

## Power System Analysis December 2011

Hi,

### Greetings from Kalkitech

We are pleased to share with you the December edition newsletter. This edition focuses on Power System Analysis and covers a range of topics, which includes an overview of Power System Analysis, latest updates on Kalkitech's solutions and services provided, as well as whitepapers, presentations and case studies on various implementations. Also we are pleased to welcome our new partners on board.

### About Power System Analysis

Power system studies and simulations acts as a very cost-effective method to optimize equipment selection and also help avoid potential deficiencies in the system before it goes into operation. In the case of existing systems, these studies help locate the cause of equipment failure & faulty operation, and determine corrective measures for improving the system performance.

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### Power System Consultancy

The Power System Group at Kalkitech has a 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 consultants have been involved in a wide range of tasks across various projects including planning, detailed engineering & purchase specification, procurement assistance, project/site management, on-site engineering services, commissioning supervision, failure analysis, safety engineering as well as Transmission/Distribution/Industrial network planning studies. Following are the key areas of expertise:

- 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 and Consulting areas
- Onsite power quality measurements, harmonic analysis and solutions



### PowerApps 2.0 Released

PowerApps features some of the most advanced analysis tools for transmission, distribution and industrial power systems. Kalkitech also offers comprehensive services in order for our customers to fully benefit from the PowerApps applications in their specific IT/Engineering environment and to address their engineering/operational analysis needs.

[Download PowerApps 2.0 Demo](#)

**Unlimited Trial Period!**

### PowerApps Validation Documents

Kalkitech has validated its PowerApps software with other leading industry power system analysis softwares as well as standard textbook examples. It is seen that PowerApps results matches well with the standard published data and shows negligent deviations

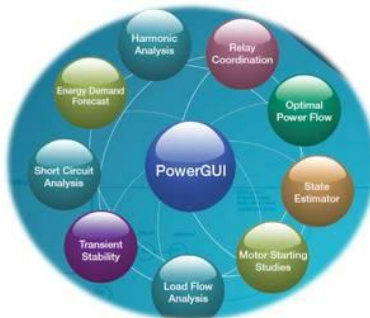
- [Transient Stability Studies](#)
- [Short Circuit Studies](#)

- General Engineering software solutions – Mathematical solutions, Graphics applications, Database Applications
- Web based solutions in engineering/energy/power sectors

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## PowerApps - Power System Analysis Software



Kalkitech PowerApps is a Power System Engineering Software that features some of the most advanced analysis tools for transmission, distribution and industrial power systems. PowerApps 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 advanced facilities for reporting, plotting and customizing the simulation reports.

- Single/Three phase load flow analysis
- Short circuit calculations - Conventional/ IEC 60909
- Transient Stability Analysis [Large Signal Performance]
- Dynamic Stability Analysis [Small Signal Performance]
- Static Voltage Stability Analysis
- Relay Coordination [Overcurrent phase/ earth/ instantaneous/ distance]
- Motor Starting Studies/Motor Acceleration Studies
- Optimal Power Flow/Economic dispatch/Reactive power optimization
- Harmonic analysis/Filter Design/Impedance Scan
- Energy Demand and Forecast
- Power System State Estimator

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## Power Systems Training

The Power System Group and its associates, has a rich combined experience of electrical design power system studies/ power system simulation software development and has successfully completed a few corporate training in its domain area of electrical engineering, software development, power system analysis, for national and international clients. Key topics of the training program are:

- [Load Flow Studies](#)

## Power Systems SCADA Lab for Academic Institutes

Academic institutions today, need to work in tandem with the industry to provide resources with sound knowledge about the current industry scenarios. Kalkitech, with a view of providing students and practising engineers a hands on learning experience on Substation SCADA system applications including monitoring, supervision and control of an electric power T&D system, proposed to set up Power System SCADA Labs.

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## White Paper

### Artificial Neural Network Based Short Term Load Forecasting for the Distribution Utilities

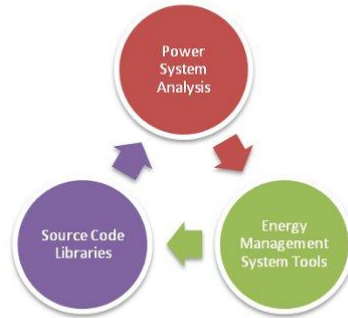
Load forecasting is a tool of utmost important for the power industry as it can influence areas like power generation, trading, infrastructure development and planning. Implementation of the load forecasting tool in the distribution utilities has a wider impact up to the power generation level. The load forecasting has been an area in power systems where the human experts are still performing better than the algorithms which have been put forward as alternatives.

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### Power System Stabilizer Design Using Local and Global signals

Using global signals with the aid of Global Positioning System (GPS) and Wide Area Measurement (WAM), increases the possibility of global vision of power system and better damping to inter-area oscillations. The local input signal, generator rotor speed deviation is used to damp the local mode oscillations and the global signal obtained from WAM, such as Area differential frequency or Tie line active power deviation is used to damp the interarea oscillations. [Read more](#)

- Power System Protection
- Advanced Power System Protection
- Protection Coordination
- Power System Operation and Control
- O & M Transformers and Circuit Breakers
- Power Transformers
- O & M of Transmission Lines and Substations
- Power System Studies
- Dispatcher Training Simulator
- Distribution Systems
- HVDC & FACTS
- Renewable Energy



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## Utility Solutions

The power systems group at KALKITECH has a 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 and training simulators.



[Click here to read Solutions specific to :](#)

- Generation Companies
- Transmission Companies
- Distribution Companies
- Industrial Applications
- Academic Institutes

## Welcome on Board: Our New Partners for PowerApps

Join us in welcoming our New PARTNERS

We are pleased to announce our valued partners, details of which are given below.

**Adarsh Enterprise** is specialized in marketing of New Technologies & Capital Intensive Equipments backed by technically qualified personnel's. Mainly dealing in Electronic, Electrical, Mechanical Test & Measuring Instruments, and Industrial & Scientific Equipments. Also cater to the requirements of various Education & Research Institutes, Industries, Cement factories, Power Plants and Electricity Boards in Madhya Pradesh as well as Chattisgarh region.



## Reference Case-Studies

### Transient Stability Simulation Package for Integration with existing EMS/SCADA systems

A major Multi-National T&D solutions provider in the world had secured an order for an EMS/SCADA system for the public T&D utility in one of the SAARC nations. The transmission network is a three phase balanced network system which is interconnected with another SAARC nation grid. The proposed EMS/SCADA system performs real time load flow solutions and sends the results in text file in standard IEEE format.

[Read More](#)

### Power System Studies for Steel Plant

The project was to implement power system studies including load flow analysis, protection studies, and harmonic analysis. The system had an Electric Arc Furnace, a Ladle furnace, an SVC, 6.6 kV Motors, Oxygen Plant and several 415 volts switch boards supplying LT loads. The required studies were done using Kalkitech's power system analysis software- PowerApps.

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## Download literature on PowerApps

### Brochures

- [PowerApps - Power System Analysis Software](#)
- [Power System Consultancy Services](#)

**Dellsoft Technologies** is a research based company, engaged in developing and promoting path-breaking software solutions primarily for the education sector, thereby helping the Institutes to enhance their infrastructure and provide best possible software solutions to their students. Dellsoft is partnered with Kalkitech PowerApps and Power System SCADA lab

**Ellcraft** is an industrial automation provider based in Chennai. Ellcrafts was established in 2009, with their experienced teams of engineers providing solutions for various industrial sectors. Their in time service backups have today made them preferred vendors for a wide range of products and markets within the industrial automation segment.

**Schnell Engg** is specialized in building system driven solution in the Field of Automation & Electrical. SCHNELL imparts practical aspects of training & Consultancy in the fields of Automation, using PLC ,DCS, SCADA by sharing the organization's expertise in the above fields. It offers Complete solution in Electrical & Automation from Field to ERP level and also provide Customize solution based on future generation to increase efficiency, quality and Productivity of Plant. Schnell is partnered with Kalkitech for PowerApps, Power System SCADA labs, SYNC and Eltrix.

**Shiva Engg & Const** is a team of Engineers & Contractors engaged in the field of construction of Irrigation projects, turnkey water projects, Dams, Channels, Structures, Building works and Telecom projects for the last 30 years. Shiva Engg & Const have extended their range of services to various organizations in Madhya Pradesh like Water Resource Department, PWD Municipal Corporations and CPWD, IOCL and in private sector our major customers are Reliance Group of Companies, Tata Teleservices Ltd.

**[Become our Valued Partner](#)**

#### **Presentation:**

- [PowerApps - Power System Analysis Software](#)
- [Power System Consultancy Services](#)

#### **White Paper:**

- [Hydro Thermal Scheduling using Particle Swarm Optimization](#)

#### **Case Study:**

- [Power Evacuation Studies](#)
- [Power Plant Reinforcement Studies](#)
- [Protection Co-ordination Study for Water Plant](#)

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