

It's Time for Real Time

The difficulty of "storing" power represents the inherent volatility of power generation, transmission and distribution. Mobile real-time information, however, can change this initially challenging situation for RTOs and ISOs into a true revenue opportunity.

It's time for real time business intelligence.



When is the right time for "real time" information? Few industries are as dynamic as the electric utility world. Whether markets world wide are practicing regulated operations, deregulated operations, or are in the process of deregulating, real time data has never been more critical to the success of an organization than it is today.

These organizations are forced to respond to real time changes in their business such as dynamically changing energy prices, loss of generation, failure of transmission and distribution infrastructure, and unplanned electricity demand. How they sense, analyze, and respond to these situations is the difference between your lights working or not. Central to each phase of this problem resolution is real time data. Real time data allows asset owners to identify the problem when it happens, and often, real time data analysis can also help organizations become more proactive, avoiding costly failures all together.

Just as challenging as the market is the efficiency with which these often geographically distributed organizations operate and communicate. While some companies own assets that operate in all phases of the power industry, such as generation, transmission, distribution, and fuel, these can actually be operated as separate companies within the company. Other asset owners such as independent power producers may own and operate only power generation assets. No matter the organization, it is imperative that all phases of the power industry are in sync, in real time.

These organizations are faced with shrinking budgets and work forces while the demand for their products and services conversely increase. It's been noted that on average, IT spend for utilities is approximately 3% of annual revenues. However, you can most certainly assume that technology plays some key role in almost all of their revenue associated operations. This is proof that the type of technology you invest in and how you leverage it are multiplying factors in the return on that investment.

Since power is a dynamic product which is difficult to store, it must be produced to meet the real-time demand for that power. This represents the volatility of power generation, transmission, and distribution. If too much or too little power is produced, this can upset the transmission and distribution grids and often results in power outages for consumers. In addition, generators and grid operators often suffer significant financial penalties for non-compliance to scheduled production.

For example, a local Independent System Operator (ISO) forecasts the amount of electricity required by consumers for the next day, and even within the day, the ISO dynamically modifies forecasts and communicates new power requirements generally in 10- or 15-minute increments. The generator is to follow this forecast as closely as possible. If the generator makes too much power, that power is usually not purchased and is essentially "free," but if the generator produces too little power, they must purchase additional power in spot markets to cover their deficiency. This usually costs the generator a premium, on top of already lost revenues for that same power. The RTOs and ISOs – those responsible for predicting how much power will be used in a given way – need to be extremely good at their predictions. Planning, forecasting, and operations are key functions and all of the elements have to work together.

But, even the best forecasts cannot account for unplanned outages or shortages of power. However, real time information can change that

seemingly negative situation into a revenue opportunity. As an example, a generation dispatcher who is monitoring key performance indicators for his assets is also monitoring key metrics of the transmission grid. He notices the tell tale sign of a frequency disturbance which indicates a power generation station has shut down abruptly. The generation dispatcher immediately contacts his peer at the energy trading desk and informs him of the event. The trader can check the real time operations of his assets against the committed schedule for those same assets. In real time, he is able to determine that he has additional power that he can sell into the market to cover the loss of generation. While the trader makes that deal, the generation dispatcher communicates the need to increase power generation, all in real time. The generation company not only realizes more revenue through additional power sales, but this latest sale also pays a premium for mitigating the loss of other generation.

Real time data also plays a key part of a practice called “economic dispatch”. In our example above, we demonstrated how providing the right information to the right person, in real time, allowed them to take advantage of an otherwise undetected revenue opportunity. What if you could actually maximize that revenue opportunity even more by knowing which asset to dispatch to produce the power with the lowest operating costs? That’s economic dispatch. By understanding financial performance indicators from within our business and from outside, you can make more profitable decisions. If you understand how much you are currently paying for fuels, the degree to which practices such as maintenance affect your operating costs, and the overall asset efficiency, you can determine which asset can produce the next increment of power at the widest profit margin.

Real time data can also help you predict the future. Asset management, or more specifically maintenance, often consumes 30% or more of a company’s operating budget. Monitoring asset performance in real time improves reliability, availability, and capacity of assets, which means you operate more frequently and in prime revenue windows. Condition based maintenance methodologies are not new, yet not as many asset owners deploy them as you might think. For example, a 1% reduction of asset forced outages is not only realistic, but would result in savings of several millions of dollars in lost revenues alone for most mid sized power companies. A simple example of monitoring key operations efficiency metrics could provide the right people with information that a critical asset is about to fail. It’s much easier to mitigate a problem before it happens than after it results in a failure.

Business "intelligence" is the culmination of many data sources, complete analysis, and efficient distribution of information. Whether you're performing economic dispatch, load planning and forecasting, condition based maintenance, or just reviewing email, the method in which the data is delivered is important. Every hour in the work day is contentious, riddled with information overload. Information which is complete and uncluttered allows users to make more efficient decisions. That is certainly true in the real time world. The more specific and pertinent information is, the more valuable it is to the decision making process.

The past decade has marked one of the most exciting times in technology history. As the world becomes more connected than ever using the internet, consumers and most certainly leading edge businesses have a multitude of methods to consume information. While news agencies worldwide offer services such as SMS messaging and websites tailored to mobile users to keep you up to date in real time about global events, some companies continue to face the challenge of operating in that same global real time environment. The SMS message or mobile web story is powerful because they're easy to access, they provide the most important information, and they can reach you anywhere you can get on the internet or find a cell phone signal. Where were you when the last major world event happened? It likely didn't matter because you take advantage of technologies which keep you informed and connected in real time. Can you say the same for your business operations? It's time for Real Time.

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