



Visualizing Energy Resources Dynamically on Earth

VERDE: A Real-time National Visualization Resource

Situation Analysis

Major power outages in the United States over the past decade have a recurring theme – the lack of wide-area situational understanding was a key factor that contributed to blackouts and also in managing the preparedness for and response to destructive events. Real-time geo-visualization capability characterizes the dynamic behavior of the electric grid across multi-regions, substantially mitigating the risk of and accelerating the recovery from a large area power disruption.

Technology Pathway

Oak Ridge National Laboratory (ORNL) is developing a national visualization capability for the U.S. Department of Energy’s Office of Electricity Delivery & Energy Reliability. This resource will enable real-time status of the electric grid and critical energy sectors and eventually a “health status” of the nation’s electric infrastructure to assist federal agencies in the coordination and response during major events such as wide-area power outages, natural disasters and other catastrophic events. The following functions will be featured in VERDE:

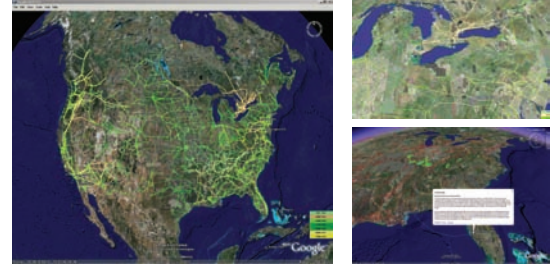
- Real-time status of the electric grid
- Energy infrastructure integration
- Real-time weather & other data streams
- Grid behavior modeling and simulation
- Extreme contingency analysis

Partnerships

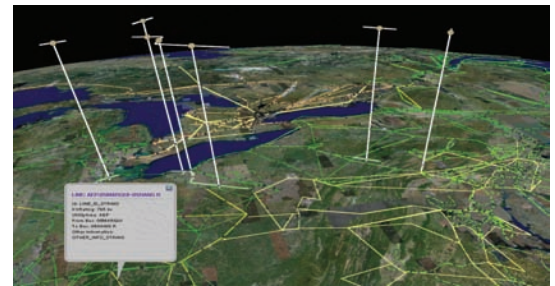
ORNL is partnering with industry and universities to develop this strategic tool. Tennessee Valley Authority and other major utilities spanning multiple regions across the electric grid interconnection are providing real-time status of their system. Innovative businesses such as Genscape are providing additional datasets that will contribute to visualization and advanced modeling analyses.

Point of Contact:

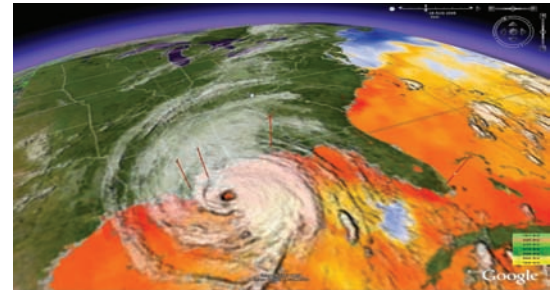
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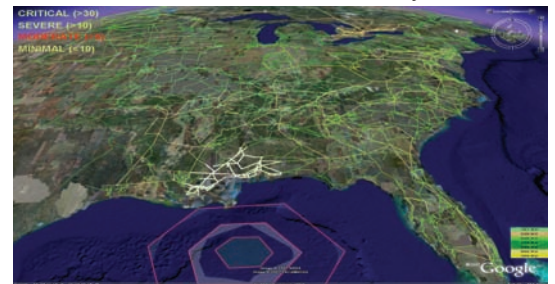
Wide-Area Power Grid Situational Awareness



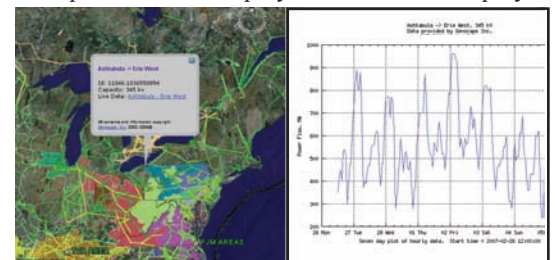
Live Outages



Real-time Weather Overlays



Impact Models Display and Animated Replay



Streaming Analysis

