



Driving Green Energy through Innovative Digital Solutions

(Renewable Energy Bidding Platform based on AI Forecasting and Optimization)

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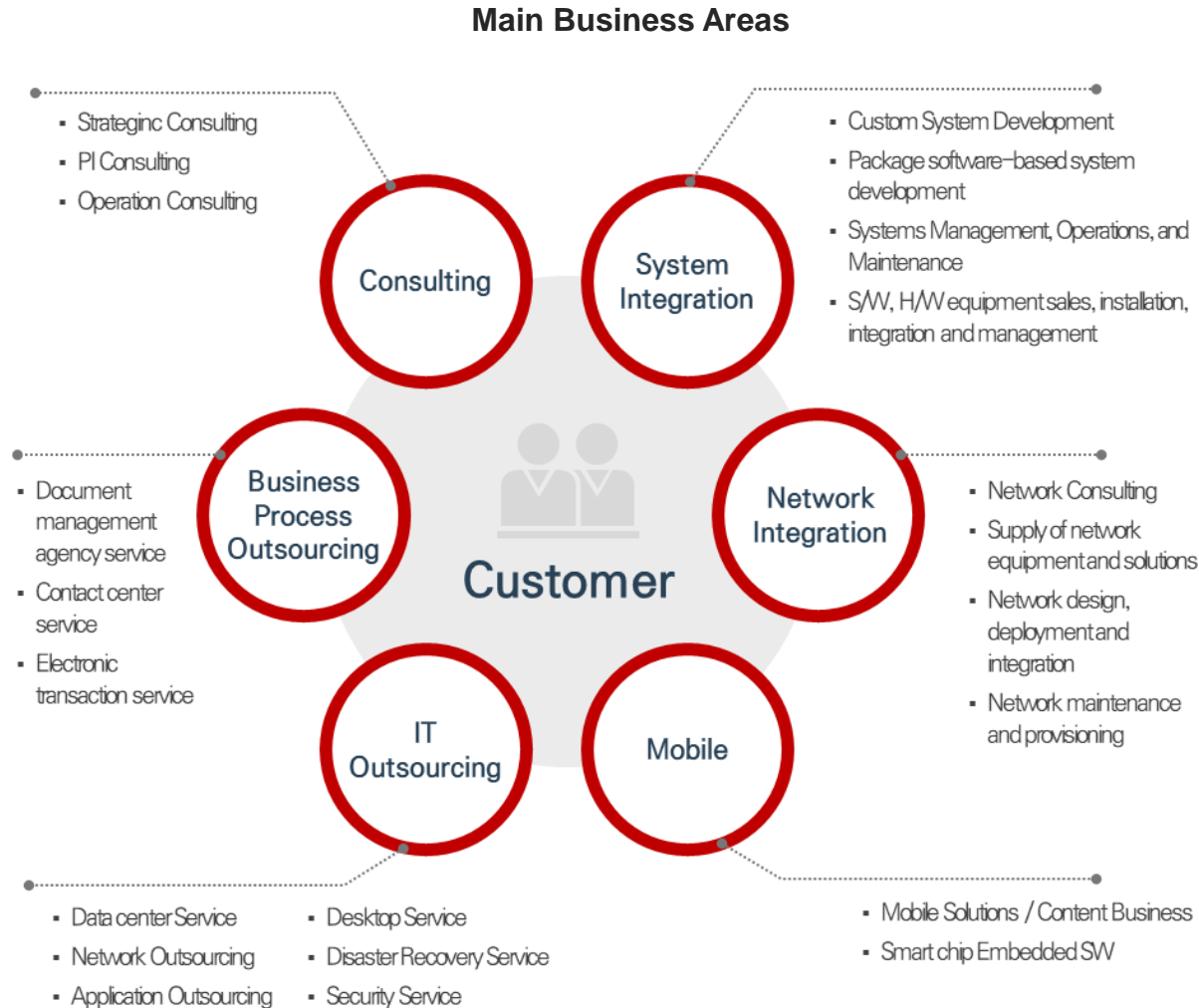


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Introduction to LG CNS (1/2)



Enhancing customer business competitiveness

Providing services such as digital finance, intelligent e-government, and smart city to help customers in each industry improve their business competitiveness

Digital IT new technology capabilities

Provides services based on new digital technologies such as cloud, AI, big data, IoT, and blockchain

IT Service Capabilities

Providing IT services such as IT consulting, SW development, architecture, and infrastructure

Industry and New Technology Specialized Solutions

Providing industry-specific solutions such as smart factories and smart logistics, as well as digital new technology specialized solutions such as big data and cloud

Introduction to LG CNS (2/2)



(As of January 2024)

IT specialist
(established in 1987 as a JV with EDS)

38 Years

Employees

7,000+

Revenue
(‘20~’23 CAGR : 18.6%)

KRW 5.61 trillion

Overseas employees

1,200+

Profit
(‘20~’23 CAGR : 23.6%)

KRW 464 billion

Number of Patents

426

Revenue Generated from
Global Markets

19.0%

Number of Software
Copyrights

1,323



Background (1/2)

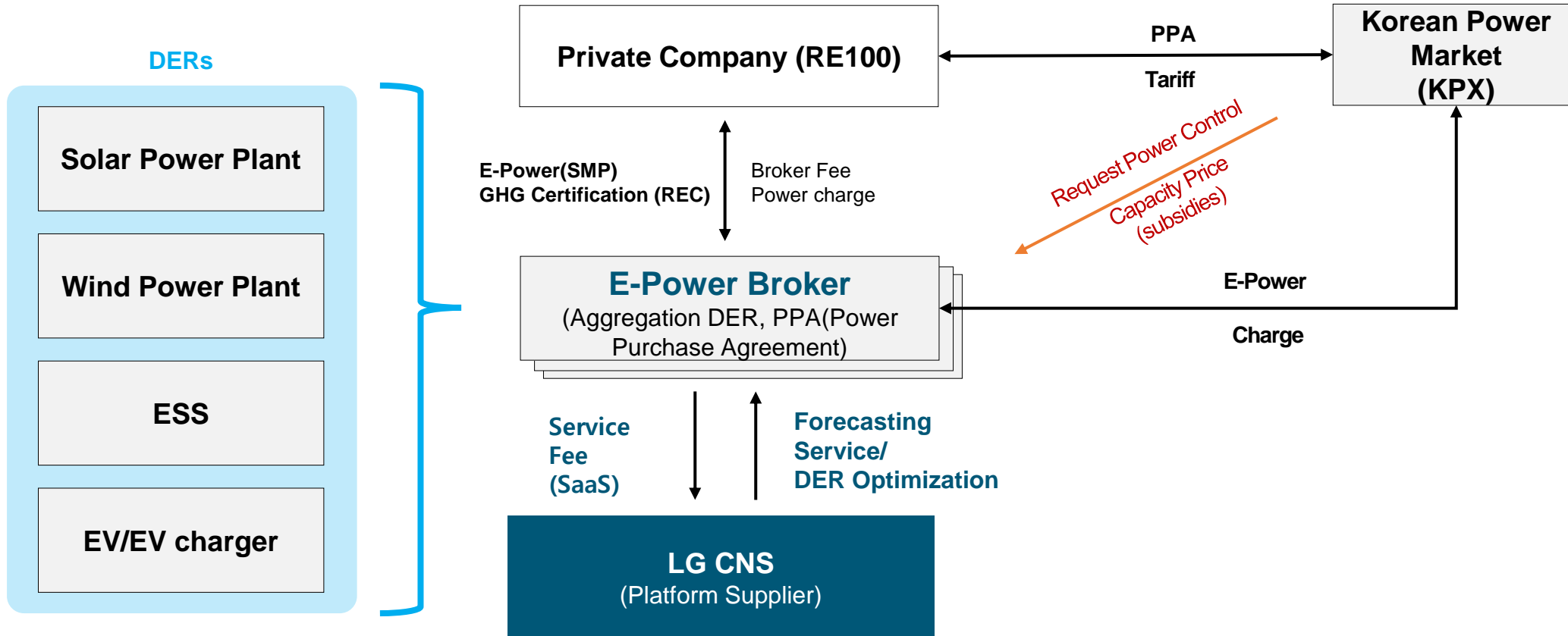
- In Jeju, 1,659 renewable energy facilities with a capacity of 877 MW (Solar and wind power accounts for about 50% of the total energy production facilities in Jeju).
- The capacity and number of renewable energy facilities are expected to increase significantly.
(Solar power to 1,400 MW, Wind power to 2,350 MW by 2030)
- The renewable energy generation is 19.2% of the total power generation in Jeju.
- Reduces grid stability due to the power mix between existing thermal power facilities and carbon-free sources (solar, wind, hydrogen, nuclear, etc.).
- Countermeasures needed : The intermittency and variability of renewable energy leads to power supply surpluses and shortages at certain times, resulting in the Duck Curve.



Background (2/2)

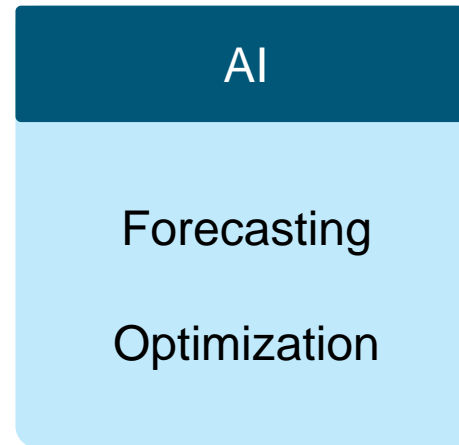
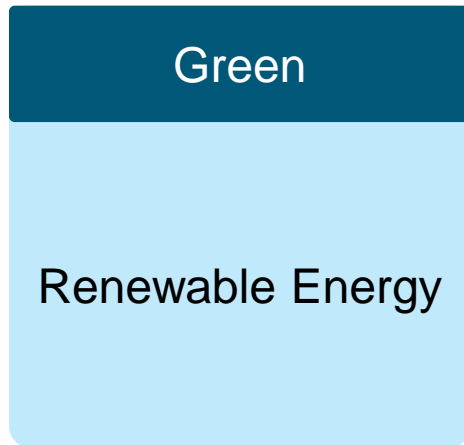
- Jeju Pilot Project for Improvement of Electricity Market System
 - ① Real-time Market
 - A "real-time market" will be established to reflect and respond to the real-time changes in power supply and demand based on market principles.
 - ② Reserve Market
 - Allowing resources that provide reserves for stable grid operation to receive fairer compensation.
 - ③ Renewable Energy Bidding System
 - Allowing renewable energy to directly participate in the power market by bidding on prices and generation amounts.

Business Model

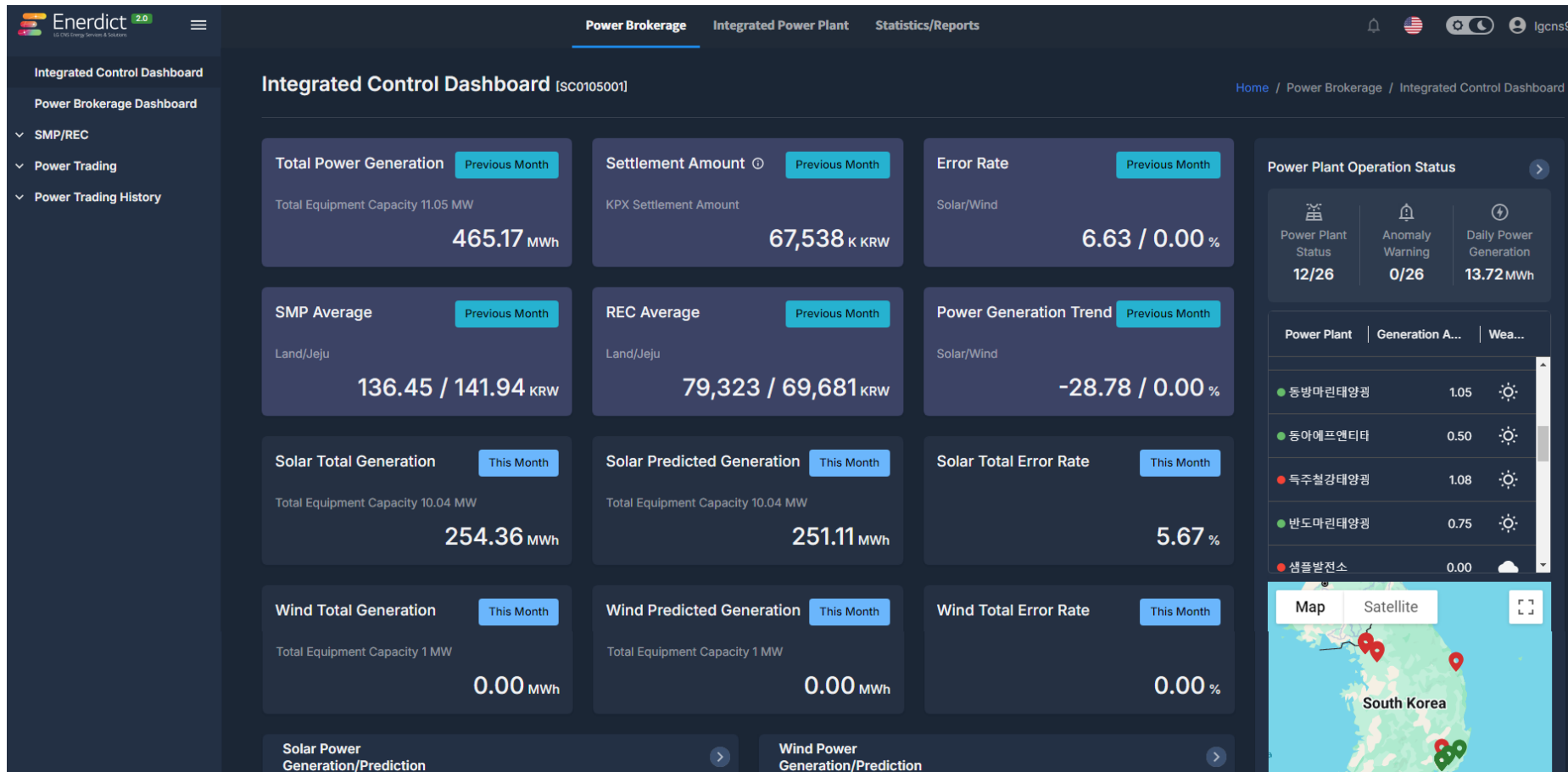


- AI Forecasting
- Power bidding w/AI Service
- Settlement and billing Service
- AI VPP

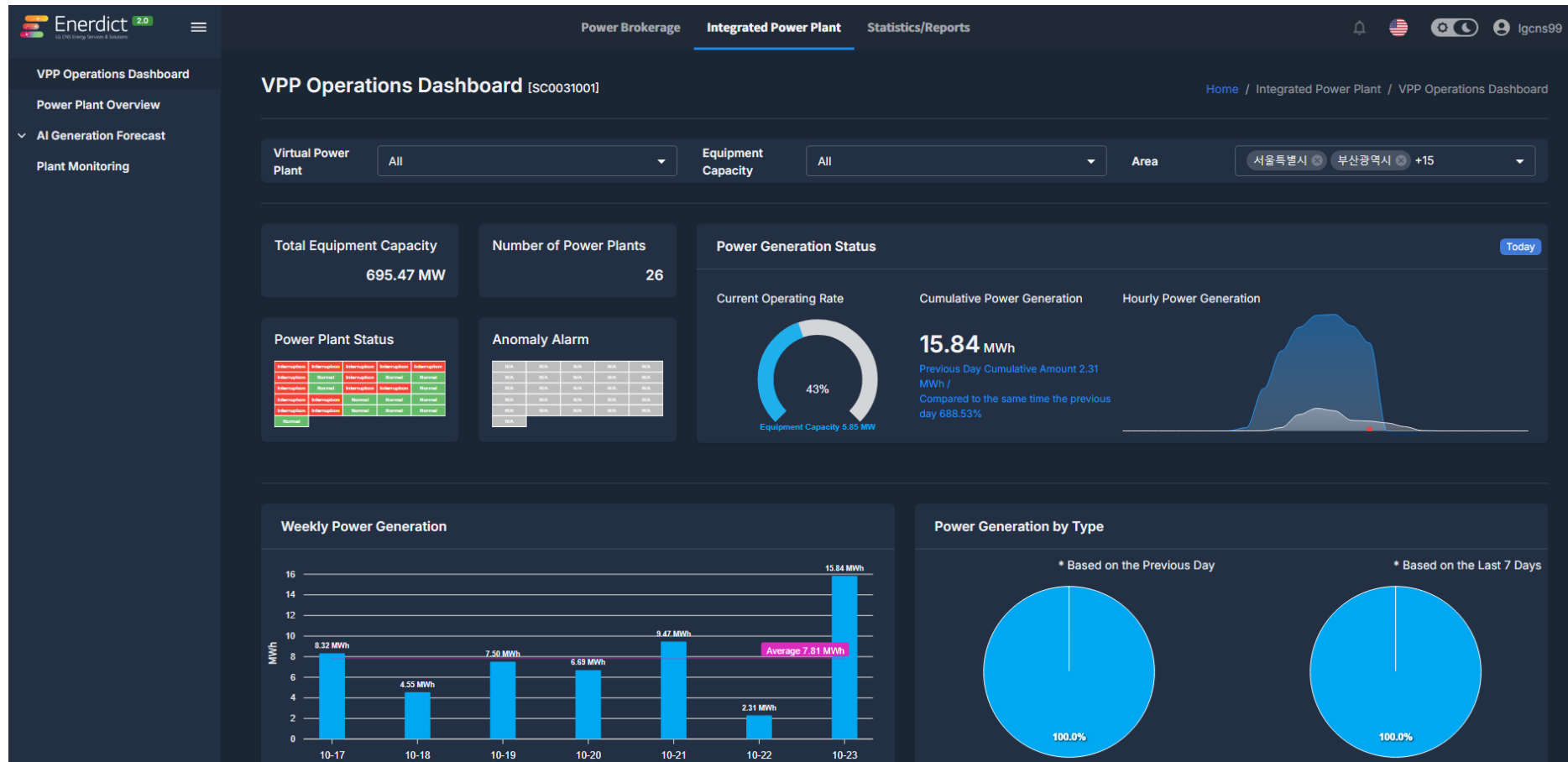
Enerdict 2.0



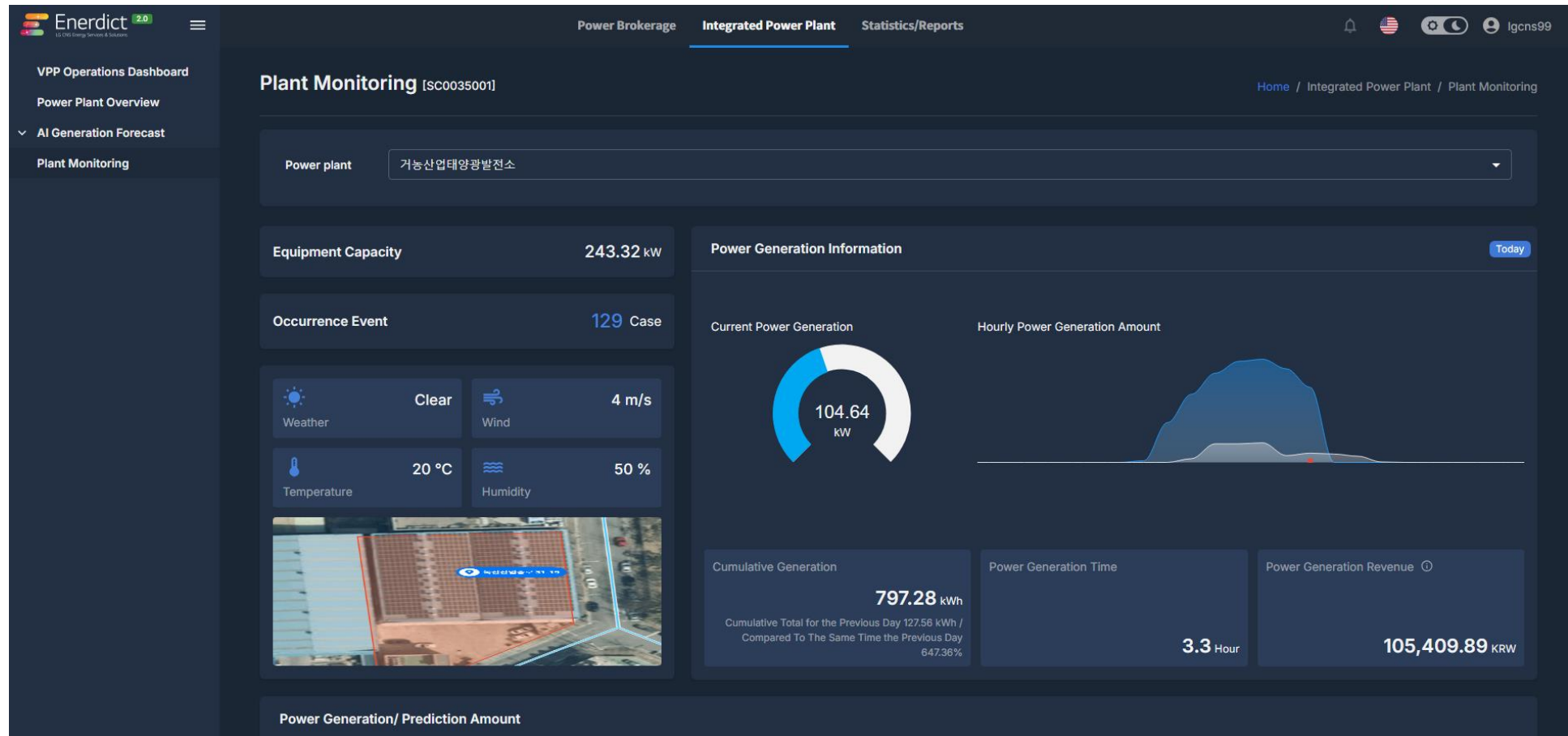
Enerdict 2.0 : Power Bidding based on AI Forecasting and Optimization



Enerdict 2.0 : VPP(Virtual Power Plant) Operation



Enerdict 2.0 : Remote Control Power Plant

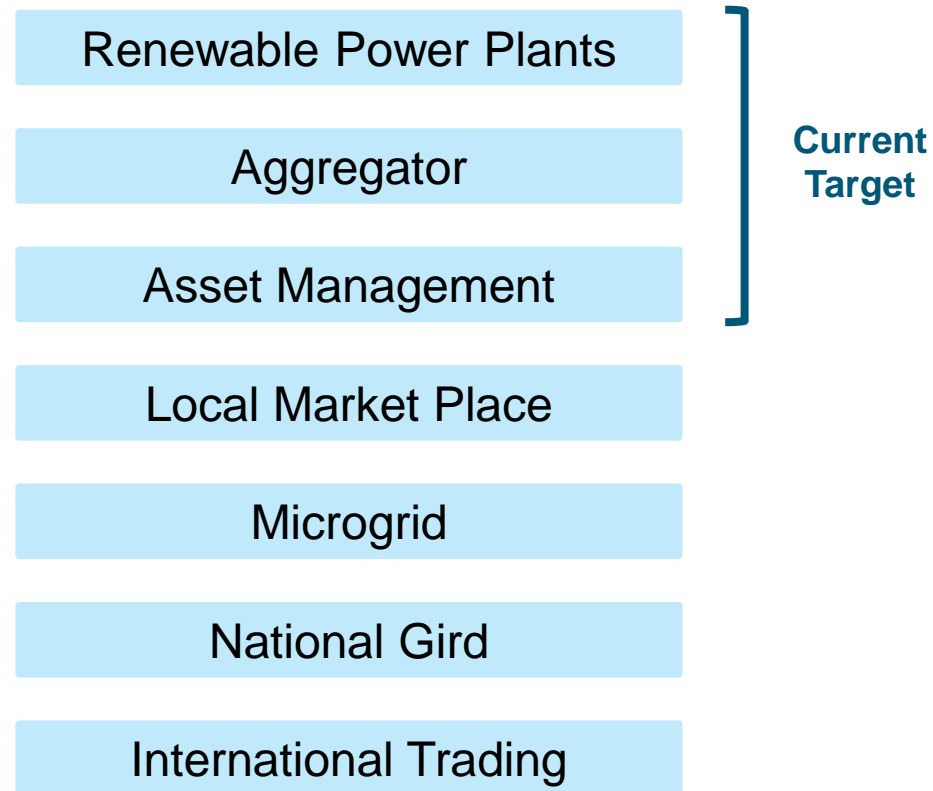




Enerdict 2.0 : Benefits

- **Increased Energy Efficiency**
 - Optimize renewable energy systems by analyzing vast datasets and making real-time adjustments
 - Reduce energy wastage and ensuring that renewable sources are harnessed to their fullest potential
- **Enhanced Grid Stability**
 - Balance the sporadic energy
 - Prevent grid overloads
- **Cost Optimization**
 - Achieve better returns on their investments by making informed decisions based on data
- **Environmental Sustainability**
 - Reduce reliance on fossil fuels
 - Ensure efficient energy consumption

Enerdict 2.0 : Target Customer



Enerdict 2.0 : Implementation System in Offshore Country



- Why Renewable Energy Generation Forecasting and Optimization Needed
 - Preparing blackout due to unpredictable weather conditions, when they are not covered by main grid and depending on the Renewable Energy
 - Making plan when they should use the other power source ie. Diesel plant.
 - Making higher efficiency of ESS (Energy Storage System) if they have
 - Power Market Place : Bidding, Direct PPA (Power Purchase Agreement), Long Term PPA

Enerdict 2.0 : Implementation System in Offshore Country



- What needed for Renewable Energy Generation Forecasting
 - Target :
 - Solar power plant
 - Wind power plant
 - Meteorological Data :
 - Solcast
 - ECMWF
 - Input Data :
 - Power plant location
 - Facility capacity of plant
 - Metering data (at least hourly)
 - Historical data of production of plant (more than 6 months)
 - Connection (Platform – Plant)
 - Restful API, FTP, WEB
 - Providing Data by Platform
 - Day-ahead forecasting
 - Implementation Period
 - Three weeks (since opened connection between Platform and Plant)



Conclusions

- Strengthens the efficiency and stability in power system.
- Eco-friendly and low-cost energy, contributing to the problems of climate change and energy shortage.
- The competitiveness and innovation of the power-related industries.
- Expecting a lot of possibility with lower cost investment.
- Cooperation with countries that use renewable energy forecasting models.
- Support sustainable development.



Thank you

