

Bentley
Advancing Infrastructure



OpenUtilities Analysis (Powered by Siemens' PSS®SINCAL)

Power Systems Planning and Analysis for Grid Modernization

Key trends occurring in power utilities are already causing disruption and challenges to the industry. The increase in more agile, decentralized, and distributed energy resources, such as solar panels, wind farms, community solar, electric cars, and more, have a huge impact on the infrastructure. Modeling the grid for decentralized energy requires a new and reliable system to effectively manage complexity and modernize assets to support distributed energy resources (DER). Utilities need to address the question of how to maintain reliability and resilience within the grid, considering how DER interconnections affect network performance, and without disrupting current operations.

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Power planning engineers need the capacity to work in an environment that integrates power systems analysis capabilities with geographic information system (GIS) capabilities. The Siemens/Bentley collaboration creates a complete solution, enabling power planning engineers to work directly within the GIS for rapid assessments and validations tailored to power planning workflows for the modern grid accommodating DER in a constantly changing environment. The solution operates within a connected data environment, a common platform that uniquely converges engineering disciplines, asset types, and lifecycle processes.

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Perform simulations to evaluate DER integration

Extensive growth of DER on the power system has fundamentally changed the operation and planning of the power grid. OpenUtilities Analysis addresses DER integration challenges. The OpenUtilities Analysis framework enables planning engineers to perform simulations to investigate DER integration and provide solutions in terms of capacity, connections, compliance, load, and even security. Using network models, DER loading can be added and calculations can be run to determine success in each workflow. This results in cost savings from automated assessments and creates complete and qualitative documentation.

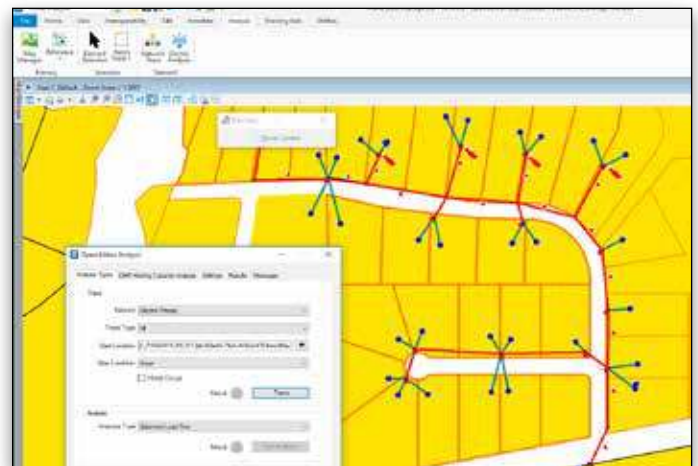


Figure 1: OpenUtilities simulates and analyzes power system networks to optimize grid performance and reliability.

DER Calculation Methods for Electrical Networks

Calculation methods used for DER planning, designing, and managing operations in electricity transmission and distribution networks can be quite complex and time intensive. OpenUtilities Analysis reduces the amount of manual work required at each step of the analysis. Relying on a simplified or detailed model of the installation, the module allows the creation of various study cases by combining system loading conditions with minimum and maximum DER contributions all defined as simulation parameters. Controlled load flow analyses are then executed on each scenario to assess the impacts on the system.

GIS Agnostic

OpenUtilities Analysis enables interoperability with Esri ArcGIS and GE Smallworld to adapt to different data formats. By being GIS independent, OpenUtilities Analysis provides abundant flexibility, improves productivity, and expands data analysis capabilities.

Connected Data Environment

OpenUtilities Analysis leverages the connected data environment, a cloud-provisioned open framework for collaboration and asset information management throughout the lifecycle of utilities infrastructure. Ensure accuracy and availability of documents and data at every stage of the asset lifecycle, allowing faster project start-up, streamlining of workflows, adherence to standards, reduction of risk, more informed decisions, and increased asset performance.

