Determine system health precisely

EnergyIP Analytics – Power Quality

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The energy system is changing dramatically – and this is posing new challenges but also new opportunities to distribution grids. Transparency about generation and consumption, costs, and power quality are becoming increasingly important as a result. It is this knowledge that will pave the way for making the adjustments needed to optimize grid efficiency and supply security. Rolling out an advanced metering infrastructure (AMI) is costly, but now the time has come to create value from meters. The key to this lies in analytics.

Siemens has developed the right solutions for realizing this. EnergyIP is an extremely powerful, flexible, and scalable platform that easily handles millions of sensors – be it smart meter or others – and the huge volumes of data generated. The Siemens Sinalytics framework provides tools and intelligence for advanced data analytics in a secure environment.

EnergyIP Analytics – Power Quality leverages the existing AMI infrastructure and Siemens in-depth knowledge of grid architectures to continuously monitor parameters like voltage, reactive power, or momentary outages on the most detailed level possible. The increased level of detail puts utilities back in control and offers instant benefits.

EnergyIP Analytics – Power Quality
Main benefits

Cutting back reactive power
Reactive power is often explained as the foam on top of the beer. It's there and it's inevitable that it is, but it's not what utilities get paid for. Finding out where provisioning of reactive power is most needed and cut back where it is not makes energy distribution more efficient and saves money.

Finding the likely source for momentary outages
Monitoring and reporting momentary outages is a key indicator of grid resilience and in most countries is a mandatory regulatory requirement. If a momentary outage is measured at a substation level, the investigation into potential sources starts. Power Quality constantly monitors the AMI infrastructure and identifies patterns of what grid assets are effected by outages and what the most likely source is.

Insights on voltage control
The voltage of the power supplied is an important indicator. On a household level even turning on the A/C can cause the voltage to deviate from normal for a split second. On a substation level the source must be more severe to result in noticeable sags or swells in voltage. Transformer malfunctions may be a cause. Power Quality uses AMI data to identify the meter and circuits that have the most voltage reads outside the normal range and point towards potential environmental or equipment issues as a cause.

Incorporate external data sources
The ability to add external data sources such as weather forecasts, holiday schedules, local events, and even anticipated construction to the data model increases the accuracy of the predicted load.

Plug-and-play custom algorithms
Big data analytics is usually a journey and not an event. Every open door enables new possibilities and the EnergyIP® Analytics Power Quality application allows the plug-in of custom algorithms so that utilities can further explore and unlock the value of their own data.

In the cloud or on-site
Power Quality can either be deployed on-site, on an existing system, or as a Software as a Service (SaaS) cloud model that integrates with available data sources.