

# Engineering Consulting Services

## Promoting increased system efficiency and performance through analytics and expertise

Industry experts provide engineering consulting services to assist customers in understanding their system needs and identify the right solutions to solve system problems, increase efficiency and improve system performance. Using the industry leading CYME software tools, our experienced engineering team is capable of performing basic to specialized engineering and economical studies for transmission, distribution and industrial systems.

### **Electrical System Studies – Critical T&D System Problems**

The electrical power industry has entered a new era involving fundamental changes in the way power systems are planned and operated. The main driving forces are to reduce cost, increase efficiency and improve system performance. Achieving these goals constitutes a major challenge to existing systems as it results in special types of problems requiring innovative and sophisticated solutions.

### **Expertise and Innovative Solutions**

We offer a wide range of consulting services combining utility experience with state of the art technologies to assist customers in addressing new and emerging system problems. These services include, but are not limited to, power system studies for transmission, distribution and industrial power systems.

Our engineering staff is at a high degree of skill and their knowledge covers almost every area of power system analysis. Backed by extensive field experience in system planning, design and operation, they provide a range of options in terms of specialization, experience, and know-how. Their knowledge of the industry best practices allows them to provide innovative solutions to current challenges.

We provide consulting services intended to help customers in solving emerging specialized and non-routine problems in the following applications:

- Assessment of system performance, ability to meet regulation requirements, and measure for enhancements.

- Identification of existing and potential problems and mitigation methods.
- Technical studies for system expansion and/or refurbishment purposes and prepare equipment specifications for these purposes.
- Postmortem analyses to establish failure causes and provision of remedial actions.
- Preparation of technical specifications for tendering purposes, in reviewing tenders and providing third party opinion in disputed matters.



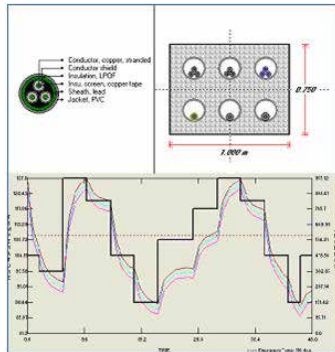
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## Analytical Studies Conducted

System problems with increasing importance need special analytical studies in the following areas:

- Voltage sags and swells
- Arc flash risk assessment and mitigation
- Network transient analysis
- Harmonics levels and their control
- Flicker problems and their mitigation
- Integration of distributed generation in power systems
- Insulation coordination
- Grounding systems and ground potential rise
- Voltage control and VAR flow optimization
- System reliability and outage analysis
- Design of protection systems and coordination of relay settings for optimum selectivity and prompt isolation of faulty sections



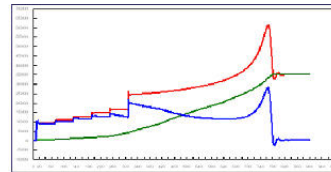
**Cable Loading Study**

## Involvement in the Industry

Our engineers are heavily involved in industry activities by conducting seminars and workshops for utilities and industrial groups worldwide. They participate in technical societies such as IEEE®, CIGRÉ and International Standards Committees by presenting technical papers and taking part in their working groups and task forces.

We have organized training sessions and seminars in the USA, Canada, United Kingdom, Peru, Indonesia, Malaysia, Singapore, France, Senegal, United Arab Emirates, Australia, India, Ivory Coast, Zimbabwe, and others.

This global involvement in the electrical industry is an important component of our up-to-date awareness of the most relevant problems and the means to deal with them.



**Reduced Voltage Motor Starting Study**

## Our Commitment to Customer Service

For over 25 years, the CYME team has built a strong reputation with its clients by delivering the best solutions and providing unsurpassed customer services. Part of Eaton Electrical Sector, our professional team of dedicated experts continues with the commitment to work closely with your engineers throughout the entire project to achieve its successful completion.

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