

# RENEWABLE ENERGY SOLUTIONS

## Powering Sustainability Through Active Energy Management

Design, Analyze, Comply, Optimize, Operate & Maintain Renewable Energy Systems



# Digital Twin Driven Renewable Energy Solutions

## Build business resilience while accelerating your decarbonization goals

Renewable energy enables the transformation towards a zero carbon future, yet its variable nature poses challenges for power system operations, such as maintaining power quality & reliability and dynamic energy prices. Integrated software and hardware solutions are therefore inevitable for organizations to comply with grid codes and optimize their energy use.

ETAP offers integrated electrical Digital Twin driven design software and control hardware solutions for microgrids, power plants and nanogrids, allowing organizations to embrace the integration of renewable energy while facilitating safe, reliable and efficient power system operations.

- ✓ Ensure resiliency & reliability of power supply, maximize yields and meet TSO requirements at the point of interconnection.
- ✓ Develop, simulate, optimize, test and deploy renewable energy control systems with the unified eSCADA/EMS platform.
- ✓ Deploy and validate hardware controller logic with SIL, steady-state or dynamic analysis. Utilize controller and electrical operations twins to optimize renewable energy systems.
- ✓ Modular applications include generation optimization, active & reactive power control, forecasting, power exchange control, energy storage management, renewable smoothing, islanding & black start ancillary services.
- ✓ Proactive & adaptive renewable energy management with situational intelligence and awareness.
- ✓ Utilize dynamic models for solar, wind, hydro, energy storage and reactive power compensation for full dynamic control & enhanced stability.
- ✓ Multi-site management solution to monitor, automate, control, optimize, determine health indices, and generate optimal maintenance schedules while minimizing OPEX.



## One Consistent, Integrated Experience



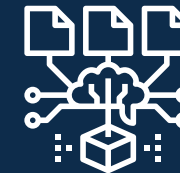
**ePPC™**  
Hybrid Power Plant  
Control & Generation  
Management System



**μGrid™**  
Microgrid Control &  
Energy Management  
System



**Grid Code**  
Grid Code Analysis  
& Compliance  
Management System



**nEMS™**  
Nanogrid Design &  
Multi-Site Remote  
Management System

ETAP Digital Twin is designed to help energy providers and consumers in all sectors achieve their sustainability goals. The Digital Twin along with ETAP's integrated renewable energy solutions enable efficient and optimal design using operational insight, empowering operators to dispatch the electrical system with design knowledge. Customers worldwide use ETAP to operate more efficiently, reliably, and economically.

- Renewable Power Plants
- Data Centers
- Manufacturing Facilities
- Healthcare
- Universities
- Distribution Networks
- Transmission Networks
- Telecommunications



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