Consulting Services for Microgrids

Studies, assessments, and design by experts to bring microgrid projects to life

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Engineering services
Packaged offers for microgrid projects

Microgrid Feasibility Study

Schneider Electric microgrid specialists will:
- Evaluate and estimate load as part of energy analysis
- Size onsite generation and storage assets
- Review electrical system topology and determine changes required to existing infrastructure to implement a microgrid
- Evaluate system protection and metering
- Assess existing control systems for compatibility with new microgrid controller and create preliminary sequence of operations
- Develop a conceptual plan for implementing electrical system changes and adding distributed energy resources
- Determine rough order of magnitude pricing
- Create preliminary pro forma financial models

The Feasibility Study is the first step in determining if a site can become or support a microgrid.

FEED establishes a detailed initial design, financial analysis, and more accurate project pricing that can be taken to final design package.

Front End Engineering Design

Schneider Electric microgrid specialists will:
- Detail and evaluate site loads
- Detail documentation and evaluation of existing electrical topology and associated systems
- Perform short-circuit, coordination, arc flash and load flow studies
- Perform analysis to determine onsite asset sizing (e.g. Solar PV, Battery Energy Storage, Fuel Cells, Generators, etc)
- Design microgrid electrical system and integration into the existing electrical system; includes grounding, protection, control, civil, etc.
- Provide 30%, 60%, 90% and 100% design packages
- Design microgrid control system(s) and communication network topology
- Act as Owner’s Engineer regarding utility interconnection, requirements, and permitting
- Develop detailed project pricing including pro forma financial modeling and financial KPIs
Additional engineering services

Stand-alone offers for microgrid projects

- **Projects with a BESS as the system anchor resource in island mode.**
  - Battery Energy Storage System (BESS) Loading Analysis
    - Determines BESS capabilities for the following conditions: energization sequence of site loads from a no-load state ("black start"), battery runtime based on loads, inverter overload limit, real/reactive power limits, and current unbalance limits

- **For complex projects with multiple stakeholders and the need for technical oversight.**
  - Design Assurance
    - Experienced Schneider Electric engineers will review design packages at various completion levels to assure microgrid system integration, functionality, and constructability in accordance with requirements and project goals.

- **Verification that designs comply with electrical codes and standards.**
  - Distribution Infrastructure Assessment
    - Determine changes required to existing infrastructure to implement a microgrid
    - Develop a conceptual plan for implementing electrical system changes

- **Identify digital devices to be updated or added for microgrid controls integration.**
  - System Controls and Metering Assessment
    - Analyze existing protection control automation metering hardware
    - Develop network architecture
    - Create a plan to improve digital connectivity among assets
    - Assess existing control systems for compatibility with new microgrid controller

- **To better understand existing load types and controls.**
  - Load Management Assessment
    - Review existing loads, categorize and determine priority
    - Evaluate existing load control strategy

- **As an initial audit to understand existing conditions.**
  - MPS (Modernization, Performance, Safety) Assessment
    - Develop detailed assessment of the electrical installed base that identifies and documents as-found power system safety and reliability gaps

- **Recommended for all projects.**
  - Short Circuit Analysis
    - Calculate the fault current levels throughout the power system
    - Compare interrupting duties of analyzed devices with the available fault currents

- **Recommended for all projects.**
  - Protective Device Time-Current Coordination Analysis
    - Evaluate time-current coordination of electrical system’s protective devices, including relays, fuses and circuit breakers, and equipment to which applied
    - Final report includes suggested settings for all adjustable devices
Recommended for all projects.

**Arc Flash Analysis**
- Determines arc flash incident energy levels and flash protection boundaries, and generates associated equipment labeling

Recommended for all projects.

**Load Flow Analysis**
- Calculates real and reactive power flows and associated voltage drops during anticipated system operation

Recommended for all projects.

**Power Quality and Harmonic Analysis**
- Calculates voltage and current distortion due to harmonics and compares against the requirements of IEEE 519 harmonic limits

Projects with islanding capability.

**Power System Transient Analysis**
- Evaluate the power system response to disturbances including generation loss, switching, step loads and similar transients

Act as Owner’s Engineer.

**Utility Interconnection Support**
- Technical support and guidance for interconnection agreement process

Learn more about our Engineering Services
Sustainability consulting services
Comprehensive strategy and solution development to meet sustainability targets

Climate Change Advisory Services

- An “ambition to action” blueprint for businesses to reach climate and sustainability goals through unique strategic planning and implementation partnership
- Align technology and behavior towards net zero through holistic, science-based, and best practice approach

Renewable Opportunity Assessment

- Analysis for both onsite renewable assets as well as Environmental Attribute Certificates (RECs, GOs, etc.)
- Understanding favorable geographic and regulatory conditions for renewable solutions
- Evaluation to optimize diversification and stability of energy supply
- Explore Power Purchase Agreement (PPA) to mitigate cost of microgrids

Efficiency and Energy Performance Services

- Digitally connect to review existing energy bills, tariff, and interval data, identify continuous or intermittent loads that can be modified, and quantify energy savings.
- Understand energy intensity across portfolio to identify opportunities for savings

Learn more about our Sustainability Services
Understanding your microgrid journey

1. Consult and advise
2. Feasibility study
3. Front end engineering design
4. Final design, utility interconnect, procurement
5. Installation, startup, commissioning
6. Operate and maintain

Design with O&M in Mind

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