

# Load-Flow, Stability & Transients

In the same software



[www.emtp.com](http://www.emtp.com)



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# APPLICATIONS

- Load-Flow
- Frequency-scan
- Integration of Renewables
- Power electronics
- HVDC and FACTS
- Power-quality, Harmonic analysis
- Insulation coordination
- Temporary overvoltages
- Capacitor bank & Reactor switching
- Lighting, Switching transients
- Series-compensated lines
- Protection systems
- Gas insulated switchgear
- Electromagnetic transients
- Electromechanical transients
- Very fast simulation of very large-scale grids

**We offer a wide range of applications**

## **Our Industries**

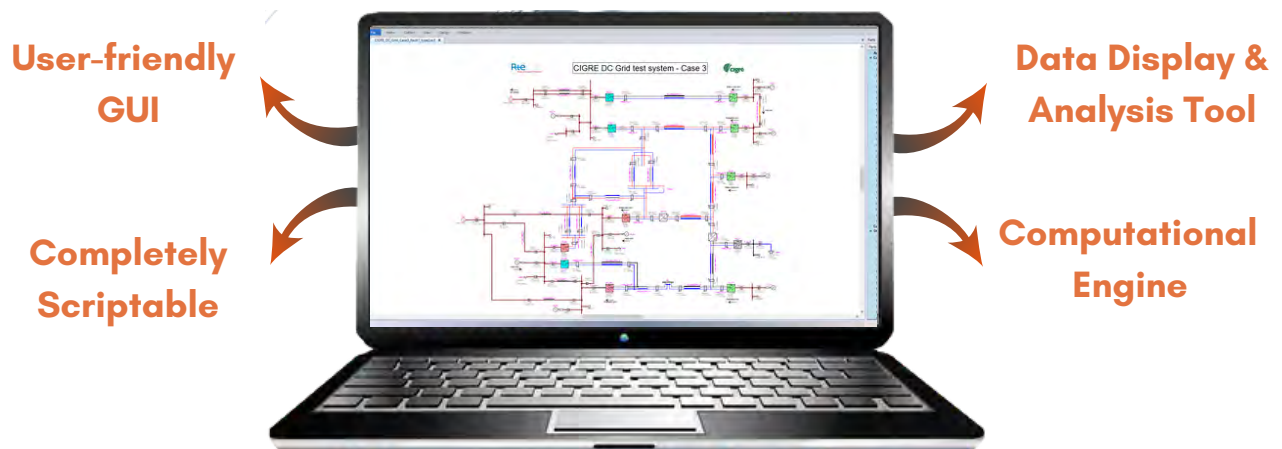
- Transmission
- Distribution
- Generation
- Power Electronics
- Manufacturing
- Research

**We are proud to be partners with:**



# ABOUT EMTP®

Electromagnetic transients program (EMTP®) is the reference for the simulation and analysis of power systems. With its unique capabilities and accuracy, EMTP® is the fastest, most accurate and most stable software.



## **Time-Domain**

EMTP® provides the most accurate, numerically stable, and consistent time-domain simulations. Parallel processing is possible.

## **Load-Flow & Steady-State**

No need to waste your time with lengthy initialization process. The network is initialized right at the beginning of the simulation!

## **Frequency-Scan**

A frequency scan option is available to determine the system impedance and to identify possible resonance frequencies.



# ABOUT EMTP®

EMTP® is the most complete and technically advanced software for simulation and analysis of power systems.

<b>70</b> countries	<b>35</b> years of experience	<b>500</b> universities
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Unlimited network size



Compatible with PSS®E, CIM, Simulink®



Co-simulation using FMI standard

## EMTP Models

### IBR Models

A large collection of IBR models. Wind turbines and photovoltaics.

### Machines

Advanced machine models and their controls are included in EMTP®.

**Relay Models**  
**Control Library**  
**Transformer**

### Power Electronics

AC-DC and DC-DC converters are available in EMTP®.

### HVDC & FACTS

LLC and MMC models with variants and customization.

### Line & Cable

Accurate line & cable models and parameter calculation routines.

# EMTP<sup>®</sup> BENEFITS

## **Data:**

EMTP<sup>®</sup> has a complete library of components and a database of typical parameters.

## **Large-Grid:**

In EMTP<sup>®</sup>, large grids are assembled and simulated directly with highly accurate methods and models.

## **Initialization:**

No need to waste your time with lengthy initialization process. The network is initialized right at the beginning of the simulation!

## **Numerical Stabilities:**

A combination of trapezoidal and Backward Euler methods to eliminate numerical oscillations that may occur at discontinuities.

## **Speed:**

EMTP<sup>®</sup> uses sparse matrices to solve very large grids efficiently. Parallel solver is available.



## **Accuracy:**

EMTP<sup>®</sup> uses a fully iterative solver to solve nonlinear models as well as control systems with algebraic loops.

**The simulation of power systems has never been so easy !**



# OUR SERVICES

## Consulting Services

There are a number of consulting services offered by EMTP® in the field of power system simulation and analysis. Our areas of expertise include:

- Integration of Renewable Energy Sources
- Interaction Analysis with Power Electronics Converters
- Sub-Synchronous Control Interaction (SSCI)
- Transient Stability Studies with Contingency Analysis
- Distribution & Transmission Systems
- Insulation Coordination
- Switching and Lightning
- Transient Recovery Voltage (TRV)
- Harmonic analysis
- Customized & Manufactured Models (white-box, black-box, DLL)
- Customized Tool Development
- Cable System Transients
- Very-Fast Transients (VFT), GIS
- HVDC transmission
- Failure analysis



**We can help you with your projects.**



**Scan Here**

Schedule a 1-hour free technical call with one of our experts.



# OUR MODULES

**Protection Toolbox**

Comprehensive library of protective relays, fuses and protection tools.

**PAMSuite**

Provides a powerful environment based on MATLAB® that enables exploration and analysis of results and identification of critical parameters.

**Exciters & Governors Library**

Our Exciters and Governors Library includes more than 90 standard models for governors, exciters and stabilizers.

**Power Electronics**

- Grid Forming Converter Model
- STATCOM model
- Detailed IGBT model
- AC-DC and DC-DC converters



**Scan to learn more about our latest updates and improvements.**



# OUR MODULES

**EMTP® allows you to simulate fast to very fast electromagnetic transients.**

## **Simulink® Toolbox**

Easily convert and connect Simulink models to EMTP®.

## **LIOV Toolbox**

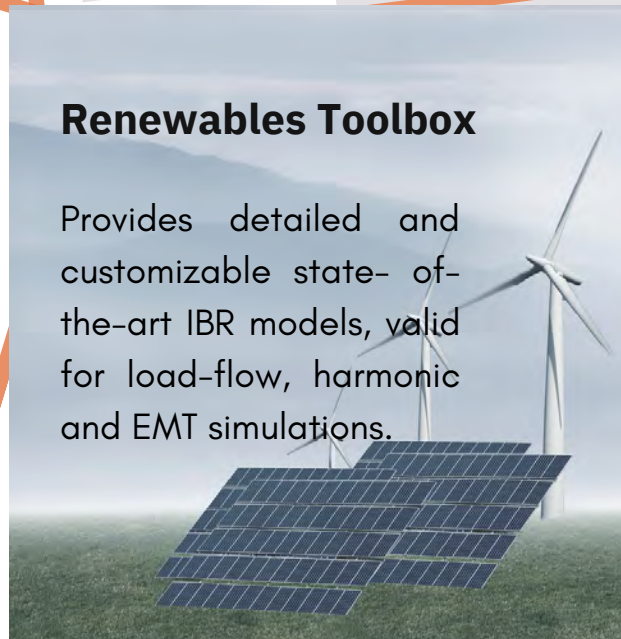
LIOV Toolbox is developed for the calculation of lightning-induced overvoltages on an overhead distribution network.

## **PSS®E Import Tool**

Automatic conversion of PSS®E network models to EMTP® designs.

## **Renewables Toolbox**

Provides detailed and customizable state-of-the-art IBR models, valid for load-flow, harmonic and EMT simulations.



# CONTACT US

## On-demand training

We offer training on EMTP<sup>®</sup> and courses on power system transients in general.

▶▶▶▶ [services@emtp.com](mailto:services@emtp.com)

## Contact our sales team

A free demo of the software is available as well as a free 15-day trial, and many training programs can be adapted to your specific needs.

▶▶▶▶ [sales@emtp.com](mailto:sales@emtp.com)

## Contact our distributor. . .

▶▶▶▶ [emtp@koncar-institut.hr](mailto:emtp@koncar-institut.hr)

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INSTITUTE

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