Your problem: Consumers love the idea of solar panels and residential wind turbines. Your power generation and transmission management systems, though? Not so much. Your generation and transmission management systems were not built to accommodate the overage and underage conditions that can arise as more of these non-dispatchable solutions are connected. Yet, despite the fact that these systems are outside the scope of your control, it remains your responsibility to ensure the uninterrupted, safe delivery of power to consumers.

Software AG solution: Software AG’s Distributed Generation Monitoring solution enables you to monitor and manage the flow of power—in real time—throughout your infrastructure. By capturing and consolidating information from all relevant sources—from the meters on the buildings where energy is consumed (and possibly generated), from your generation and transmission infrastructure, even from smart appliances and equipment operating in the Internet of Things (IoT)—you gain real-time insight into the state and dynamics of power demand. In addition to real-time monitoring, the solution can incorporate predictive analytics to help anticipate power generation and demand fluctuations—a key step to being able to bring power generation sources on or offline quickly to balance the flow of power throughout the system.

Problem details

As solar panels and small-scale wind solutions become accessible, more and more consumers are deploying these technologies. Rarely will they meet the full energy needs of a given household or business—let alone produce so much power that it flows back into a transmission network—but the aggregated impact of these non-dispatchable generation systems can be significant for a Regional Transmission Operator (RTO) or an Independent System Operator (ISO).

When distributed generation systems are producing power, they can cause buildings to draw less power from the transmission network, which can result in power overage conditions if a utility’s generation systems are working to meet the expected demand. Conversely, when the sun goes down or the wind dies off and these distributed systems suddenly stop generating power, the sudden draw on a utility’s network can create power underage conditions.

From the perspective of an RTO or ISO, neither condition is welcome. They can create instabilities that compromise the safe and reliable delivery of power to consumers throughout the delivery network. And when the safe and reliable delivery of power to consumers remains the responsibility of the utility, that’s a problem.
Software AG’s solution

Enables real-time analysis of high-volume data streams
• Capture data from your AMI as well as your delivery and generation systems to understand, in real time, the state of power demand, generation and infrastructure stability
• Gain real-time insights into demand fluctuations as distributed power generation sources come into play

Enables development and use of predictive models to facilitate reliable power delivery
• Combine real-time data with predictive analytics to develop models of anticipated energy demands
• Streamline the engagement of dispatchable generation systems using predictive models to avoid overage and underage conditions

Enables a configurable response to real-time data triggers
• Send customized alerts to specified operators when specific events are encountered in the real-time data stream
• Initiate processes on other systems within your generation, transmission or management infrastructure as a real-time response to specific conditions encountered in the real-time data stream achieved the intended effect

So how can you accommodate what you can’t control? Naturally, by controlling more effectively the things you can control.

Software AG’s Distributed Generation Monitoring solution provides a mechanism for capturing information in real time from information sources throughout your generation and transmission infrastructure—from power generation systems, transmission systems, substations, sensors connected to an Automated Metering Infrastructure (AMI) and more. Not only can you see real-time changes in energy use and demand, but you can use this information to create predictive models of demand that you can then use to bring power online or offline from those generation sources you can control. You can even gather information from external sources, such as streaming weather data, so that you see impending weather conditions that are likely to affect energy balances.

Indeed, the solution can interact with systems and management solutions throughout your existing infrastructure to enable a real-time response to changes in energy demand. If a summer storm rolls in, simultaneously diminishing the efficacy of solar cells while increasing the demand for power to run air conditioning units, the Distributed Generation Management solution can send a message in advance of the event to your generation management systems to facilitate an increase in spinning reserves. When the storm breaks and cool air flows into your service zones, the Distributed Generation Management solution can cause your generation management systems to cut back on power production in anticipation of the solar cells and residential wind systems resuming output and consumption demands diminishing.

The result? With the Software AG Distributed Generation Monitoring solution, you gain actionable insight with which you can control your distribution and transmission network much more effectively—even as the number of non-dispatchable generation systems grows in ways you cannot directly control. You can continue to rely on the systems you have always used to manage individual elements of your generation and transmission infrastructure. And with the Software AG Distributed Generation Management solution, you can do so with a level of overarching, real-time insight and responsiveness that no other component of your infrastructure can provide.

Critical aspects of a distributed generation management solution

• The ability to monitor data from millions of data sources—from your generation and transmission management systems, from your AMI infrastructure, even from streaming external data feeds—in real time
• The ability to analyze, contextualize and make determinations about demand conditions in real time
• The ability to initiate action, in real time, in response to changes in demand conditions

ABOUT SOFTWARE AG

Software AG offers the world’s first Digital Business Platform. Recognized as a leader by the industry’s top analyst firms, Software AG helps you combine existing systems on premises and in the cloud into a single platform to optimize your business and delight your customers. With Software AG, you can rapidly build and deploy digital business applications to exploit real-time market opportunities. Get maximum value from big data, make better decisions with streaming analytics, achieve more with the Internet of Things, and respond faster to shifting regulations and threats with intelligent governance, risk and compliance. The world’s top brands trust Software AG to help them rapidly innovate, differentiate and win in the digital world. Learn more at www.SoftwareAG.com.

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