

Power System Group



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1 Introduction

The Power System Group at KALKITECH has rich experience in the area of electrical power system design, simulation, consulting and development of basic and advanced simulation tools for electric network analysis. The group also develops and provides real time control, protection and monitoring solutions to power networks, generation systems, frequency control, load management, reactive power control, training simulators etc.,

The Power Systems Group at Kalkitech along with its associate consultants has rich experience in the following areas listed

- Basic and detailed electrical engineering
- Power System Simulation and Analysis
- Protection and Control engineering, consulting
- Custom development of basic and advanced simulation tools for electric network analysis
- Training in relevant engineering, consulting areas listed
- Onsite power quality measurements, energy audit, harmonic analysis and solutions
- General Engineering software solutions – Mathematical solutions, Graphics applications, Database Applications
- Web based solutions in engineering/energy/power sectors

1.1 About KALKITECH

KALKI Communication Technologies Limited [KALKITECH] is an ISO 9001:2000 certified Technology Company incorporated in 1998 with the vision of becoming the leading provider of Computing, Communication and Control solutions to the energy, power generation, transmission, distribution, oil & gas, renewable energy and automation industry. Over the years KALKITECH has successfully designed, implemented and commissioned products and solutions to OEM's and end-customers in these industries. Continuous innovation through research and development is at the core of KALKITECH's corporate philosophy. More information about the company may be had from the web site <http://www.kalkitech.com>. Further information on the company can be obtained by contacting sales@kalkitech.com.

KALKITECH has its corporate office in Bangalore, India with additional offices in the US, Middle East and regional offices in India.

Experts from KALKITECH have worked on number of power system consulting studies project for reputed organizations such as

- Intercontinental Development & Engineering AE&E Private Limited (I.D.E.A), Chennai, India (www.aee-idea.in)
- Central Power Research Institute, Bangalore , India (www.cpri.in)
- Honeywell Technologies Solutions Lab, Bangalore (<https://www.honeywell.com/sites/htsl/>)
- Power Engineering & Technology Consultants Pvt. Ltd., (POET) (<http://www.poetconsultants.in/frames.html>)
- M/s Danway llc, Dubai. (<http://www.danwayllc.com/>)
- Eleme Petro Chemicals Ltd. Port Harcourt, Nigeria

More details on various projects handled and simulation tools developed by experts at KALKITECH can be had from the web site www.powerapps.org . Currently KALKITECH is working on few power system studies project from Middle East area and Nigeria. These include Transient Stability Analysis for Areva TD and Power System training for Schneider Electric, Abu Dhabi.

2 Service Offerings by KALKITECH Power System Group

2.1 Power System studies

The following standard studies/Services are offered by the Power System Group

- Power Flow Studies
- Short Circuit Studies
- Transient Stability Analysis
- Motor Starting Studies
- Dynamic Stability Analysis
- Protection System Studies

- Harmonic Measurements, Filter Design and Analysis
- Long Term Energy Demand Forecast
- EMTP and Line Constants
- Contingency Studies
- Reactive Power Optimization
- Optimal Power Flow
- Power System Stabilizer Applications
- Equipment Protection Applications
- Switching Transient Studies
- Insulation Coordination
- Evaluation of Energy Transactions in De-Regulated market
- Energy Audit Services
- Ground Mat Design
- Reliability Evaluation
- Grid Paralleling Studies of Captive Power Plants
- Voltage Flicker Analysis of the Rolling Mill Industries
- Switch Yard/Substation Design
- Power Plant Auxiliary System Design
- Generator Protection
- Transformer Protection
- Power Quality
- Voltage Stability

2.2 Special Solutions

The power system group and its associates, has a rich combined experience of over 200 man-years in electrical design/ power system studies/ power system simulation software development. Consequently the group is in a position to offer solution to varied type of problems in engineering, simulation, planning, training.

2.3 Training Simulators

The various analytical modules available in PowerApps suite of software have been customized and supplied to OEM's in their EMS projects. Typical interface arrangements between necessary PowerApps modules and OEM EMS products are

through CIM model, IEEE format and custom text file formats. The modules provided and the arrangement of their use depend specifically on customer specifications.

2.4 Corporate Training

Power System Group has successfully conducted a few corporate training in its domain area of electrical engineering, software development, power system analysis, for national / international clients. These training are generally offered as part of corporate training based on specific requirements of the clients.

2.5 Product Services

Power System Group has very rich and long experience in simulation software development in the area of electrical power systems. Along the way, the group has built necessary software skills for the software development in the following areas

- Detailed analytical skill and a host of generalized mathematical functions
- Graphical user interfaces, Graphical packages for single line diagram, plotting, generic graphics
- Database applications
- Web based applications
- Development of modular library of functions suitable for re-distribution
- Generic User Interface with context help, suitable for data needed for several standard power system analysis software

2.6 PowerApps

PowerApps is an integrated Power Systems Analysis Software & Simulation package that includes the Graphic User Interface, Data Base Manager, and Electrical Equipment Parameter Estimation for creating the Network one-line diagram and associated database. PowerApps offers both graphical and tabular data entry modes, user-preferred single-line diagram drawing options and sophisticated facilities for reporting, plotting and customizing the simulation reports. The design of PowerApps recognizes the fact that there is no memory restriction in present day computers. Consequently PowerApps has no built in dimensioned variables. The needed memory for analysis of any system is allocated dynamically during execution time.

3 List of Annexure

- PowerApps Brochure
- Power System Group presentation