CYME 8.2 New Features

The suite of advanced power system analysis tools in the forefront of grid modernization

While utilities operate in an era of rapid changes where new challenges require innovative solutions, providing clean, reliable, safe and affordable power remains at the core of their mission.

Driven by its vast user base, the CYME team continues to enhance its best-of-breed power system analysis software, making CYME 8.2 the essential tool for supporting engineers with accurate system performance assessment, electrical assets and capital expenditure optimization and sound decision-making.

The CYME 8 Series, with its first version released in 2016, has promised to deliver a new generation of our software strengthening power system modeling and analytical capabilities, while taking userfriendliness to another level. CYME 8.2 continues to deliver its promise to invest in system planning and operation in the context of high distributed energy resources (DER) penetration level, and to further the development of a powerful user interface connecting simplicity with efficiency.

Key new features include:

- Several enhancements to the Integration Capacity Analysis (ICA) and DER Impact Evaluation, along with the refinement of DER equipment models.
- Enrichment of the time-series analysis capabilities through the integration of the Load Flow with Profiles Analysis and Advanced Project Manager.

- Continuous improvement of core components such as the Dynamic Data Pull and Data Push Publishing, Protective Device Analysis, Advanced Fault Locator and Distribution State Estimator.
- Additional reporting functionalities to ease the visualization and interpretation of simulation results.

Partnering with utilities, listening to the voice of the customer and leveraging our cutting-edge engineering and IT expertise, the CYME team continues to serve the industry with a state-of-the-art engineering tool that brings dependable results at users' fingertips.

Efficiency gains with the right DER analysis tools

As the electric power system landscape continues to evolve with the global trend for cleaner energy, utilities are facing various challenges associated with the requirements of our modern era. Increasing workload with limited workforce, stringent regulations and high customer expectations trigger the need for contemporary tools enabling the automatic, comprehensive analysis of networks subject to current and future DER deployment.

The CYME Integration Capacity Analysis module, performing thorough distribution system load and generation hosting capacity analysis, becomes more flexible in terms of simulation parameters and more informative for results as it gets adopted by an increasing number of utilities. Feeder-level results, hosting capacity distribution charts and bottleneck identification are new outputs to support engineers with their grid assessment and planning.

The CYME DER Impact Evaluation module, automating repetitive, time-consuming and error-prone verifications involved with system impact studies, sees its scope widen with a series of new verifications related to protection schemes. The analysis is also more flexible, with an increased granularity of its simulation parameters and the ability to consider multiple dispersed installations in a single execution.

DER modeling reaches new heights with the possibility of creating a library of AC/DC converters, the improvements of advanced inverter functions and the support of single- and three-phase power-electronics based shunt reactive power compensation devices.

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Visibility and awareness on future off-peak system conditions

The ever-increasing DER penetration levels raise the interest in hourly forecasts leveraging AMI and SCADA measurements for system analysis associated with long-term planning. As a result, the CYME Software has taken a great leap forward in terms of time-series simulation capabilities with the integration its Load Flow with Profiles Analysis and Advanced Project Manager.

The CYME Advanced Project Manager module, assisting with long-term network planning via a toolset geared for efficient as-planned system assessment and risk mitigation scenario comparison, has seen its framework evolve towards a chronology-driven architecture. Time-stamped model modifications, addressing future violation through traditional solutions or non-wires alternatives, now establish the project timeline and enable calendar-based navigation. When used in conjunction with the CYME Steady State Analysis with Load Profiles module, snapshot or long-term time-range load flow analyses, ingesting feeder-level down to service-level forecasts, can be performed on an electric system model that changes over time.

Profile and billing data management as well as time-series analysis result visualization have also been seamlessly integrated into the CYME Software user interface for the highest level of user-friendliness.

Unprecedented model and algorithm sophistication

The power system model being one of the cornerstones of the CYME Software, a particular care is taken to ensure an organic evolution of its equipment and network modeling capabilities. In line with industry trends and technological advancements, CYME 8.2 features several enhancements aiming at providing the best model to emulate the network behavior under various operating conditions.

- VAR Compensator – Single- or three-phase power-electronic based shunt reactive power compensation device (e.g. Varentec ENGO™, AMSC D-VAR VVO™, ABB PCS100 STATCOM, Ingeteam INGEGRID™ STATCOM, etc.).
- AC/DC Converter – Dedicated single- or three-phase equipment allowing the creation of a library (manufacturer, model and standard information), plus enhancements to advanced inverter functions.
- Cables and Conductors – Duplex service drop for detailed low-voltage secondary distribution modeling.
- DER Devices – Control systems block diagram development via UDM stability model enabling voltage ride-through analysis.
- Transformers – T-T and T-TN configurations.

As part of our commitment to continuously improve our analysis functions in order to stay in sync with the growing and evolving needs of our users, several recent additions to the software have been further enhanced.

- Dynamic Data Pull and Data Push Publishing – New software development tool, CYME Studio, to support in-house development.
- Protective Device Analysis – Better abnormal conditions reporting and improvements to Minimum Fault, Sequence of Operations and Arc Flash Hazards analyses.
- Advanced Fault Locator – Support for additional use cases, improved userfriendliness and revamped results reporting and display.
- Distribution State Estimator – Dedicated ammeter, varmeter and wattmeter, plus a series of novel measurement attributes.

As the CYME team keeps improving its calculation engines and refining its modeling capabilities, the outcome of these multi-faceted user-driven development initiatives makes CYME 8.2 a fundamental tool for all power engineering studies.

For over 30 years, the CYME team has built a strong reputation with its clients by delivering the best software solutions backed by unsurpassed customer service. For information on the CYME Software, or for a web demo, please reach out to us at cymeinfo@eaton.com Users can get more details on CYME 8.2 by downloading the Readme document at https://my.cyme.com/downloads/software

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