



## Delivering Intelligent Solutions for the Power Grid

In 1985 Farrokh Shokooh saw the need for an advanced software to help engineers model and analyze power systems in the most efficient and accurate way. Farrokh's vision was to create the most capable and comprehensive software, based on a single platform with one database. The goal was to develop a software with integrated solutions and an intuitive interface to reduce engineering hours. To realize this vision, Farrokh left his prestigious position at an international corporation and took his extensive theoretical education and practical experience to launch ETAP® (Operation Technology, Inc.).

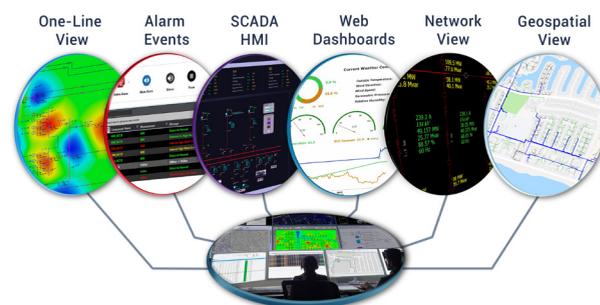
Founded in 1986, ETAP is headquartered in Irvine, California, USA, with 33 offices around the world. ETAP's electrical power system analysis & operation software has become the leading market and technology solution for modeling, design, analysis, optimization, monitoring, control, and automation of electrical power systems. By combining advanced technologies with the highest standards in quality to achieve overall customer satisfaction, the company has been powering success for over 33 years for generation, transmission, distribution, industrial, transportation, and low-voltage power systems.

### Cutting-edge Smart Energy Technology

ETAP Grid offers a comprehensive smart grid solution by adding intelligent situational awareness to power grid operations:

**Grid Modeling & Visualization:** Create, configure, customize, and manage your electrical system model with synchronized network views, including Geospatial (GIS) electrical diagrams, substation diagrams, and feeder schematic views.

**Analysis & Optimization:** Analyze and optimize



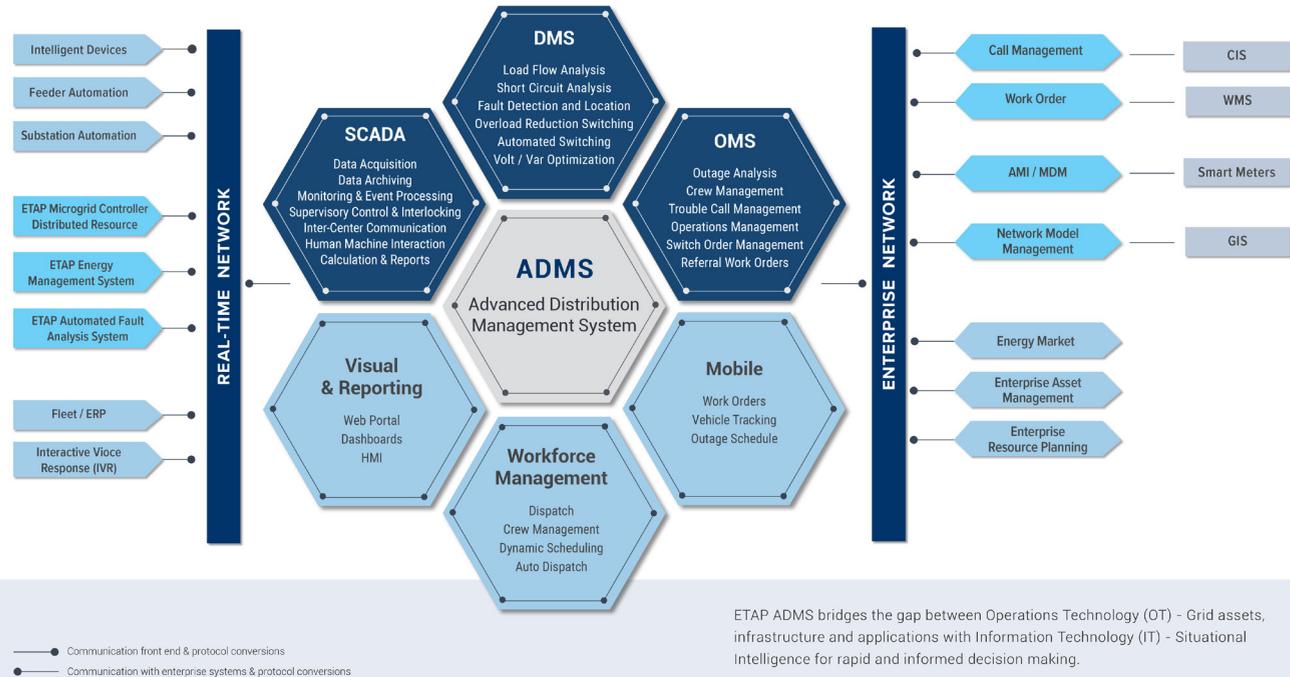
your electrical network: from Time Domain Load Flow (TDLF) and Volt/Var Optimization (VVO) to Contingency Analysis (CA) and Fault Location, Isolation & Service Restoration (FLISR).



**Dr. Farrokh Shokooh**  
 Founder, CEO & President  
 ETAP

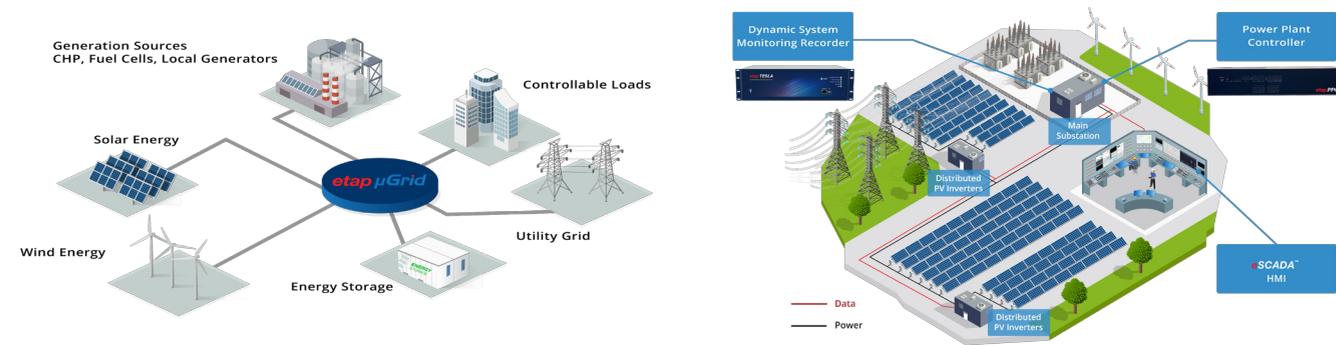
**ADMS:** Planning and operation solutions to manage, control, visualize, and optimize electrical power distribution networks comprising of GIS, eSCADA, OMS and other applications such as Automated Meter Reading (AMR), and Customer Information Systems (CIS).

**iCE™:** Intelligent Control Enterprise hardware platform includes programmable Controllers and Remote Terminal Units integrated and standardized with ETAP applications for optimal performance, fast response, and cybersecurity.



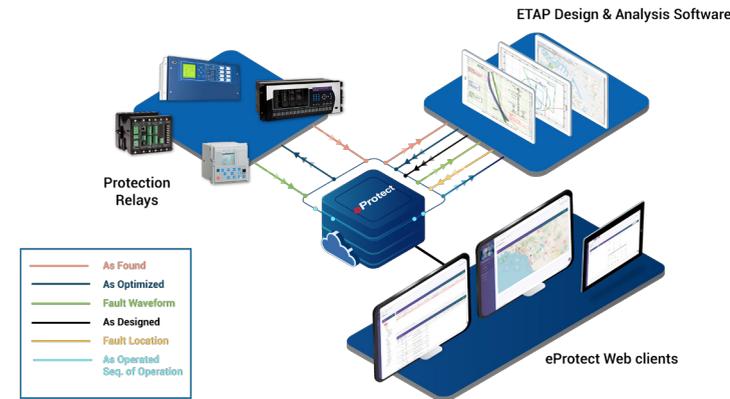
**Microgrid Management:** An integrated model-driven design software and control hardware solution to develop, simulate, optimize, test, and deploy microgrid controllers with inherent capability to fine-tune the logics for maximum system resiliency.

**Grid Code Compliance:** Maximize yields and meet TSO stability and power quality requirements at POI with ETAP Grid Compliance solution including model-driven eSCADA, ePPC™ Power Plant Controller and eTESLA™ Dynamic System Monitoring Recorder.



**Safety & Protection:** Applications for troubleshooting false tripping and misoperation of protective devices, such as impedance relays and fuses, as well as solutions to identify and analyze high-risk arc flash and evaluating various mitigation methods to reduce arc flash hazards, from low to high voltage systems.

**Protection Asset Management:** Centralized protection asset management solution integrated with ETAP Protection & Coordination software to manage location, information and settings throughout the lifecycle of protective relays and substation assets.



**ILS™:** Intelligent Load Shedding system for industrial and utility systems from simple demand response to machine learning based on high-speed load shedding.

ETAP software meets the highest standards and regulations set by mission-critical facilities. ETAP products comply with the U.S. Code of Federal Regulations as well as other quality assurance standards.

**The ETAP Value Proposition**

What distinguishes ETAP’s smart grid solution from competitors is the scale of the solution. ETAP software is a platform for all stages of the

power system lifecycle – from design, analysis, management, and optimization through real-time simulation and operation. ETAP’s unmatched passion for technology, domain expertise, agility in R&D and vision for innovation is manifested in every module & feature:

**Intelligent:** Prevent or minimize potential power outages by detecting overload conditions or system disturbances and rerouting power. Allows for proactive autonomous decisions in alignment with the goals of utilities, consumers and regulators.

**Efficient:** Manage consumer demand with minimal infrastructure changes.

**Accommodating:** Model and simulate various energy sources such as wind and solar as easily as coal and nuclear. It is capable of integrating new technologies, as and when they are market-proven and ready for operation.

**Motivating:** Provide energy usage and pricing information to utilities, for them to share with their customers. It enables consumers to adjust their energy usage based on economical or environmental concerns.

**Robust:** Increase resilience to external threats by allowing the grid to become decentralized and reinforced with the latest Smart Protocols.

**“Green Solutions”:** Improve energy efficiency by managing both, energy consumption and production.

ETAP collaborates with elite research institutes around the globe as well as top technical universities to promote the latest electrical power industry innovations and educate the next generation of power engineers. ETAP closely engages with the world’s largest association of

technical professionals, the Institute for Electrical and Electronic Engineers (IEEE) by publishing technical work, sponsoring global conferences, hosting seminars and actively contributing in the standards development.

*“ETAP’s employees are driven by their passion and uncompromising pursuit to create the absolute best software product for electrical engineers,” shares Dr. Farrokh Shokooh, Founder, CEO, and President of ETAP. “To realize this dream, ETAP has consistently been focusing on research and development, which to this date, consumes 75% of ETAP’s operating budget.”*

The success of ETAP’s platform can be easily seen in the example of NPCL, one of India’s largest and fastest-growing utilities transformed their traditional Utility to a Smart Utility, leveraging ETAP’s ADMS solution. Implementing ETAP ADMS, NPCL was able to improve network performance, outage restoration time and maintenance for substation equipment and reduced dispatcher-training time. NPCL’s network evolved into an intelligent, adaptive, and sustainable grid that now provides more reliable and quality energy for over 71,000 commercial and residential customers.

## **7 C’s of ETAP**

Shokooh firmly believes that ETAP’s success is the result of a steadfast commitment to their customers, their needs, and receptivity to feedback which he calls 7 C’s of ETAP (customer-driven culture). *“Since its founding days, ETAP obliges to its corporate philosophy that emphasizes supporting ETAP’s most important asset, their customers,”* adds Shokooh.

The 7 C’s guide interactions, investments, initiatives, and are the foundation of ETAP’s corporate culture. These are:

**Caring for Customers**

**Candid with Customers**

**Commitments to Customers**

**Class of Quality for Customers**

**Communication with Customers**

**Consistency of Service to Customers**

**Commonsense Solutions for Customers**

**Powering the Future**

Today, ETAP is the recommended standard software for electrical engineering in various markets and industries. ETAP plans to grow this position organically, via acquisitions of technologies, and through industry collaborations into emerging markets and industries, extending its portfolio based on customer demands and market trends, and ultimately provide a fully integrated, one-shop-solution that serves the entire power lifecycle, from planning to asset management and maintenance.

*“While innovating and improving its core integrated power system analysis applications, ETAP is focused on developing intuitive and powerful control and automation solutions based on an operational intelligent digital twin to offer insights to the behavior and expected response of the electrical system,”* communicates Shokooh.