ETAP Automation Recognized as the

2021

Company of the Year

GCC Electrical Power System Analysis and Optimization Industry

Excellence in Best Practices

FROST & SULLIVAN

Strategic Imperatives

Frost & Sullivan identifies three key strategic imperatives that impact the power generation industry: new business models, disruptive technologies, and transformative mega trends. Every company that is competing in the power generation space is obligated to address these imperatives proactively; failing to do so will almost certainly lead to stagnation or decline. Successful companies overcome the challenges posed by these imperatives and leverage them to drive innovation and growth. Frost & Sullivan's recognition of ETAP Automation DMCC is a reflection of how well it is performing against the backdrop of these imperatives.

SI8	NEW BUSINESS MODELS	DISRUPTIVE TECHNOLOGIES	TRANSFORMATIVE MEGA TRENDS
Why	• The combined impact of decentralization, decarbonization, and digitalization will drive new business models in the energy sector. • Models the encompass guaranteed performance (e.g., power-plant-as-a-service), power purchase agreements (e.g., energy-as-a-service), and combined supply- and demand-side contracts will create opportunities for energy, technology, and service providers to generate new revenue streams.	• Energy infrastructure will become more interconnected, intelligent, responsive, and adaptable due to the increasing penetration of digital technologies in the industry. • Technologies such as enhanced data analytics, AR/VR, additive manufacturing, AI, and advanced condition monitoring systems (CMS) will all support power plant optimization, renewable energy management, and demand- and supply side-management.	• Electricity generation is the largest source (25%) of global greenhouse gas emissions. The urgency to decrease harmful emissions caused a shift in preference among consumers and government to use renewable energy; the long-term goal is to adopt net-zero carbon emissions globally. • Pro-renewable policies from governments, high growth rates for technologies such as fuel cells, advancements in wind turbine technologies, and reliable battery energy will drive the growth rate of renewables.
When	• Deployment of renewable energy solutions is shifting from requiring an upfront investment to allowing alternative payment models as the amount of energy produced from renewables becomes increasingly predictable and financing remains available. • Solar and wind will be the lead technologies driving these new contracts in any value proposition.	• The pace of investment will resume once the COVID-19 pandemic has passed. Adoption of IoT and blockchain solutions will improve companies' digital agility and efficiency by 2030. • By 2030, rapid advances in additive manufacturing, CMS, and AR/VR technology will lead to new efficiency gains such as more durable turbines, power plant improvement, services through AR/VR, and cloud-based analysis used to control energy facilities.	• Governments are setting renewable energy goals, with the European Union targeting 32% of its energy to be renewable by 2030. • Renewables will contribute 44% of global power generation capacity by 2025, with a 1,600 GW of energy capacity installed. • By 2050, wind and solar technology will provide 50% of total global electricity with hydropower, nuclear, and other renewable energy sources taking total zero-carbon electricity up to 71%.

Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. ETAP Automation DMCC excels in many of the criteria in the electrical power system analysis and optimization space.

Market Overview

The increasing focus on improving operational efficiency, minimizing network losses, and optimizing the overall performance of power systems drives the demand for electrical power system analysis and optimization solutions. The escalating energy demand in the Gulf Cooperation Council (GCC), with a 7% annual increase in average electricity consumption predicted by 2030[1], induces substantial investments in the region's electrical power infrastructure. The GCC will witness power sector investments of approximately $121.5 billion between 2020 and 2024.[2] These significant investments, along with ongoing regional efforts to introduce decarbonization, decentralization, and digitization into the power systems, create favorable growth prospects for participants in the GCC electrical power system analysis and optimization market.

[1] *Gulf Cooperation Council (GCC) Region Mega Trends, Forecast to 2030* (Frost & Sullivan, July 2020).
[2] *Mena Power Investment Outlook 2020-2024* (Arab Petroleum Investments Corporation (APICORP), December 2020). Accessed from: https://www.apicorp.org/wp-content/uploads/2020/12/APICORP_MENA-Power-Investment-Outlook-2020-2024_EN_FINAL.pdf

Leading the Market with Unique Innovations and Thought Leadership

Founded in 1986, California-based Operation Technology Inc. d.b.a ETAP is an electrical power system design and automation company offering power systems solutions for a broad spectrum of sectors, including generation, transmission, distribution, transportation, industrial, and commercial. The company's founder and current Chief Executive Officer, Dr. Farrokh Shokooh, developed ETAP in response to the market gap for comprehensive, efficient, and intelligent power system analysis software. ETAP develops innovative products and offers superior engineering services through a combination of research-driven technologies, model-driven solutions, and a customer-driven culture. Globally, the company operates more than 60 technical support centers, research and development (R&D) campuses, and sales offices employing more than 100 R&D scientists and power engineers, 300 ETAP employees, and 500 sales representatives and support staff.

In 2010, ETAP set up its regional headquarters in Dubai to leverage the growing demand for power analysis and optimization solutions in the Middle Eastern and African (MEA) markets. The Dubai office employs 50 power system analysis engineers, consultants, and sales staff to provide design, engineering, training, and sales support to the new and existing customers in the region.

ETAP is the only participant in the power system analysis and optimization space with a direct, physical presence in the MEA region. While its competitors operate in the region through distributors and resellers, ETAP maintains regional sales and support offices in major MEA countries. In addition to serving the oil and gas, electro-intensive industry, and utility sectors, ETAP is well-positioned to capitalize on the growing demand for power system analysis, hybrid generation, microgrid & grid code design, power plant controller, and optimization solutions from the region's green energy initiatives to increase renewable energy generation. The United Arab Emirates (UAE) aims to generate 44% of its power from renewable sources by 2050, while Saudi Arabia and Kuwait aim to fulfill 30% and 15% of electricity demands from renewable generation by 2030. Moreover, Oman and Bahrain strive to achieve 10% and 5% of their electricity generation from renewable sources by 2025. ETAP is the only company offering a hybrid smart city power automation solution from project concept to commissioning on its unified ETAP enterprise platform. This solution allows project owners, developers, EPCs, and manufacturers to perform the accurate design, analysis, verification, validation, and deployment of renewable resources cohesively and collectively to develop a resilient renewable grid.

As the most widely used power system enterprise solution in the market, ETAP offers the industry's most comprehensive analysis platform for the design, simulation, operation, and automation of generation, distribution, and industrial power systems using an innovative, unified Digital-Twin model. The power system domain faces interoperability and management challenges due to the current industry practices of utilizing multiple software platforms to design, analyze, and optimize the same asset across multiple dimensions. Furthermore, electrical assets undergo independent, siloed, and uncoordinated design, simulation, and analysis, which impede the knowledge transfer during system studies, planning, and optimization efforts. This lack of coordination leads to complexities in integrating various components and attaining a cohesive power system study. ETAP addresses the market need for digital transformation with a unified platform supporting its multi-dimensional digital twin solution that enables model-driven design, real-time operation, and intelligent electrical power system automation.

A digital twin refers to the dynamic virtual representation (or digital replica, electrical asset blue print) of a physical power system, which engineers, operators, and managers use to analyze, forecast, model, and simulate the health and performance of the physical power system assets, allowing for predictive and optimized operation and maintenance. The ETAP Digital Twin is an integrated engineering and real-time platform that enables consolidated engineering, management, and performance analysis of an entire electrical power project on a singular enterprise platform. The ETAP Digital Twin goes beyond engineering analysis and provides an operational blueprint of the electrical power system introducing additional capabilities such as automated, rule-based design, model-driven predictive analysis, and co-simulation platform, combined with real-time analytics, asset performance monitoring, and intelligent power system monitoring & controls.

> *"ETAP's emphasis on the delivery of high-quality, customer-centric, and advanced technologies has resulted in its monopoly in the GCC market. All of the region's major companies, such as GCC giants Saudi Aramco, Kuwait Oil Company, Kuwait National Petroleum Company, SABIC, Qatar Petroleum, and Qatargas, work exclusively with ETAP."*
>
> ***- Sama Suwal, Best Practices Analyst***

Over 30 years in the industry, ETAP has continually innovated to add new capabilities to its technology and services portfolio in response to evolving market trends and changing customer demands. The company dedicates 75% of its operating budget to R&D and 90% of ETAP's product features originate from customer feedback and requests. Additionally, the company's synergistic networking and collaborative relationships with its technology partners continue to bolster the industry's overall growth by supporting the next generation of intelligent power infrastructure. ETAP's technology partners include prominent companies such as Schneider Electric, AVEVA Group plc, and OSIsoft. ETAP's ongoing commitment to address evolving industry needs through customer-driven innovation successfully establishes ETAP as the clear market and technology leader in the global power system analysis and optimization space.

Moreover, ETAP is the only commercially available nuclear-certified power system analysis, operational planning, and optimization software provider. The company has successfully maintained its leadership in high-impact power analysis and nuclear power generation systems, with 93% of United States (US) nuclear power plants standardized on ETAP. Notably, Emirates Nuclear Energy Corporation utilized ETAP for the complete power systems studies, protection, and analysis of the Arab world's first nuclear power plant in Barakh, UAE, which became operational in August 2020.

Commitment to Quality Ensuring Customer Retention

ETAP is committed to providing advanced products and exceptional engineering services at the highest quality to ensure optimal customer satisfaction. The company relies on a stringent, well-defined, and continually improving quality assurance process to successfully translate powerful ideas into market-leading products. ETAP has been ISO 9001 certified since 1998 to ensure continuous improvement of quality. Compliance with the latest ISO standards covers all activities related to design, development, production, sales, and support of the ETAP software. ETAP also complies with the rigid requirements set by hundreds of industry standards provided by regulators like the US Code of Federal Regulation, Institute of Electrical and Electronics Engineers (IEEE), International Electrotechnical Commission (IEC), National Electrical Code (NEC), and Occupational Safety and Health Administration (OSHA). Moreover, ETAP undergoes periodic and documented third party audits of the procedures related to its software quality. These audits maintain the high quality of the company's solutions by detecting any deviations from the complied standards and ensuring the effectiveness of the company's procedures. ETAP has recorded more than 100 successful third party audits since 1991.

Additionally, ETAP automatically updates regional grid code requirements, and its platform has the local manufacturer database embedded into it. This added capability provides customers an additional layer of convenience by seamlessly ensuring their modeling, design, analysis, and optimization conform to the relevant industry standards.

ETAP's high standards for its products build customer confidence in its solutions by guaranteeing 100% reliable results in conformance with relevant industry standards. The company's latest survey of its global customer base reported a 97% satisfaction with the quality of its offerings. ETAP's passion and commitment to deliver high-quality, customer-centric, and advanced technologies have resulted in its prominent reputation in the GCC market. The GCC region's major companies, such as Saudi Aramco, Kuwait Oil Company, Kuwait National Petroleum Company, Saudi Basic Industries Corporation, Qatar Petroleum, Qatargas, SEWA, Mazoon, OETC, SEC, AADC, and NAWAH rely on ETAP to support their digitalization journeys. More importantly, these customers have prescribed ETAP in their design documentation encouraging their consultants to provide reliable, precise, cost-effective, and standardized means to design and handover electrical analysis and assets. As a result, the company has secured the region's most prestigious projects, including Hyperloop UAE, NEOM city, Misk city, and the Red Sea Project.

ETAP's technological leadership, commitment to quality, and clear dominance in major markets contribute to its positive financial performance. Despite the COVID-19 pandemic, delayed projects, and end-user sector slowdown, the company registered double-digit growth in 2020. ETAP recorded an impressive compound annual growth rate of 12-15%, with a growth in the range of $12-15 million in the GCC due to its customers' ongoing need to optimize their power networks and manage their renewable generation.

Customer-driven Culture Securing Optimal Satisfaction

ETAP's corporate philosophy of customer-centricity is at the core of its operation and organization. The company operates on its belief that its success is dependent on its complete dedication to meeting customer needs and maintaining strong receptivity to customer feedback. ETAP's corporate culture is driven by its '7Cs'; caring for its customers, candid with its customers, commitment to its customers, class of quality for its customers, communication with its customers, consistency of service, and commonsense solutions for its customers.

ETAP maintains a strong regional presence in markets such as the GCC due to its commitment to its customers. The company's regional offices enable proximity to customers and ensure the efficient delivery of solutions and services. Additionally, ETAP operates a dedicated training center with a capacity of 25 participants from its Dubai office to serve local customers. The Dubai office conducts multiple workshops each year and trains customers on the new releases, upgrades, and enhancements on its software. ETAP utilizes dedicated real environment simulations and training cases for these sessions. The company also offers technical webinars as well as short- and long-term online training sessions.

ETAP has earned customer trust and loyalty due to its commitment to customer satisfaction and the demonstrated high-quality and reliability of its solutions. Over the years, the company has become the recognized standard for power system analysis for all types and sizes of electrical power systems in the GCC region.

Conclusion

With its strong overall performance, ETAP Automation earns Frost & Sullivan's 2021 Company of the Year Award in the electrical power system analysis and optimization industry.

What You Need to Know about the Company of the Year Recognition

Frost & Sullivan's Company of the Year Award is its top honor and recognizes the market participant that exemplifies visionary innovation, market-leading performance, and unmatched customer care.

Best Practices Award Analysis

For the Company of the Year Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

Visionary Innovation & Performance

Addressing Unmet Needs: Customers' unmet or under-served needs are unearthed and addressed by a robust solution development process

Visionary Scenarios Through Mega Trends: Long-range, macro-level scenarios are incorporated into the innovation strategy through the use of Mega Trends, thereby enabling first to market solutions and new growth opportunities

Leadership Focus: Company focuses on building a leadership position in core markets and on creating stiff barriers to entry for new competitors

Best Practices Implementation: Best-in-class implementation is characterized by processes, tools, or activities that generate a consistent and repeatable level of success

Financial Performance: Strong overall business performance is achieved in terms of revenue, revenue growth, operating margin, and other key financial metrics

Customer Impact

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers proudly own the company's product or service and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and high quality

Brand Equity: Customers perceive the brand positively and exhibit high brand loyalty

About Frost & Sullivan

Frost & Sullivan is the Growth Pipeline Company™. We power our clients to a future shaped by growth. Our Growth Pipeline as a Service™ provides the CEO and the CEO's growth team with a continuous and rigorous platform of growth opportunities, ensuring long-term success. To achieve positive outcomes, our team leverages over 60 years of experience, coaching organizations of all types and sizes across 6 continents with our proven best practices. To power your Growth Pipeline future, visit Frost & Sullivan at http://www.frost.com.

The Growth Pipeline Engine™

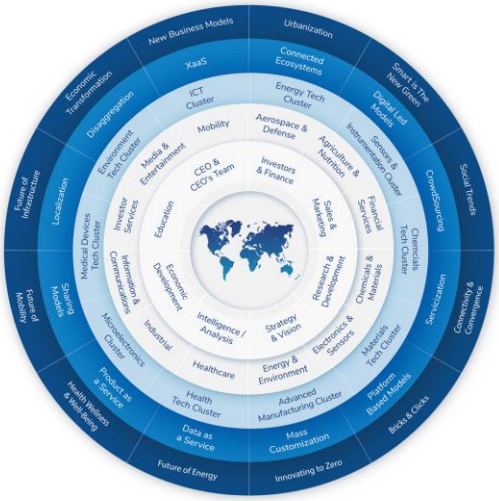
Frost & Sullivan's proprietary model to systematically create on-going growth opportunities and strategies for our clients is fuelled by the Innovation Generator™. Learn more.

Key Impacts:

- **Growth Pipeline:** *Continuous flow of Growth opportunities*
- **Growth Strategies:** *Proven Best Practices*
- **Innovation Culture:** *Optimized Customer Experience*
- **ROI & Margin:** *Implementation Excellence*
- **Transformational Growth:** *Industry Leadership*

The Innovation Generator™

Our six analytical perspectives are crucial in capturing the broadest range of innovative growth opportunities, most of which occur at the points of these perspectives.



Analytical Perspectives:

- Mega Trend (MT)
- Business Model (BM)
- Technology (TE)
- Industries (IN)
- Customer (CU)
- Geographies (GE)