

**CYME**

Power Engineering Software and Solutions

# Integration Capacity Analysis

Determine the hosting capacity of your distribution system considering power quality and reliability.

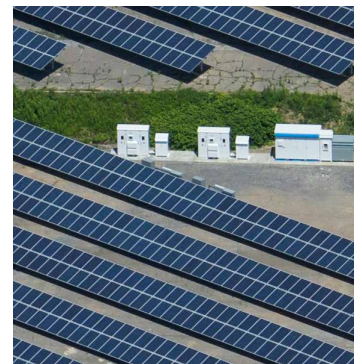
The global trend for cleaner power, supported by the arrival of new technologies such as solar and wind farms as well as affordable rooftop photovoltaic panels, has changed the distribution system landscape. The ever-increasing volume of distributed energy resources (DER) interconnection requests creates a need for new innovative engineering tools. The CYME Integration Capacity Analysis module allows performing an assessment of the generation or load hosting capacity of a distribution system without compromising its reliability and power quality.

As the landscape of the distribution system evolves with the rapid emergence of new renewable energy technologies, electric distribution utilities are challenged to accelerate DER deployment and process interconnection requests in a timely manner.

The CYME Integration Capacity Analysis module comes in handy to efficiently and consistently calculate the maximum generation or load capacity that can be installed independently at each point of a distribution system without adversely impacting its reliability and power quality.

This productivity tool saves labor time by allowing engineers to run simulations without the use of manual tools. A minimum number of parameters, such as the maximum capacity to consider and the peak and minimum load conditions, are required before the assessment can be performed on a complete or partial model of the distribution system. The maximum hosting capacity is determined based on a set of user-defined thresholds referring to a list of criteria that includes thermal overloads, reverse power flow, abnormal steady-state voltages, transient voltage variations (flicker), reduction of protection reach and sympathetic tripping.

The accurate results provided by the CYME Integration Capacity Analysis are a key to support utilities in their current and future generation interconnection request processing. Moreover, the powerful reporting capabilities of the CYME software make it the perfect tool for publishing color-coded hosting capacity circuit maps for customers and developers interested in suitable locations for DER interconnection projects.



**EATON**

Powering Business Worldwide

# Integration Capacity Analysis

Create comprehensive color-coded hosting capacity circuit maps using the CYME Integration Capacity Analysis module.

The CYME Integration Capacity Analysis module calculates the maximum generation or load capacity at each point of the distribution circuits analyzed.

## Features

The analysis uses an iterative method which considers:

- Integration of generation or load up to a user-defined maximum capacity value
- Maximum fault contribution for generation integration, or customer type for load integration
- Load scaling factors or load models for peak and minimum load conditions
- Customizable load flow and short-circuit calculation parameters

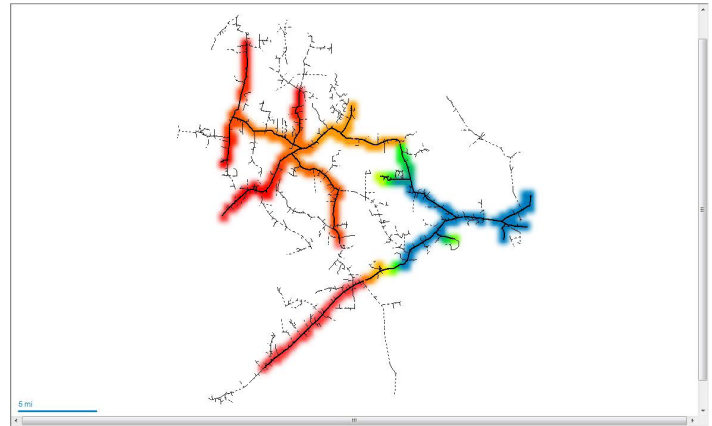
System reliability and power quality are ensured by a series of criteria-based verifications including:

- Thermal loading of monitored devices based on user-defined limits set by device type
- Reverse flow through monitored devices based on a maximum permissible user-defined value
- Abnormal steady-state voltages based on user-defined over- and under-voltage limits applicable globally or by voltage range (LV, MV, HV)
- Voltage variations caused by sudden generation or load fluctuations based on a user-defined limit
- Reduction of protection reach of monitored devices considering pickup security factor
- Sympathetic tripping of monitored devices considering security factor

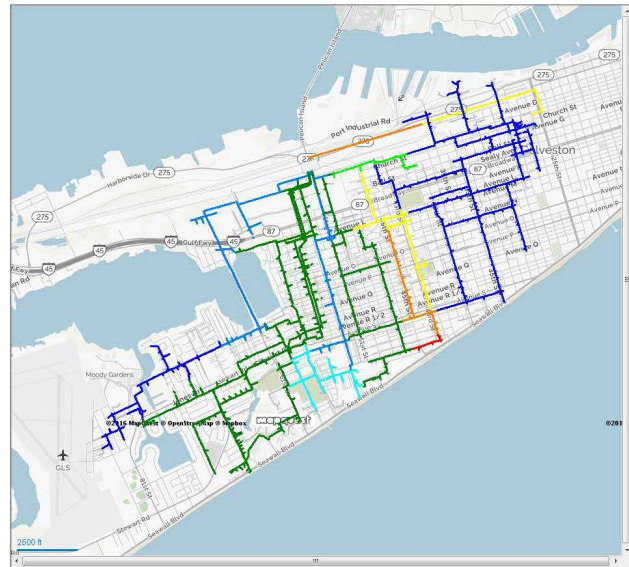
## Illustrative results

Integration capacity analysis results are displayed in a tabular report detailing the maximum hosting capacity at each node of the circuits analyzed. Results for each individual constraint are also provided.

Results can of course be used to color-code the one-line diagram or feed the color map function in order to graphically emphasize locations with greater or lesser integration capacity.



ICA results in the CYME software



ICA Results on Map (MapQuest™)

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