

## **Big Data Analytics In Energy Sector - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029**

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### **Report description:**

The Big Data Analytics Market In Energy is expected to grow from USD 9.31 billion in 2024 to USD 15.89 billion by 2029, at a CAGR of 11.28% during the forecast period (2024-2029).

Big Data analytics plays a crucial role in reducing energy consumption and improving energy efficiency in the energy sector, thus boosting the demand for analytics in the industry.

#### Key Highlights

- The scarcity of fossil fuels is increasing the dependency on alternate energy sources, such as solar, wave, and wind turbines, where consumption is rising rapidly. Thus, it has become imperative to use advanced big data-based analytical tools to understand the behavior or adaption of these energy sources. The volatility in oil prices leads to high expenditure on energy-related projects, creating demand for big data analytics. Thus, the need for quality information is increasing, which may boost the market's growth and profitability.
- The energy sector faces many problems like predicting production demand, enhancing efficiency, optimizing load distribution and optimization, and optimizing operational processes. Many large corporates like BP and Halliburton have adopted data analytics, while there is a high scope for small companies with lesser data to achieve new heights. Big data analytics helps deliver consistent and data-backed outputs to avoid downtime or supply chain disruption.
- Some service providers collaborate to deliver effective analytics services. In September 2022, Schlumberger and Cognite announced entering a strategic partnership to integrate Schlumberger's Enterprise Data Solution for subsurface with Cognite's open industrial DataOps platform, Cognite Data Fusion. The partnership would allow customers to integrate data from wells, reservoirs, and facilities in a single, open platform and leverage embedded AI and advanced analytics tools to optimize production, reduce costs and decrease operational footprint.

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-However, the recent COVID-19 outbreak revealed the negative impacts of uncertainty on decision-making processes and markets. When market participants started receiving real-time information about the situation, the energy markets began to ease. Big Data can be used in such scenarios to amplify information to various stakeholders to prevent panic and ensure market stability and security of supply.

-Also, after the COVID-19 pandemic, the growing awareness of the benefits of smart metering and increased investment in alternative energy sources are driving market expansion. Furthermore, the volatility of oil prices, the depletion of fossil fuels, and emerging trends for improved efficiency and dependability in power transmission contribute to the demand for Big Data analysis in the energy sector. The pandemic also highlighted the shortage of trained labor with domain-specific knowledge limiting industry expansion.

## Big Data Analytics in Energy Sector Market Trends

### Smart Metering to Fuel Market Growth

- Smart metering in Big Data analytics contains components such as grid operations, resource planning, field services, customer experience, and regulatory compliances. It helps enhance demand and forecast through the data generated, which will likely boost market growth.
- Furthermore, Big Data analytics in smart metering assists in predicting energy consumption, which plays a vital role in managing demand and supply and mitigates the waste of energy. According to the UK Department of Business, Energy and Industrial Strategy (BEIS) report published in March 2022, a total of 3.8 million smart meters were installed recently, with a 7% increase from the previous year. In addition, in Colombia, the government desires to have 75% of households with smart meters til 2030, according to an official resolution.
- Further, the large number of smart meters deployed can generate tremendous data. For example, if an intelligent meter records data every half hour, the number of records generated by twenty million intelligent meters is 3.51011 over just one year. Further, the diversity and nature of smart meter data (e.g., consumption, fault, outage, and price information) results in heterogeneous multi-source data. Thus, smart meter data has the characteristics of big data, such as large volumes and high heterogeneity. In addition, intelligent meter data must be quickly processed and analyzed to facilitate real-time analysis. According to the Institute for Electric Efficiency, 124 million smart meters installed in 2022 in the United States, a slightly increased from the previous year.
- Moreover, utilities that require decarbonization and decentralization can benefit from metering data by adding other information sources like geographic information systems (GIS), CIS, and weather data. AWS Quick Start deploys the Smart Meter Data Analytics (MDA) platform on AWS Cloud. This platform helps the utilities tap the value of energy consumption data while removing heavy lifting. The platform also allows utilities to provide new services such as load prediction, deeper customer engagement through proactive notifications, predictive maintenance on distribution assets, and circuit quality analytics.
- Depending on the business context, the individual operating systems can send data to the platform and get actionable insights. For example, According to a report by AWS, Kalkitech is an AWS Select Technology Partner, providing meter communication solutions such as a protocol stack for meter reading applications, a large-scale meter simulator, and a meter test tool. The company offers these tools per the regulatory bodies, providing smart metering as a cloud-based service.
- The MDA platform can process up to 250TB of meter reads daily in batches. It also handles late-arriving data and prepares data for different consumption endpoints like a data warehouse (Amazon Redshift), a machine learning pipeline (Amazon SageMaker), or APIs to make the data consumable for third-party applications.
- Developing countries are hugely investing in the energy sector, which is expected to boost smart metering with advanced Big Data techniques in the coming years. Additionally, Ameren proposed expanding its Smart Energy Plan (SEP) with Missouri regulators, laying out a strategy to install 1.2 million smart meters by 2025 and purchasing two wind farms totaling 700 MW recently.

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## Asia Pacific to Experience Significant Market Growth

- The region is contributing significantly to the studied market growth. Primarily due to the factors, such as the increasing adoption of IoT and smart technologies and various government initiatives, such as smart cities, across multiple countries, including China and India, affirm the region as the favorably-growing region in the Big Data analytics market in the energy sector. According to the recent data released by the National Smart Grid Mission, Ministry of Power, out of the total allocated quantity of 11.16 million smart meters, 3.73 million were installed across various states in India as of January 2022. EESL aimed to replace 25 crore conventional meters with smart meters in India through the Smart Meters National Program (SMNP) to reduce AT&C losses.
- In the Asia-Pacific, China is expected to be a significant country in Big Data analytics in the energy and utility sector due to its immense population and rising rate of adaptation of smart metering and innovative grid systems. According to Bloomberg, in May 2022, the Chinese government reported having invested around USD 4.3 Billion in clean power projects like solar and wind projects in the first four months of 2022, about 204% compared to the investment in the same period in 2021. Such promising investments will attract smart metering and related projects at the generation level and for further consumption to several end-users in the country, propelling the demand for big data analytics for the best utilization of the resources.
- Additionally, there has been significant high activity in the region's power generation sector. Similar to the global trend, there has been immense activity in the industry to adopt greener power generation solutions, especially in countries like India, China, Japan, and Singapore.
- In Japan, electrical utilities have begun implementing a nationalized grid restructuring program, which would necessitate investment in T&D equipment and infrastructure. Given the country's decommissioning of nuclear power plants, the Japanese government is increasing its focus on renewable energy. The government is working towards generating 25-35% of power from renewable sources by 2030.
- At the same time, according to Utility Bidder, Singapore, which relies on fossil fuels more than any other country, is leveraging advanced metering to speed up the shift to clean energy resources. According to a report published in Smart Energy International, Singapore has only installed 500,000 smart meters recently and plans to reach the 1.4 million mark by 2024.
- Various players in the market are increasing their product range and scope to capitalize on the demand in the Indian urban development landscape. For instance, in February 2022, ABB India launched the latest series of electrical measuring and power monitoring meters for the digital panel meter market, registering a CAGR of 6% between 2017-2023 globally. With this introduction, ABB India offerings a broad portfolio in addition to the existing range of single network analyzers and multifunction meters catering to the Panel Meter market across industries such as healthcare, infrastructure, hospitality, and F&B, to name a few.

## Big Data Analytics in Energy Sector Industry Overview

The Big Data analytics market in the energy sector is consolidated, with major players dominating the market share. Due to factors a lack of skilled workforce (with analytical skills and expertise), rising privacy concerns, and data breaches, new players are finding it difficult to enter the market. The competitive rivalry is anticipated to be high due to higher market penetration and the ability to invest in new technologies.

In February 2022, cQuant.io, an energy analytics company, partnered with Microsoft to scale its cQuant energy analytics solution, enabling customers to decrease their greenhouse gas emissions with reliable renewable energy purchases.

In February 2022, IBM and SAP strengthened their partnership to help clients move workloads from SAP Solutions to the cloud. IBM announced teaming with SAP to provide technology and consulting expertise, making it easier for clients to embrace a hybrid cloud strategy and move mission-critical workloads from SAP Solutions to the cloud for regulated and non-regulated enterprises.

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## Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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