



## SUMMARY

Itochu Techno-Solutions Corporation [Itochu]

### Industry

Power and Utilities

### Business Value

- Smart Homes
- Renewable Energy
- Energy demand-response management
- IoT
- Industrial Service Provider
- Connected Services

### PI System™ Components

- PI Server
  - Asset Framework
  - Event Frames
  - Notifications

## Itochu's Innovative Cloud-Based Services Connect Japan's New Energy Ecosystem

Since 1972, "Itochu Techno-Solutions Corporation has been an independent systems integrator and service provider serving a broad range of industries" in Japan. At the OSIsoft's 2015 User's Conference, Mr. Hisashi Fukuda, General Manager of Itochu Techno-Solutions Corporation, presented how OSIsoft's PI System has enabled Itochu to use data-driven approaches to deliver services across Japan's dynamic energy market. Furthermore, OSIsoft's Connected Services has enabled Itochu to transform their business model by connecting customers on both ends of the energy supply-demand market using their unique cloud-based service.

Mr. Fukuda introduced his talk by explaining, "the negative aspects of Japan's energy system were revealed in 2011 earthquake and Fukushima Daiichi nuclear power plant accident." Afterward, Japan rebuilt and reformed its energy infrastructure and policies to reduce reliance on nuclear power and ensure safety and reliability. New policy called for a deregulated market and supported innovation by opening the market to new businesses and technologies. As a result, more power supply providers, particularly renewable energy providers, entered the market, making demand-response management more critical to maintain grid stability. Mr. Fukuda stated, "[Japan] has not seen market conditions like this for over 70 years."

Mr Fukuda stated, "I'm responsible for business promotion of renewable energy and Smart Grids. My strategic focus is to develop smart energy business by integrating our capabilities with IT solutions", and as a service provider, develop "advanced solutions through engineering expertise and computational technologies." Historically, Mr. Fukuda stated that Itochu had used "an application-driven approach rather than a data-driven approach due to their command of mathematical modeling" to deliver services. In the current energy market, they believe that "both (data- and application-driven) approaches have to be used. Choosing one versus the other is no longer an option."

To support this integrated approach, Itochu created a unique cloud-based service, E-PLSM, to serve customers in the power generation, power producers and suppliers, power retail and T&D sectors." E-PLSM stands for Energy Platform for Simulation and Management, a single, multipurpose platform that combines applications where "scientific technology and engineering capabilities are integrated on top of the PI System to serve both supply and demand sides" of the energy market. Mr Fukuda described four applications that "require many types of disparate data collected and integrated by the PI System." These applications include:

**Application #1 Itochu's Smart Home** application works so people can better understand how to save energy in their homes. Currently, the application leverages the PI System to monitor air conditioners, floor heating, lighting and water heaters. There are plans to connect to more data sources in the future.

**Application #2 Photovoltaic and Wind Power** The renewable energy boom has brought new assets, operators and data types to the energy equation. Itochu's PV and Wind application uses asset data captured and stored by the PI System to help renewable energy companies maximize their profits by lowering maintenance costs while keeping their equipment available.

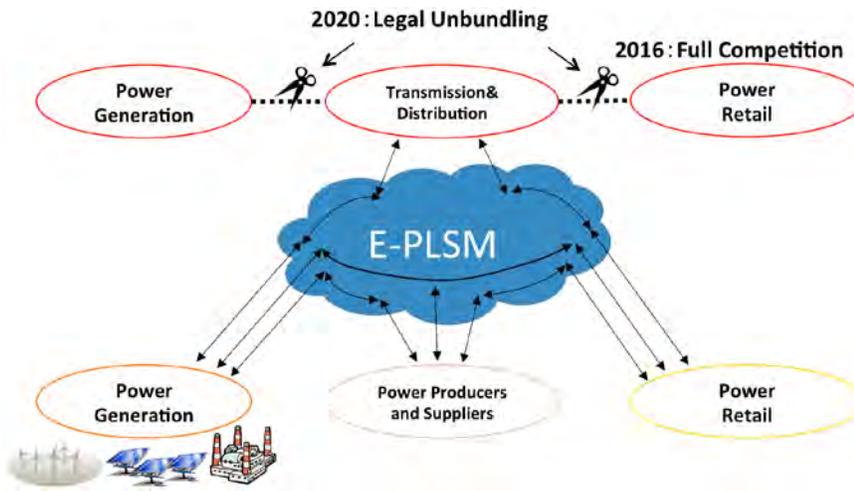
**Application #3 Transmission and Distribution** For over 15 years, Itochu has offered a wind and PV power forecasting application to generate highly accurate predictions to support optimal operation of the power grid. The PI System will support a digital, next generation demand simulation application for Japan's utilities.

Mr. Fukuda explained how Itochu's business model has evolved. He stated, "As our services grew from smart homes to renewable power generation, we transformed our business model - [we went from] providing services to each entity separately [to] connecting their customers on both ends [of the supply-demand market]."

**Application #4 Power Producers and Suppliers (PPS)** Itochu "is not a passive enabler of these energy markets, and connections between customers on both ends are created not only by applications but by data." This application leverages data for demand-supply balancing, power forecasting for PPSs, energy exchange markets and power retail companies for cross-regional coordination or transmission.

"Where there is a will,  
there is a way. Where  
there is a PI System,  
there is a way."

- Mr. Hisashi Fukuda,  
*General Manager*



To conclude, Mr. Fukuda described three key factors that enable them to expand their connected services. The first factor is **data**. "It goes without saying that we are dealing with "big data," but not all customers have a rich history of dealing with its volume, variety and velocity." The second is **the PI System**. Mr. Fukuda stated that, "the functions of the PI System were extremely helpful." Due to the ability of the PI System to connect to diverse sources of data, scale and capture high fidelity data, "we were able to focus on the development of applications and smart energy business." The third factor is **value-added services**. Itochu is integrating modeling and simulation strengths with IT solutions. Mr. Fukuda predicts that connecting customers spanning Japan's dynamic energy market through connected services "will require data, partnerships, and collaborations."