

I've read some case studies and got interested in power generation planning. In this [article](#), a lesson of a few decades ago was outlined.

"U.S. electric utilities lost millions in the 1970s and '80s after investing in new power plants based on forecasts that demand would rise 7 percent a year. In fact, demand grew a mere 2 percent a year."

The overestimation of power demand resulted in the overinvestment in new power generation units. It's not only a waste of up-front investment, also burdening the power plants more subsequent O&M cost.

Working in power plants for more than 3 years, I have strong feeling on the importance of power generation planning. Power generation planning, and economic load dispatch are the two most important decision-making processes in power generation. Matching power supply with the demand for electricity from the grid is one of the keys to power system reliability. Through bid data analytics, power utilities will be able to optimize power generation planning and create a smart grid. In the power supply side, large amounts of data are collecting by equipment themselves, digital instruments and network communication etc. In the power demand side, with the increasing application of intelligent devices such as smart meter, power utilities can better understand the habit of customers for demand forecasting.

Renewable energy is another important power grid component that can benefit from big data analytics. In the smart grid, wind power and solar power are two major renewable energy power generation methods. Through using data analytics and historical weather data sets, renewable energy power generation forecasting will be more accurate and efficient.

Thus, throughout the whole process of power generation, transmission, distribution and consumption, by taking advantage of collected energy big data and advanced big data analytics techniques, the power generation planning efficiency can be improved.