

Improve Operations Using Grid Data

Operational Analytics is one of three modular, user-friendly, web-based application packages designed to fully leverage Landis+Gyr's Advanced Grid Analytics (AGA) platform, integrating GIS and SCADA data to expand the benefits of your AMI system and create actionable insights.

The power distribution system connectivity and impedance model allow for data generated at the edge to be projected across the asset base to the source. This enables a wide variety of use cases to support planning and operations including asset management, interconnection requests, and outage event monitoring. Operational Analytics contains four modules, providing powerful and meaningful operational insights.

FULL MODEL VALIDATION MODULE

- Identify meters not correctly mapped to their transformers
- Recommend transformer to which incorrectly mapped meters should be moved
- Correct meter voltage rating based on measurements reported
- Identify nodal and phase connectivity islands, and connectivity loops
- Identify assets with incorrect capacity rating
- Determine circuit power flow convergence for various control and loading scenarios
- Rank substations by health score from worst to best to target model revision efforts

LOADING PERFORMANCE MODULE

Asset Loading

- Calculate power flow across asset base using meter consumption intervals
- Identify overloaded and underutilized transformers, conductors, and protective devices
- Visualize asset load profile, heatmap, and duration curve
- Target capacity expansion projects based on system-wide visibility
- Identify unbalanced power flow to support system-wide phase balancing
- Navigate connectivity model upstream and downstream

KEY FEATURES

- *Includes Metering Analytics package*
- Project meter measurements across asset base via power flow to determine historical loading
- Monitor outage and restoration events, as well as asset measurements and status in near real-time
- Simulate various loading and control scenarios to determine need for capacity investment
- Simulate technical impact of circuit reconfiguration, asset replacement, and customer-owned photovoltaic deployment scenarios
- Optimize regulator and capacitor control settings, energy storage size and placement

Operational Analytics

Section Loading

- Calculate peak loading by line section
- Proactively replace highly loaded protective devices
- Visualize line section load profile, heatmap, and duration curve

GRID MONITORING MODULE

- Monitor distribution automation (DA) device measurements and status in near real-time
- Determine tripped device based on distribution of meters reporting power outage
- Estimate fault location based on DA fault current or impedance measurements
- Identify pocket outages based on meters in outage state not reporting power restoration
- Confirm service restoration using distribution of meters reporting power restoration
- Replay outage events to enhance dispatch strategy and train new operations engineers

CAPACITY PLANNING MODULE

Distributed Energy Resource (DER) Integration

- Simulate scenarios for distributed, mid-point, end-of-line, and manual PV placement
- Optimize energy storage placement and size to support PV integration or reduce peak loading
- Calculate risk of voltage fluctuation and reverse power flow to determine hosting capacity

Transformer Loss of Life

- Determine transformer degradation using historical loading and physical characteristics
- Calculate peak demand contributions for all meters belonging to a transformer
- Gauge impact of moving meters to neighboring transformers or right-sizing transformer
- Calculate cost-benefit analysis of replacing transformer
- Visualize transformer loading profile, heatmap, and duration curve

Power Flow Simulation

- Model system state, meter load, and switch status as operated or as planned at any point in time
- Allocate load and power factor for individual customers or across circuit
- Re-conductor circuits by line code to determine impact on overloading and technical loss
- Optimize regulator and capacitor control settings to flatten voltage profile across circuit
- Compare analysis results to holistically assess technical impact of various approaches
- Visualize asset and meter load profile, heatmap, and duration curve

Outage Prediction

- Identify areas at risk of outage based on distribution of meter reporting momentary outages
- Rank potential outage by level of impact to prioritize vegetation management efforts

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