

CYME Gateway

# CYME Gateway

To create, maintain and validate  
your electrical network model.

**EATON**

*Powering Business Worldwide*

# Ability to integrate with your enterprise systems

The ability to accurately analyze an electrical network depends heavily on the accuracy of the network model. The CYME Gateway is a complete solution which interfaces and transforms the intelligence of different enterprise systems into the most complete network model possible.

The resulting output is a complete, up-to-date network model in a CYME database which is ready to use for power engineering analysis in the CYME software; planning studies, reliability analysis, switching optimization, losses reduction, and more.

- GIS – network topology (ESRI, Intergraph, GE Small-world, in-house systems)
- AMI/AMR/MDM, CIS – load information
- SCADA – feeder demand
- DMS – dynamic settings, IED readings
- OMS – actual switch status, failure history
- Protective device data – Detailed settings of relays, reclosers, fuses, etc.



The CYME Gateway takes care of all the technical complexity in generating a reliable network model, so that you don't have to.

**A solution tailored to suit your needs**

The CYME Gateway also offers various optional features:

- Extract further complementary network information
  - Secondary network grids, low-voltage distribution systems, substations, load information, etc
- Automatically perform CYME analyses and data validation after network extraction
  - Network equivalents calculation, load allocation with feeder demands, etc.
- Productivity tools to improve data quality
  - Data validation, web reports, staging control tool

Each CYME Gateway is tailor-made according to each client's data sources and specifications, and our team assists you during the different project integration phases. The CYME solution combines engineering expertise and knowledge that stand behind more than 75 CYME Gateway installations worldwide.



The CYME Gateway is the solution you can trust to deliver the solid network model for all engineering analyses.



## Data extraction

Powerful methods for extracting information to effectively model your system.



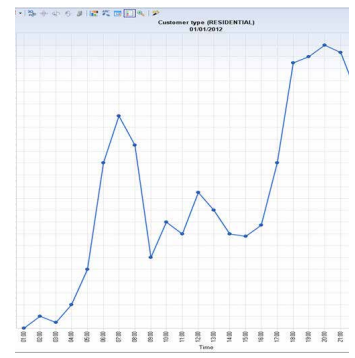
### Secondary network and low-voltage distribution systems

Interfacing with the GIS system, the CYME Gateway can extend your distribution network model with the optional extraction of the low-voltage distribution system and secondary networks. This new complete model allows analysis of the highly-meshed secondary network grid as well as the secondary low-voltage side of distribution transformers.



### Substations

When substation connectivity information for substations is not available in GIS, the substation models can be easily created using the CYME software. The CYME Gateway will incorporate them with the rest of the extracted networks. Complete substation models include multiple transmission line feeds, power transformers, protective devices and tie points to make the model more detailed to give more realistic analysis results.



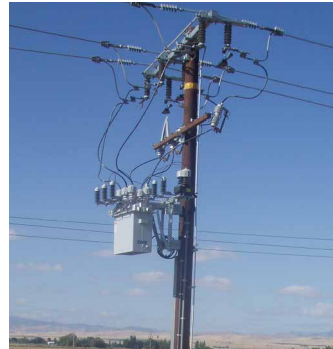
### Feeder demands

The CYME Gateway can interface with systems such as the OSIsoft PI System™ to import feeder demands to be allocated in the CYME Software. The automation of feeder demand extraction from systems such as the OSIsoft PI System™ can ensure the availability of up-to-date data for meaningful system analysis.



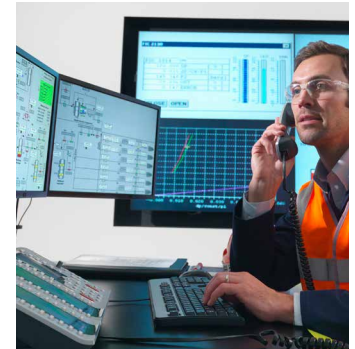
### Load and customer information

Extracting from the CIS system, the CYME Gateway can provide precise information about the consumption of each load. It can also provide the detailed demands through interfacing with the AMR/AMI/MDM system. The availability of this information makes the distribution network more complete for more accurate simulation results.



### Protective device settings and TCC parameters

Settings of protective devices can be extracted from various asset management systems such as ESRI ArcGIS™ and IBM Maximo®, or even your in-house system, to be incorporated into the CYME model. The availability of such information saves you time from manual data entry and makes your network ready for any protection scheme validation.

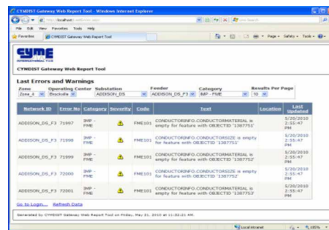
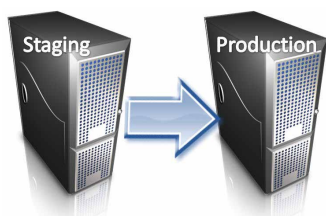


### Dynamic settings

The status and settings of voltage regulating devices can have a big impact on the performance of the network, which can be reflected by simulations in the CYME software. In order to properly simulate the effect of such devices, the ability to acquire up-to-date information to better characterize them in the network model is important, and can be done using the CYME Gateway.

## Productivity tools

The CYME Gateway can be tailored to meet your specific requirements.



### Staging control tool

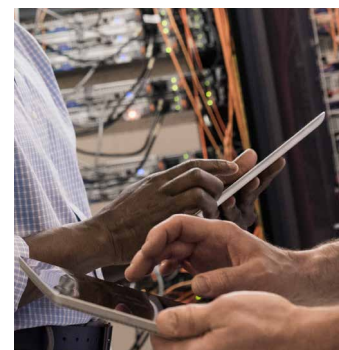
This features a Windows® desktop application to control the transfer of a CYME network model from a Staging Database to a Production Database. Based on the results from the CYME Gateway extraction process, the Staging Control Tool determines if a circuit can be moved from the Staging Database to the Production Database. Using the Staging control tool limits the shortcomings of poor data to ensure better quality control.

### Web report tool

The Web Report tool displays the errors and warnings of the last extraction for each feeder. The user-friendly web-based tool allows filtering of the results such that users can easily browse through different information about problems which occurred during the latest extraction.

### Parallel processing

Parallel processing improves CYME Gateway performance by allowing the extraction of multiple circuits at the same time, as well as multiple batch calculations in parallel. This capability ensures that the CYME Gateway solution is scalable for large network models.



### Automated CYME calculations

The CYME Gateway can include optional components for additional calculations to be performed automatically as the network is being extracted. An example of a useful analysis to be automated is the network equivalents calculation, which computes source and load equivalents by phase for each secondary network, substation and feeder. Another example is the Load Allocation analysis, which retrieves the feeder demands from the OSIsoft PI System™ database and allocate the demand to all feeders.

### Enhanced data validation

The CYME Gateway can be customized to include the Enhanced Data Validation component such that additional validation on the extracted network is performed according to customizable rules set within the CYME software. These rules can pinpoint abnormalities, missing equipments or unexpected values in order to refine the model.

### Incremental updates

The Incremental update option allows updating only the circuits that have changed since the last extraction. The network model can be updated more often and in less time than using the full extraction process.

## CASE STUDY 1

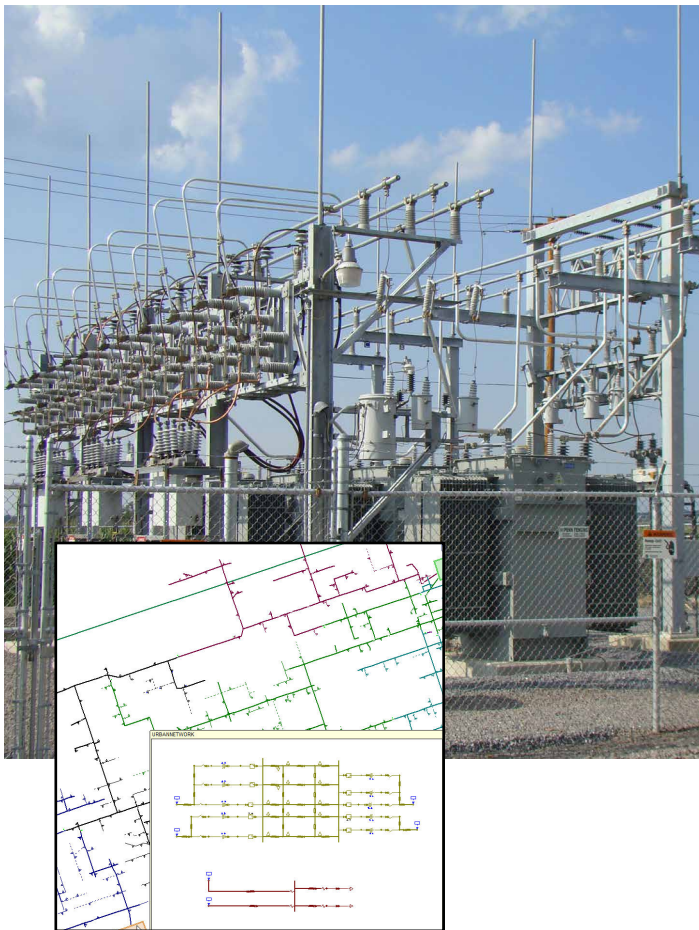
### Extraction of low-voltage distribution system and secondary grids for AES Eletropaulo

In 2011, AES Eletropaulo in Sao Paulo, Brazil, acquired the CYME software for distribution system planning and opted for the CYME Gateway solution, the ideal tool to create an accurate distribution network model for analysis.

The CYME Gateway customized for AES Eletropaulo has been designed to interface with ESRI ArcGIS™ seamlessly. In addition to producing a network model of primary distribution feeders, the CYME Gateway also creates the model for the low voltage secondary distribution systems and secondary meshed grids with ring buses. The complete network topology allows AES Eletropaulo to conduct power engineering analysis with the CYME software.

**“Having the option to create the LV system model allows us to perform detailed loss analysis, study DG integration impacts, and helps us solve voltage problems and optimize our very dense, heavily loaded LV system,”**

said Eduardo Tadeu Mattos Mentone, Operation Systems Manager, AES Eletropaulo.



## CASE STUDY 2

### Integration of the substation model for Hydro One, Ontario

Hydro One, an Ontario based distribution utility who have been using the CYME software for many years, chose to model its substations directly in the CYME software. Hydro-One has approximately 200 substations, for which complete models were prepared in the CYME software through its user-friendly network editor. The CYME Gateway was customized to combine these substation models with the distribution network model created based on GIS information.

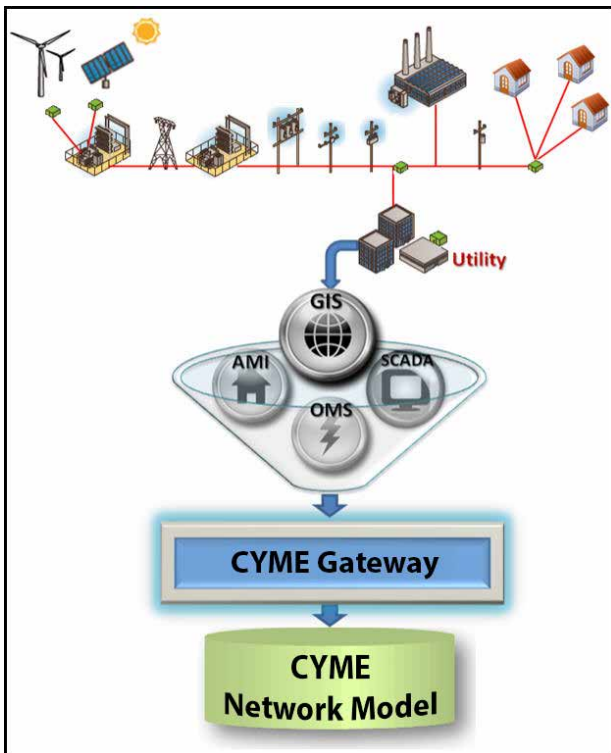
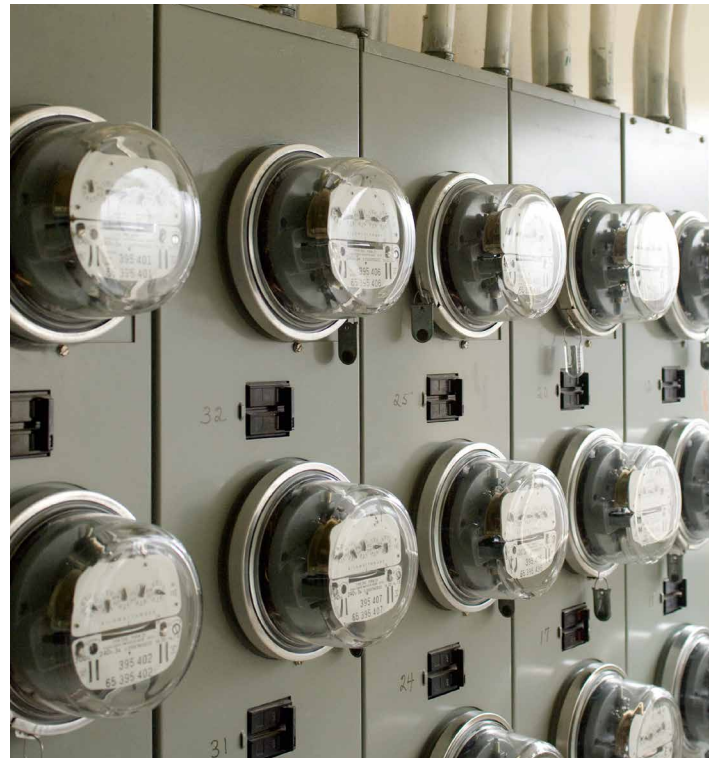
**“The CYME Gateway gives Hydro One a complete network model which integrates feeders and substations of different voltage levels. It allows our engineering team to better analyze load transfers and to perform in depth N-x contingency analysis.”**

### CASE STUDY 3

#### Making feeder demands available in the CYME model for Commonwealth Edison (ComEd/Exelon)

Feeder demands allow adjusting the network model to give an accurate representation at any given time, peak load or else, which is critical for any CYME power analysis. The information can be entered manually in CYME, or the demands can be imported by the CYME Gateway from any external systems such as the OSIsoft PI System™, or any DMS or SCADA system. Once the feeder demands are combined with the network model, users can easily allocate the loads of the system, a process that can also be automated within the CYME Gateway to improve efficiency.

“Having the CYME Gateway extract directly from the PI Historian database helps us tremendously in avoiding the trouble of gathering and validating demand information manually. A process that used to take hours is now performed automatically, which is more efficient and allows our engineers to put their focus on power engineering studies in CYME.”



### CASE STUDY 4

#### Completing the network with load information for Pacific Gas & Electric (PG&E)

A network model with individual customer load data reflects more accurately the actual system to be studied, and allows all CYME analyses to generate more meaningful results. The possibility to import load information directly into the CYME model foregoes the traditional manual work required. The CYME Gateway can extract from different in-house systems, such as CIS, AMI or MDM, to create the most complete network model possible for any system study.

“This option populates our CYME network with load information with such rapidity – it helps our engineers to obtain an accurate network representation at any loading level with ease,”  
said David Lee, Supervising Engineer of the Engineering and Planning department of PG&E.

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