with industry-standard tools and protocols.

Techno-Economic Optimization on Azure Marketplace empowers energy stakeholders to make data-driven decisions, optimize investments, and achieve sustainable economic success in the evolving energy landscape.
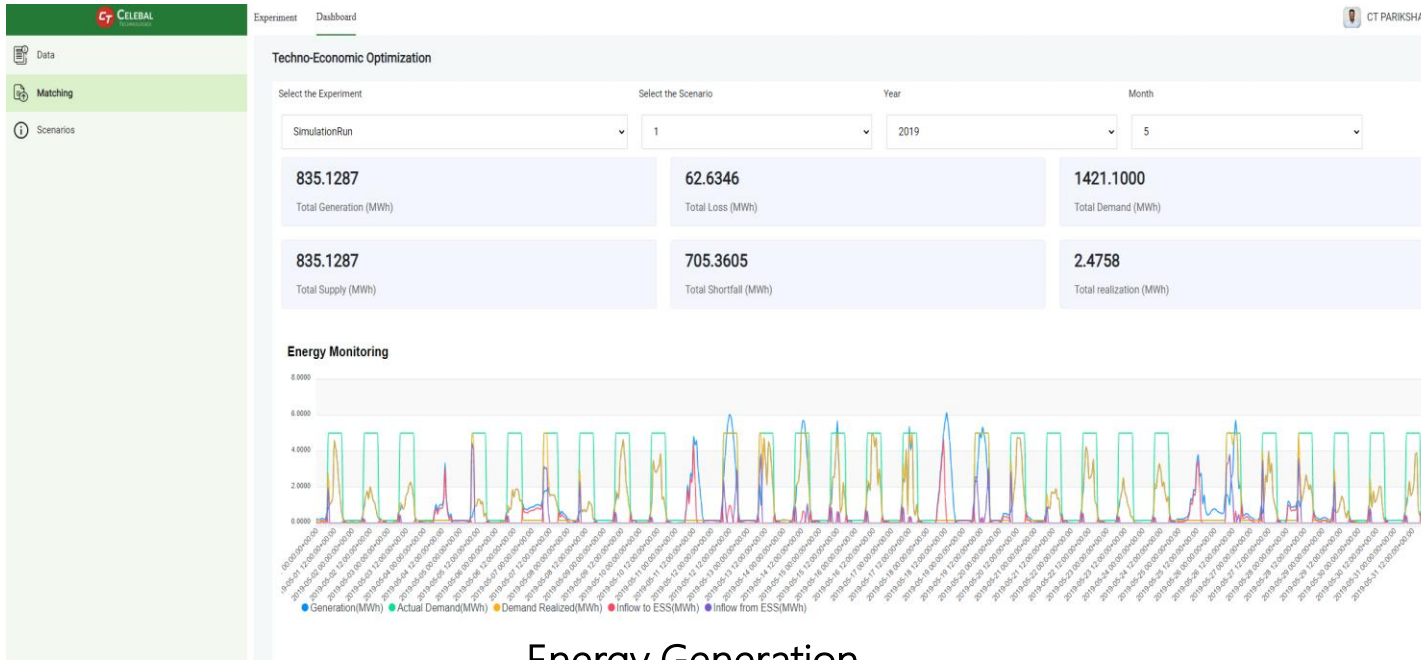
Energy Generation Monitoring

Optimization Space for Solar, Wind and Battery Capacity

Scenario Analysis – LCOE Calculation with and without open access charges.