



**power
systems studies
& consulting
department**





*with power,
we perform*

power systems studies & consulting department (PSS&C-D)

PROTASIS is an international power systems engineering and consulting company that provides state of the art services and solutions for Transmission and Distribution utilities, Power Generation companies and industrial clients. PROTASIS is organized in three main departments:



Our dynamic, flexible and highly competent technical group of professionals can provide complete electrical engineering services to meet your specific project requirements and deliver reliable, efficient and safe solutions.

With activities and customers in a number of countries worldwide, PROTASIS is your ideal partner for power systems consulting and systems integration work.

Our **PSS&C Department** comprised of expert engineers has extensive technical know-how in sophisticated power systems simulation & analysis software and over 20 years' experience in electrical planning, design and operation of power systems.

Our in depth experience of electrical systems and equipment used in generation, transmission and distribution and our competence in understanding how they interact, allows us to provide optimal solutions and the necessary support to operation and maintenance personnel.

Our **PSS&C Department** uses state of the art modelling and analysis software to provide services compliant with all relevant industry standards and engineering best practices.

On site, we use a structured methodology to collect, verify and record data, which is essential for the simulation of a plant's electrical network. Part of this methodology takes into account the experience and knowledge of the engineering personnel on the current plant operational procedures and maintenance practices. Understanding the philosophy under which your installation operates allows us to select the best engineering scenarios required to fine tune systems in order to achieve optimum, reliable, efficient and safe operation.

When required, we also use our fast transient recorders and power quality analyzers to collect and measure data valuable for our simulation and analysis tasks.

For Planning purposes, we undertake a series of specific studies pertaining to entire new networks or expansion of existing ones.

Planning Studies

- **Static Security Analysis**
- **Transfer Limit Analysis**
- **Dynamic Security and Stability Analysis**
- **Short Circuit Analysis**
- **Generation Adequacy Analysis**
- **Electromagnetic Transients and Power Quality Analysis**

Operation Studies

- Power Flow Analysis
- Contingency & Transfer Limit Analysis
- Short-Circuit Analysis
- Arc Flash Hazard Analysis
- Breaker Duty Calculations
- Protection Coordination
- Fault & Disturbance Analysis
- Stability Analysis
- Switching Transients Analysis
- Insulation Coordination
- Measurements & Harmonics Analysis
- Motor Starting & Reacceleration Analysis
- Grounding Grid Study & Measurements



We provide specific studies for Distribution Networks, specialized field measurements and personnel skill-advancement training programs.

Studies for Distribution

- Voltage Profile Analysis & Voltage Drop Rectification
- Technical Losses Analysis & Reduction
- Reliability Analysis & Improvement
- Short-Circuit Analysis
- Protection Coordination
- Arc Flash Analysis

Our **PSS&C Department** carries out HV substation electrical design and studies based on customer specifications and applicable international standards. In collaboration with our **PSA Department**, we offer functional testing, commissioning and start-up services.

HV Substation Studies

- Load Flow Studies
- Short Circuit Calculations
- Protection Coordination Studies
- Grounding System Studies
- Step and Touch Voltage Calculations & Measurements
- Cable Calculations & Sizing
- Panel Engineering
- Electrical Protection - Relay, Control & Metering
- Electrical Control & Interlocking
- SCADA System Design
- Final Checkout, Start-Up and Testing
- High Level Training to System Operators





Cooperation with our PPS&C Department can take several forms:

- Long-Term Support Contracts (FSSA)
- Electrical Power System Audits (EPSA)
- Ad-Hoc Studies and Standalone Provision of Consulting Services



Apart from the standalone provision of studies and consulting services, our Electrical Power System Audit and Full-Service Support Agreement are highly valued by our industrial clients.

We have designed a structured and customized **Electrical Power System Audit (EPSA)** which thoroughly examines problem areas in the electrical power system, identifying where hidden weaknesses exist that may lead to production loss, quality degradation, equipment damage or safety threats.

Concurrently, we fine-tune the electric power system by optimizing the philosophy of protection, the various protection schemes and the selectivity of protection required to respond to every possible operational scenario and maintenance plan.

Our **Full-Service Support Agreement (FSSA)**, which is implemented on a framework basis with our customers, is an ideal solution that adds significant value and benefits in terms of saving time and cost, reduces risks, improves process effectiveness and increases predictability. With such an agreement, PROTASIS retains a constantly updated system simulation and provides the necessary readiness for emergency conditions, maintenance shut-downs, fault analysis, post mortem investigations, personnel skill-development and more. This type of service agreement, which can be effective for the entire plant's useful life cycle, creates a proactive service approach that fosters a collaborative partner relationship with our customers.

PROTASIS uses the correct methodology and best practices to satisfy the highest technical standards set out in the requirements of our ISO 9001:2008 Quality Assurance Programme and Health and Safety norms.

Our uncompromising commitment, dedication and determination to serve and support our clients will make PROTASIS your reliable partner for electrical engineering & consulting needs.



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