POWER*SHARE™
## REAL-TIME GENERATION DATA SHARING CLOUD SERVICE

TECHNICAL DATASHEET

More and more power sold by utilities is coming from 3rd party sources. For example, large coal-fired power plants may have multiple owners yet one operator; wind power generated by one company is sold to another; and locally owned solar sites may sell power to public utilities. Due to lack of visibility of production from these 3rd party sources, utilities have to maintain extra production as a buffer. This is particularly a problem when 3rd party supplies come from highly variable sources such as wind or solar.

The KBC Power*Share service was developed specifically to address this problem. It enables the non-operating utility to get real-time access to all relevant data from their 3rd party supplier.

Without Power*Share, energy traders lack visibility of all their available power supplies and utilities cannot easily anticipate future availability.

Our Power*Share service enables the utility to access generation and generation-related data from their 3rd party partners in real-time. Authorized customers can access the data through a tiered set of secure web pages, and may even have the data sent directly to a database on their own network, depending on their preference and access rights.

With Power*Share, any utility can easily manage their energy trading needs in real-time and, with analysis of their own ability to make/buy power, determine optimum generation levels. This capability reduces wasteful generation buffers and allows utilities to take best advantage of short-term supply opportunities from their partners.
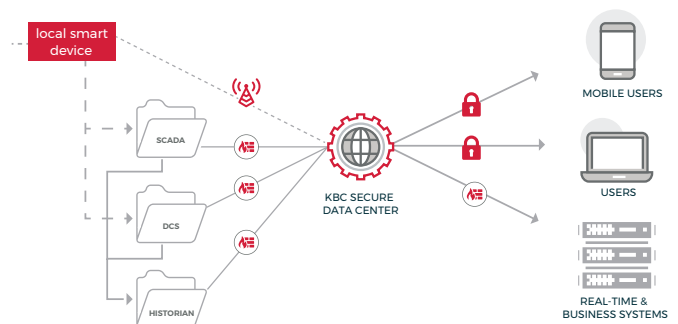
3rd party generation data collection

At most generation facilities, real-time data is typically available from a SCADA (Supervisory Control and Data Acquisition) system, DCS (Distributed Control System) or a historian database. Even if a utility is allowed to access the generator's own systems directly (despite the security vulnerability), a lack of standardization in the industry means that utilities must accept data in the format provided by the generator, and generators would have to support multiple 3rd party users. With over 350 standard interfaces available, Power*Share can collect data from all systems regardless of type.

Secure data communication

Most power generators are unwilling to allow 3rd parties access to their own internal database systems for obvious security reasons. In order to share data with their partners using Power*Share, they therefore approve a single secure path out through their firewall to KBC and then each partner is served data from a mirrored database outside the firewall.

With secure connections to over 300 major corporations, Power*Share greatly reduces security vulnerability and prevents unintended or malicious overloading of the source database and network by outsiders.

Secure data storage

Once posted to the central database at the KBC data center, data is stored in its original resolution for access, even years later. One of Power*Share's beneficial features is converting data from one company's standard to another, eliminating the impact of differences in data format standards, engineering units and data collection frequency – KBC makes these changes without altering the original data. In addition, Power*Share minimizes any disruption in data availability by using the data buffering capabilities of field systems where possible. With data update rates ranging from 1 to 50,000 values/minute, Power*Share has the flexibility, scalability and reliability to suit all needs.

Secure user access

User access to the power generator's data is by one of two methods – secure web displays accessed from their web browser; or direct data transfer to the user's own database. For web access, each user is provided a secure ID and password and can login from any internet-connected device. Access privileges control the user's ability to view displays and download history data for analysis. In the direct data transfer case, Power*Share exports generation data to a real-time or relational database on the user's network, using standard interfaces and appropriate communications channels according to the user's own IT standards. With users from over 300 major corporations, Power*Share has been accepted as the de facto standard for allowing 3rd party access to real-time systems in the power industry.

Extensible to 3rd party service providers

Power*Share can be used to share real-time production and related data (such as turbine performance and met tower data) to other 3rd parties (for example turbine service companies and forecasting companies). Extending Power*Share's reach enables the power generator to reliably incorporate 3rd party service providers into their business processes in real-time.

User configurable electronic alerting

Power*Share includes the ability to automatically alert personnel of changes in production versus specified targets or limits. Alerts are set on a per- user basis and can be received via email, cell phone, pager, etc. Electronic alerting means operating staff can be aware of changes in production and take action to maintain optimal and profitable operations 24 hours a day.

Benefits

Consuming utility:

- Reduction in buffered generation capacity
- Improved energy trading performance
- Optimum power make vs buy decision making

Power generator:

- Reduced security vulnerability with single data pipeline out through the firewall, regardless of the number of partners
- Reduced partner support costs
- Avoidance of investment in in-house systems

Economics

Power*Share is typically worth over $10,000 per day to both the power generator and the consuming utility.

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