



## BENEFITS AT A GLANCE

- Faster, cheaper, and more efficient planning of decentralized power supplies
- High-performance network displays, including correct positioning and depth data
- Data generation on equipment
- Information on electrical flows and feeds in the network
- Elimination of expensive and error-prone interfaces for external network calculations
- Direct resolution of topological errors in the data set that may prevent a network calculation
- Direct initiation and control of load flow calculations through the GIS
- Availability of power range selections for each calculation
- Output of results in both a graphical or dialoged format

**G/Technology Power Control LFC is a plug-in for both G/Technology Designer and G/Technology NetViewer.**

## G/TECHNOLOGY POWER CONTROL LOAD FLOW CALCULATION (LFC)

Intergraph®'s G/Technology Power Control Load Flow Calculation (LFC) is a plug-in feature that generates calculations of electrical power grids. Based on the G/Technology user interface, this tool uses electrical power grids to graphically create and review geographic information systems (GIS)-based calculations, analysis, and planning.

## G/TECHNOLOGY-BASED NETWORK ANALYSIS FOR CURRENT AND FUTURE TECHNICAL SUPPLY REQUIREMENTS

There are two fundamental challenges for network operators in connection with distribution network analysis and planning:

- Declining budgets for investment and operation in conjunction with upholding a high supply reliability standard, both as an incentive and as a quality control mechanism
- Changing technical supply requirements due to looming electrical mobility and new electrical energy generation (distributed and renewable)

Due to increased renewable energies, the number of decentralized feeders is steadily rising in medium and low voltage networks. As a result, when undergoing planning activities, distribution network operators should monitor voltage quality in their respective network areas. Any proposed distributed system must be tested for network compatibility, and if necessary, operators must determine alternative connection points or grid expansion measures.

The G/Technology Power Control LFC is an optimal solution to avoid unnecessary investment, and technically and economically facilitate the reconnection of large consumers with the help of load flow calculation.

### Load Flow Calculation with G/Technology Power Control LFC

G/Technology Power Control LFC calculates the voltages and currents using select network areas and provides:

- Network connections based on switching states
- Information on individual resources, such as the impedances of lines
- Data on feeding and loads in the network

With G/Technology Power Control LFC, load flows begin and are controlled directly from the GIS while providing you appropriate functionality within the G/Technology user interface.

The integrated, low-voltage power calculation function, where calculations are required to start and stop, allows you to select areas of the network to edit while displaying its status information. These results are then represented in G/Technology either graphically or through dialogs.

### Benefits of G/Technology-based Network Analysis

Compared with traditional network calculation software, G/Technology Power Control LFC has a GIS-based approach to its calculations, and pays special focus to the new requirements of the distribution network level.

You will benefit from G/Technology Power Control LFC's powerful network representation within the GIS, particularly during planning for the low voltage level area. This Intergraph solution includes a proper representation of network location and in-depth analysis of the GIS data that external network calculation programs usually do not offer. Similarly, it provides detailed information about the structural situation and gives an exact course of leadership. In general, planning tasks in the low voltage area have an intense spatial reference. G/Technology Power Control LFC complements this functionality by incorporating the necessary network calculation functions in the GIS.

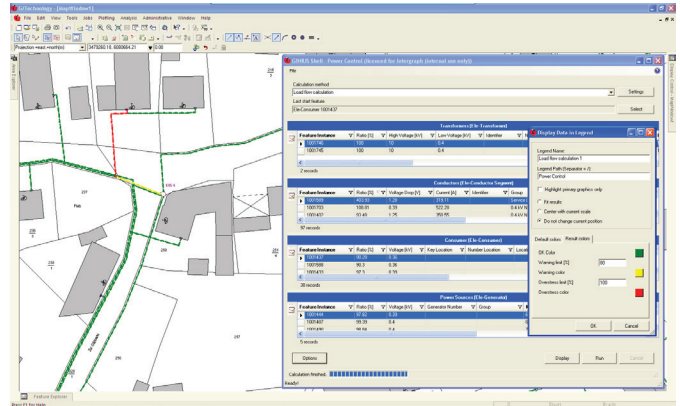
### Inexpensive and Precise Interface

G/Technology's integrated plug-in is an inexpensive precision tool that eliminates costly errors in low voltage areas, where problems frequently occur in response to complex and large amounts of network data.

A basic problem in low voltage areas occurs when an interface must bridge differences between conceptual data models. Solving these models require reasonable effort, and are oftentimes managed only to a certain extent. When special cases occur in the GIS database, these inconsistent conceptual data models may cause problems in the network calculation.

G/Technology Power Control LFC, a complete solution from a single source, solves these familiar difficulties by conceptually

linking its power calculation closely with G/Technology. Even if topological errors in the data set make it impossible to obtain a visual power calculation, it is possible to visualize the erroneous data directly with G/Technology. After correction, the network is directly calculated using Intergraph's G/Technology Power Control LFC solution.



Load flow calculation with G/Technology Power Control LFC

## ABOUT INTERGRAPH

Intergraph is the leading global provider of engineering and geospatial software that enables customers to visualize complex data. Businesses and governments in more than 60 countries rely on Intergraph's industry-specific software to organize vast amounts of data to make processes and infrastructure better, safer and smarter. The company's software and services empower customers to build and operate more efficient plants and ships, create intelligent maps, and protect critical infrastructure and millions of people around the world.

Intergraph operates through two divisions: Process, Power & Marine (PP&M) and Security, Government & Infrastructure (SG&I). Intergraph PP&M provides enterprise engineering software for the design, construction, operation and data management of plants, ships and offshore facilities.

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