

A World-Renowned Utility

SPACE•TIME•INSIGHT

A World-Renowned Utility owns and operates power plants with approximately 30,000 megawatts of electric generating capacity. It is one of the largest nuclear generators in the United States.

The utility delivers electricity to over 2 million utility customers. The utility has annual revenues of more than \$10 billion and approximately 14,000 employees.

Need: A consistent state of informed readiness

- Quick, intuitive situational awareness
- Fast knowledge of where to focus

Solution:

- Space-Time Energy Composite

Features:

- Geospatial view of assets and the grid
- Assets overlaid on accurate terrain images
- Real-time phasor data, grid, and asset status
- Auto-detection and display of new PMUs
- Drill-down to asset condition and attributes
- Automated, accurate grid line visualization
- Visualization of built-in analytics overlaid on assets, terrain
- Root cause analysis of WAMS instability
- Linked to live weather feed overlays
- Historical playback

Benefits:

- State-of-the-art early warning for current and evolving system disturbances
- Visual understanding of substation and transmission grid status
- Improved situational awareness
- Enhanced operator readiness

After Hurricane Katrina

Hurricane Katrina devastated the US Gulf region, and A World-Renowned Utility suffered significant damage to distribution and transmission facilities and fossil units in 2005. The utility needed to rebuild its facilities and make its disaster response and operations readiness capabilities stronger than ever.

Still situated in a US region prone to hurricanes, flooding and other unavoidable weather events, the utility needed to prepare for the inevitable crises to come. The dominant concern was readiness. By identifying solutions that would keep the utility in a constant state of readiness, the company could secure operations and assets for a stormy future, keep customers' lights on and keep power flowing.

State-of-the-art Phase Measurement Units (PMUs) were deployed to monitor grid stability and provide early warning of disturbances and imbalances that could require immediate attention to prevent wide-spread outages and avoid damage. However, the utility quickly realized that though sensing and displaying signals in the form of charts and graphs provided essential technical data, this was not sufficient for fast action. Charts and graphs changing at sub-second intervals were non-intuitive and required time-consuming analysis.

Operators needed a quick, intuitive grasp of what was happening, where and when. They needed a quick take on how fast it was evolving (or devolving), the direction it was spreading and the location of at-risk assets that needed attention or to be shut-down to prevent a cascading outage throughout the grid. What they needed was more powerful situational awareness.

This was a space-time problem. Operators needed to see system status geospatially – grid lines and assets overlaid on a satellite image of the terrain, with real-time phasor data and interactive displays of operating of assets in their correct locations, plus colors and symbols that present the technical data in an easily digestible and intuitive form. Clicking on an asset would offer drill-down views of its attributes and current condition. A playback capability would even let them view anything they may have missed. A visual overlay of weather conditions across the grid would complete the picture. This would be true situational awareness – even better, situational readiness.

The utility chose Space Time Insight's Space-Time Awareness Server and its Space-Time Energy Composite as the best fit for their specifications.

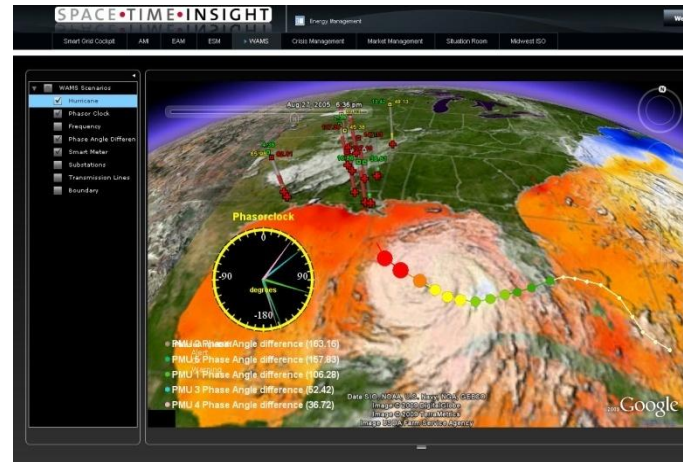
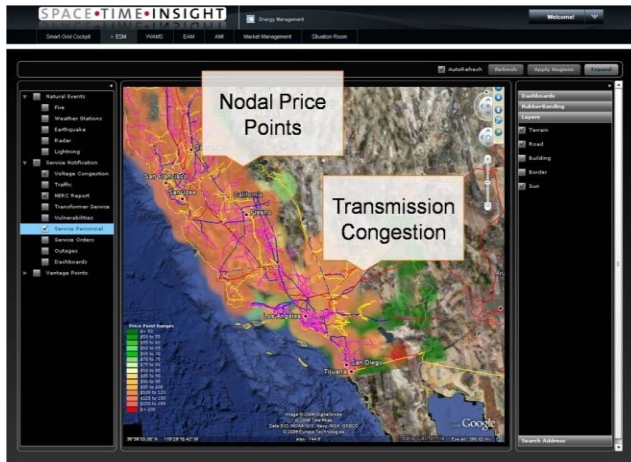
Solution

In 2007, when A World-Renowned Utility deployed the Space-Time Insight solution for phasor and corresponding asset monitoring, a state-of-the-art early warning system for current and evolving system disturbances was put in place.

SPACE•TIME•INSIGHT

About Space-Time Insight

Space-Time Insight software displays real-time, location-intelligent operating status on satellite images to deliver intuitive analytics and guided remediation for fast action ... anytime, anywhere.



Space-Time Insight Solutions

- Space-Time Energy Composite
- Space-Time Crisis Composite
- Space-Time Service Composite
- Space-Time Asset Composite
- Space-Time Renewables Composite
- Space-Time Market Composite

Major Vertical Markets Served

- Energy Utilities: Transmission, Distribution, Generation, and Renewables
- Water & Natural Gas Utilities
- Railroad, Supply Chain, Chemicals, Oil & Gas

Space-Time Insight Features

- Instant access to critical assets complete with real-time and historical data and analyses
- Real-time integration of time-series data streams with other internal and external data sources for comprehensive understanding of the operating context
- Repository of configurable operating thresholds, exceptions, condition-based alerts and procedures
- Pop-up remedial action scripts for fast response to alerts and mobilization of crews and 3rd party responders
- Time-based streaming with full context playback for root cause analysis, audit, training and projection evolving events
- Regulatory rule-set and case management for automated compliance with Federal, State and local regulations
- Operator-friendly configuration of fixed and ad hoc rules, formulas, multi-system expressions and views
- Multi-view situation screens for simplified, 360° full context, multi-data layer views

Space-Time Insight Customer Benefits

- Revenue enhancement via faster reaction times, congestion pricing and smart grid management
- Simplified contextual understanding and intuitive control of complex operating environments
- Increased speed and proficiency in responding to operating conditions
- Reduction in the direct costs and collateral economic disruption of critical events
- Simplified, automated compliance reporting reduces the probability of NERC-CIP reliability penalties
- Improved ability to tap into Stimulus Plan Funds under the American Recovery and Reinvestment Act of 2009 (ARRA)

Technology

The Space-Time Awareness Server (STAS) is a geo-spatial intelligence platform, based on a Space-Time Advanced Calculation Engine. Coupled with fixed or on-demand (current) satellite visuals and other spatial technologies, it integrates real-time and historical data with enterprise business systems, databases and web feeds to analyze operating status, assess events and deliver detailed alerts on interactive satellite images. Remedial action can be triggered from the STAS portal.

All visuals and maps represented in this literature are for demo purposes only. No data outside of those publicly available are represented in these images.