

Available Technologies

Supporting Situational Awareness through Shared Perspectives

SUMMARY

Sustainable, efficient power grid operations rely heavily upon real-time information transparency and wide-area situation awareness (WSA) for all organizations in the power grid. For example, operators that communicate across organizations often depend (exclusively) on telephones to create a foundation of common understanding. For non-critical situations, this communication medium is sufficient. During critical and complex events, however, relying exclusively on verbal communication can result in miscommunications that lead to incorrect assumptions about events and even disastrous consequences.



This technology addresses the fundamental need for greater WSA situational awareness through actionable visualization tools that increase the effectiveness of communication between organizations. This is achieved by, supporting inter-organizational planning and problem solving efforts, and integrating information from domains external to the power industry with power grid information so that organizations have a better awareness of events that can impact grid stability. This technology supports the need for WSA through new visual communication mechanisms that allow organizations to securely and flexibly share information across organizational boundaries in order to create a common view of shared information. These shared communication mechanisms are extended with visual analytic strategies that incorporate germane information from domains outside of the power grid: e.g., weather, political/social, cyber, etc. Collectively, these integrated strategies are supported through a new application called “Shared Perspectives.” This application’s framework is based on a scalable web architecture that supports a highly-interactive, highly-customizable collection of visualization components that support rapid design and deployment for custom applications in industry use-cases.

ADVANTAGES

- * Broadens the conduit of communication between organizations through a secure, shared visual perspective that establishes a common wide-area awareness of operations
- * Allows organizations to flexibly share and build a common understanding of events through the secure sharing of information and visualizations.

Integrates data from multiple domains that can impact reliability and efficiency of the power grid including weather, cyber, and political/social (e.g., power consumers).

RELATED LINKS

» **Future Power Grid Initiative Home Page**

This work was developed as part of PNNL's "Future Power Grid Initiative," which will develop next-generation algorithms and tools for networking, modeling and simulation, and visualization and decision support to drive the transformation towards a more reliable and efficient future power grid.

<http://gridoptics.pnnl.gov/>

Technology Portfolio(s)

» Energy

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