Data Monetization in the Power and Utilities Industry

Post 2020, the 5th Wave of Computing Caused by the Convergence of AI, Big Data, 5G and IoT will Enable Effective Monetization of Data

A Frost & Sullivan Briefing

February 2020
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Introduction to Data Monetization in the Power & Utilities Industry
Introduction to Data Monetization

Data Monetization

Data Monetization is a process of generating revenue from available data. It can either be a direct revenue stream by selling the entire raw data or chunks of it to interested organizations across different verticals, or an indirect revenue stream (selling insights or creating a new service) through analysis and dissemination of data.

Key Enablers of Data Monetization

- Growing Data
- Big Data, AI, Cloud & Analytics
- Transforming Business Segments
- GDPR

Key Barriers for Data Monetization

- Zero Data Sharing
- Lack of Skilled Manpower
- Data Ownership Issues
- GDPR

Source: Frost & Sullivan
Pathways to Data Monetization

Three Pathways to Data Monetization

Analytical Capability

High

- Buy data and leverage in-house analytical capability

- Monetize & explore more opportunities

Low

- Develop both capabilities internally or partner with a third party

- Technical Capability

- Partner with third-party analytics firm

Source: Frost & Sullivan
Assessing what data is available – Assessing what data is available is a crucial first step to monetize the data. Organizations collect gigabytes (GB) of data per day, so it is critical for them to understand the value of the data and what they want to gain from it.

Secured data storage – The second step in Data Monetization is securely storing the data. The data collected should be stored at secure locations in a consistent and similar data format and structure across each location. This would enable faster data access across different locations for business intelligence.

Business intelligence – Business intelligence or gaining insight into that data is the third step, which requires high computing power ability to analyze terabytes of unstructured data, select relevant pieces of data for the business and extract information/insights on a real-time basis.

Exploring customers for data – Businesses/organizations should get very aggressive in terms of looking at who that data or insights can be sold to. In some cases, it may not be their traditional customers. Organizations should also explore new avenues to identify potential buyers of the data and the insights it offers.

Source: Frost & Sullivan
The global energy market is transforming from a highly centralized power distribution system to a complex network of decentralized systems driven by AI, Big Data, IoT and evolving customer-centric business models.

AI, along with a slew of advanced technologies such as machine learning (ML), deep learning (DL), and advanced neural networks (ANN), has huge potential to transform the Power & Utilities sector.

### DECARBONIZATION
Shifting generation, transmission, distribution and usage towards a lower-carbon future due to increasingly stringent environmental legislations. (Renewable energy, e-Mobility & electrification, energy efficiency, new and future fuels, DSM, etc.)

### DECENTRALIZATION
High proliferation of new distributed generation models with a proliferation of distributed and connected generation, closer to the point of use. (Distributed generation, energy storage, microgrids, prosumers, VPPs, P2P, etc.)

### DIGITALIZATION
Digital technologies to provide infrastructure for more flexible, intelligent, connected & responsive energy systems are increasing. (Smart grid, asset optimization, demand response, automated trading, active energy management, etc.)

Source: Frost & Sullivan
Why Data Monetization in the Power & Utilities Market?

Over the coming decades, digital technologies are set to make the Power & Utilities industry more connected, intelligent, efficient, reliable and sustainable. As digitalization continues to transform the Power & Utilities industry, enormous amounts of data will be generated and the area of Data Monetization will become an increasingly critical topic for key participants in this market.

Data Monetization in the power and utilities market is still in an early stage of development and offers immense growth opportunities.

The key question for players in the Power & Utilities industry in the short to medium term will be how they value, transact and ultimately monetize their data.

Currently, very few Power & Utilities companies sell their data. Most of them utilize the data for understanding consumer behavior and provide additional or add-on services.

Source: Frost & Sullivan
Data Monetization Applications in the Power & Utilities Market

**Personalization**

Personalize customer-centric solutions to retain, win-back and drive customer growth.

**Trigger Consumer Alerts**

Use smart meter and connected devices data to trigger alerts and notifications that help consumers manage their energy usage.

**Customer Service**

Optimize customer service through real-time omnichannel insights that lower customer frustrations and improve profit margins.

**Operational Efficiencies**

Improve operational efficiency by mining data to pinpoint lower performing functions and focus on micro operating improvements.

**Product Optimization**

Improve product reliability and performance by pinpointing delivery gaps and faults that result in substandard energy delivery to customers.

**Customer Insights**

Sell consumer data based on household behavioral and interaction attributes.

**R&D Purposes**

Companies will pay for insights that highlight their design and go-to-market approach for new energy-related products and services.

Source: Epsilon, Frost & Sullivan
## Key Monetizable Power and Utilities Market Data

<table>
<thead>
<tr>
<th>Data</th>
<th>Smart meter data</th>
<th>Smart meter data &amp; Weather data</th>
<th>Energy data from EMS in commercial and residential buildings</th>
</tr>
</thead>
</table>
| **Interested Party** | Consumers | • Utilities  
• Independent power producers  
• Energy service companies | • Real estate agents/developers  
• Construction companies |
| **Reasoning** | Lower energy consumption and associated costs | • Allot pricing schemes based on consumption  
• Predict revenue  
• Predict power demand and supply | • Construct/design energy-efficient buildings  
• Increased value of energy-efficient buildings |
| **Business Application** | Using this data, utilities can create web platforms that enable their consumers to understand and optimize their consumption | • Leveraging consumption data, utilities can create time-of-usage schemes to optimize consumption  
• Utilities/IPPs can predict revenue based on consumption patterns, local weather conditions and seasonality changes  
• ESCOs/utilities can forecast power generation from wind/solar sources using weather data and also predict demand to ensure smooth functioning of the grid | • Construction companies utilizing EMS data can construct/design energy-efficient buildings  
• Real estate companies utilize the EMS data to increase sales value of the buildings |
As the Power & Utilities industry continues to rapidly transform, the area of Data Monetization will become increasingly a critical issue for various organizations.

The changing business environment, combined with Big Data, cloud computing, and changing regulations are expected to accelerate further monetization of data.

### Data Monetization in the Power and Utilities Industry: Revenue Forecast, Global, 2018–2030

**CAGR, 2018–2030 = 12.2%**

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<tr>
<th>Year</th>
<th>Revenue ($ Billion)</th>
<th>Growth Rate (%)</th>
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<tbody>
<tr>
<td>2018</td>
<td>5.00</td>
<td>-</td>
</tr>
<tr>
<td>2019</td>
<td>5.10</td>
<td>2.0</td>
</tr>
<tr>
<td>2020</td>
<td>5.30</td>
<td>3.9</td>
</tr>
<tr>
<td>2021</td>
<td>5.60</td>
<td>5.7</td>
</tr>
<tr>
<td>2022</td>
<td>6.00</td>
<td>7.1</td>
</tr>
<tr>
<td>2023</td>
<td>6.50</td>
<td>8.3</td>
</tr>
<tr>
<td>2024</td>
<td>7.20</td>
<td>10.8</td>
</tr>
<tr>
<td>2025</td>
<td>8.10</td>
<td>12.5</td>
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<tr>
<td>2026</td>
<td>9.30</td>
<td>14.8</td>
</tr>
<tr>
<td>2027</td>
<td>10.8</td>
<td>16.1</td>
</tr>
<tr>
<td>2028</td>
<td>13.0</td>
<td>20.4</td>
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<tr>
<td>2029</td>
<td>16.0</td>
<td>23.1</td>
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<tr>
<td>2030</td>
<td>20.0</td>
<td>25.0</td>
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Note: All figures are rounded. The base year is 2018. Source: Frost & Sullivan
Currently, North America and Europe are leading the initiatives for data monetization with major power and utilities companies already effectively monetizing their data. However, privacy concerns and issues over ownership of the data has been a key obstacle for the market growth.

Note: All figures are rounded. The base year is 2018. Source: Frost & Sullivan
Data Monetization Examples in the Power & Utilities Industry – Google

Google Nest monetizes the data collected from its network of smart thermostats by selling the information on grid loads and then through demand-response programs, by ensuring grid parity.

Google’s Nest offers a **smart thermostat** that collects data on residential energy consumption including data from thermostats and other energy consumption sources like lighting, washing machines, refrigeration and pumps. The collected data is useful to understand residential grid-wide energy usage and aids utilities to predict the load and demand for a small locality or region.

In addition, Google Nest also, based on the collected data and grid information, recommends its customers optimal timings for operating energy-heavy home appliances and thereby avoid paying peak-load electricity prices.

Nest partners with utilities to provide residential demand-response programs. It enables customers to participate in demand-response programs through Rush Hour Rewards & Seasonal Savings Programs. Participants are compensated for reducing/postponing their energy consumption during peak load. Nest earns additional revenues and utilities are able to maintain the grid balanced at all times.

Source: Frost & Sullivan
Data Monetization Examples in the Power & Utilities Industry – IBM (The Weather Company)

IBM

The Weather Company, an IBM Business, provides weather-driven business solutions for power and utility service companies (ESCOs).

Business Model: Direct Monetization

- Weather Data Packages
- Weather Alerts
- Hydro & Wind Forecast Data
- Grid Load Forecasting
- Outage Prediction Data

Utilities

ESCOs

Outage Prediction
Understand how weather impacts the electricity grid infrastructure.

Weather Alerts for Worker Safety: Weather alerts to protect utility workers and assets.

Weather Data Packages & Load forecasts: Weather and load forecasts for utilities to plan ahead and maintain balance in the grid.

Power Generation Forecasts: Forecasts for wind and solar power generation.

Key Customers

nationalgrid  CenterPoint Energy  e.on

Data Monetization Examples in the Power & Utilities Industry – GE Energy

**GE Energy provides predictive analytics for turbine data to increase operational efficiency and extend the lifetime of the turbine.**

**Business Model: Indirect Monetization**

- GE Energy through its Predix Platform collates real-time turbine operation data together with real-time operating conditions data and uses AI and ML algorithms to continually monitor the turbine and improve operational efficiency.

- Through these algorithms, the platform can alert and even stop turbines for maintenance checks, thus raising the overall output from the turbines.

**Hardware**

- 6 main sensors placed across the turbine.

**Data Generation**

- 8000 data points per second.

**Data Management**

- 230 TB of data needs to be managed per day assuming an operation of 16 hours per day.

**Intelligence**

- Main operating points are collated and used for monitoring and operational intelligence purposes.

Image Source: GE Energy. Source: Frost & Sullivan
Future Perspective & Concluding Remarks
As power and utility companies continue to transform, data-based businesses will become a critical topic of interest for all players across the power and utilities value chain. Data will become an important asset and will foster technological innovations from OEMs and energy companies.

As power and utility companies will shift towards being more consumer centric. Data from smart meters, thermostats and other connected home devices will enable power and utility companies to develop customer-centric solutions to stay alive in the market.

The emergence of an integrated digital services ecosystem is supporting the adoption of new monetization opportunities for players in the Power & Utilities industry.

Tomorrow’s smart grid will be a collective whole of Distributed Energy Resources, smart meters, sensors and other generation sources working together in tandem generating huge amounts of data. The data will be mainly used for customer behavior analysis, demand forecasting, optimization of generation and grid and its associated generation sources.

Source: Frost & Sullivan
Predictions

Data Monetization is an efficient way to increase customer-centricity while creating new value. Despite being at its early stages in the Power & Utilities industry, Data Monetization can provide organizations new ways to enhance customer relationships and differentiate their offerings, as well as personalize and improve their current products and offerings.

Utilities have made significant investments in smart meter roll-out programs and are now looking for ways to get a return on these investments. Advancements in and the convergence of AI, IOT and Big Data are likely to present new opportunities to utilities to explore new markets, expand business offerings and increase their revenue.

Mergers, acquisitions and partnerships are expected to drive the transforming Power & Utilities industry. Disruptive technologies like shared economy and blockchain will enable extensive partnering between organizations to pursue new business opportunities.

Source: Frost & Sullivan
The market for data monetization in the power and utilities industry is still in its nascent stage. It is however expanding with the rise in the volume of data generated by the industry.

Data monetization strategies help enterprises by significantly enriching their product offerings, right from input to product design by adding new product features and maintenance and repair offerings.

Post 2020, the convergence of artificial intelligence (AI), Big data, 5G and Internet of Things (IoT) will transform the way global businesses are run. Organizations will be driven by the data they generate.

Only few of the power and utilities companies have started up the drive for monetizing their data. Indirect monetization dominates the business model currently as companies are only looking to use the data to improve their offerings and provide value-added services.

Data Monetization in the Power & Utilities industry is expected to pick up rapidly in Asia-Pacific (APAC) in the coming years and Over-The-Top (OTT) services will drive top-line revenues among power and utility companies.

Source: Frost & Sullivan
About Frost & Sullivan
The Journey to Visionary Innovation
## Frost & Sullivan Value Propositions

**Sample of Strategic Research Reports in Energy & Power in 2019**

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## Frost & Sullivan Value Propositions (Continued)
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