

# grid-IE the next-generation power grid visualization tool

## SITUATIONAL AWARENESS

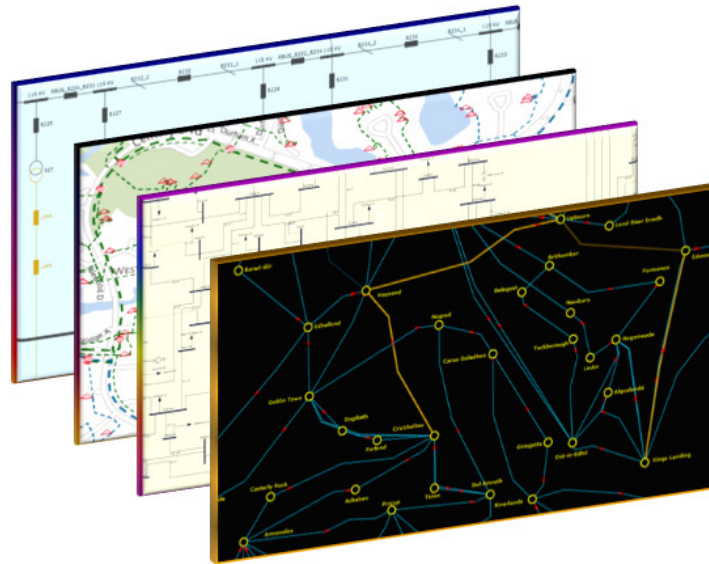
Combining decision-supporting analysis with data-driven visualization, grid-IE is designed to assist grid operators to perceptually monitor a large number of events and reduce cognitive demands on system operators in a real-time environment.

## EXPLORATORY DATA ANALYSIS

Leveraging the state-of-the-art visualization techniques, grid-IE delivers the cutting-edge look-and-feel and rich user experience to help users explore the grid intuitively and interactively, seeking useful information from large volume of data.

## STANDARD-BASED ADD-ON

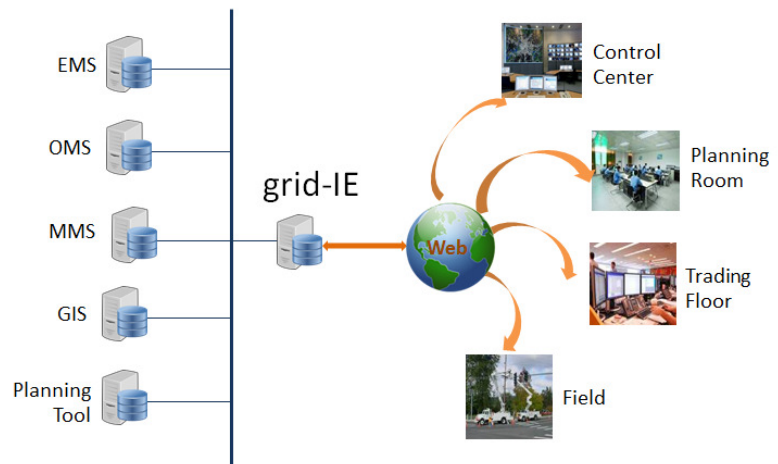
Built on top of the standard Common Information Model (CIM), grid-IE is interoperable with existing utility information infrastructure, providing added values in support of a variety of emerging business requirements in an electric utility organization.



- State-of-the-art schematic one-line auto-generation
- Rich data visualization for situational awareness
- Visual data mining facilitating exploratory data analysis
- Interactive user experience
- Standard-based plugin
- RESTful Web services easy to integrate

grid-IE, sponsored by US Department of Energy, is a next-generation power grid visualization tool aimed to support multiple business practices in an electric utility organization. Based on Common Information Model (CIM), it consolidates the information from various sources and enables users to visualize the power grid and its operations from different perspectives and in various details.

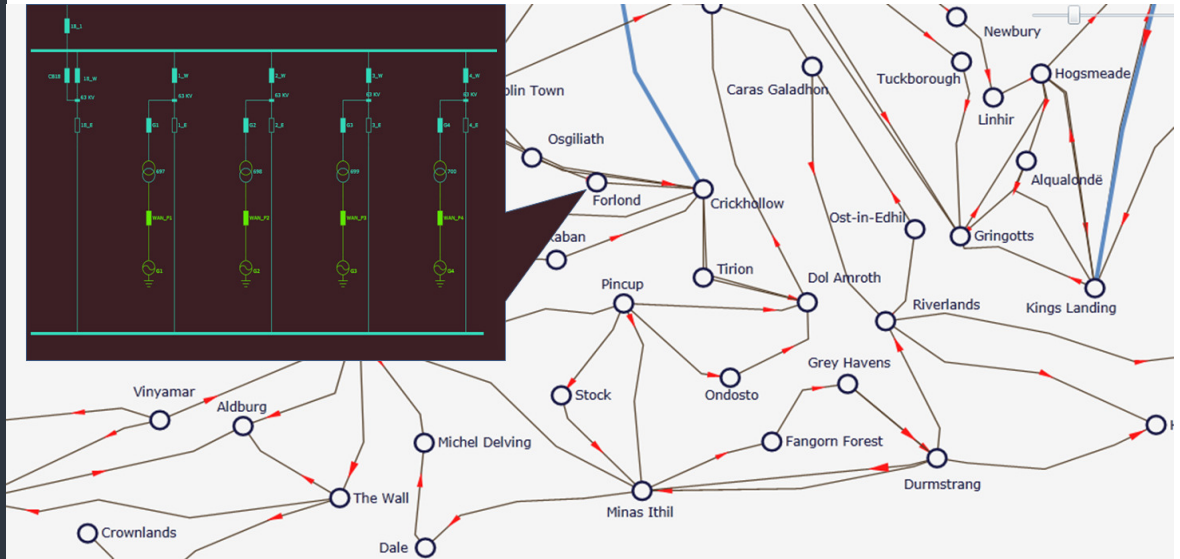
One of the supported use cases involves helping power grid operators perform mission-critical tasks. Designed as an add-on tool, grid-IE is aimed to fill many of the gaps in today's utility operation systems. Integrated with these legacy utility information system based on industry standards, grid-IE displays the grid operation information, including field measurements, analytical results, and outages on the generated schematic and geographical diagrams at a real-time speed. The goal is to help system operators perceptually monitor the grid operation, identify harmful threats to grid, and suggest courses of action.



## METHODOLOGY — a data-driven approach

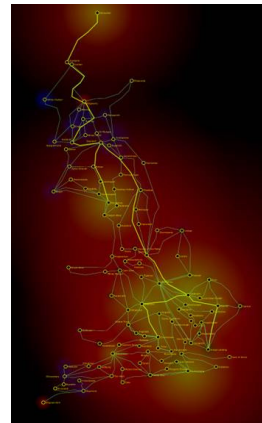
Unlike the legacy grid visualization tools which restrict the visualization process to follow a limited number of pre-defined patterns created by human designers, grid-IE relies on powerful data manipulation algorithms to create visualizations based on the empirically or mathematically derived data.

More specifically, grid-IE leverages various data-driven techniques, such as pattern-recognition, data mining, etc., aimed to unleash the power of visualization and foster the scientific understanding and insight. For example, one of the applied data-driven visualization techniques is called query-driven visualization, which combines the data management technology with the interactive visualization technique and enables users to limit the visualization to the “interesting” data. It is well suited for performing analysis on datasets which are both large and highly complex.



## Key Features

- Auto-generating high-quality schematic one-line diagrams from different perspectives and in various details
- Combining GIS data with network topology information to create geo-schematic diagrams on a geographical map
- Providing a variety of wizards, data analysis algorithms, and query support to facilitate exploratory data analysis
- Transforming field measurements and analytical results into rich data visualizations to foster comprehension and discovery
- Using multi-resolution and multi-scale rendering techniques to avoid information overload while enabling users to find highly detailed information
- Supporting schematic/geographical diagram exchange based on IEC 61970-453/61968-13.



## SERVICES AVAILABLE

Customization  
Integration  
Consulting  
Subcontracting  
Training  
Installation and Setup  
Technical Support  
Maintenance  
Embedded Licensing



12600 SE 38th St, Suite 230  
Bellevue, WA 98006  
Phone: 425-406-7996  
Email: info@powerinfo.us  
Web: www.powerinfo.us