



RENEWABLE ENERGY SERVICES

An Industry leader since 1913, our Renewable Energy Services line of business has the knowledge and experience to complete virtually any project. From designing and installing greenfield solar farms to EPC management of microgrids systems for independent applications, we deploy cutting edge technology to meet your needs with projects of any size and scope. I.B. Abel adheres to industry leading standards for safety and quality to deliver superior services on time and on budget.

We provide solutions to:

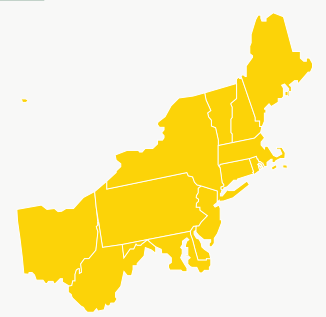
- Data Centers
- Hospitals/Edler Care
- Education
- Heavy Industrial
- Water & Wastewater Treatment Plants
- Utilities
- Municipal/Government Emergency Operating Facilities
- Water Storage
- Parking Garages

We specialize in the following Distributed Energy Resources:

- Greenfield Solar Farms**
- Battery Storage**
- Combustion Turbines**
- Fuels Cells** **IR Scans**
- Internal Combustion Engines**
- Photovoltaic Systems (PV)**
- Wind Turbines**
- Preventative Maintenance**

SERVING

the Mid-Atlantic and Northeast Regions



Distributed Energy Resources (DER)

- Small scale unit of Electric Generation that operates at the local level and is generally connected to a larger power grid at the distribution voltage level
- This system is decentralized and typically located close to the loads served
- Typical size is from 3KW to 10MW
- Distributed Generation (DG) and Distributed Power (DP) are included in DER
- Long-term energy provider

Types of DER

- Battery Storage
- Combustion Turbines
- Fuel Cells
- Internal Combustion Engines
- Photovoltaic Systems (PV)
- Wind Turbines

Benefits of DER

- Resiliency for operations that require continuous power
- Loss of revenue due to existing Utility interruptions (unplanned outages, storms, etc.)
- Corporate commitment of reducing carbon footprint
- Peak shaving to reduce Utility "Demand Charges"
- Tax Incentives
- Costly Utility infrastructure upgrades (Least cost alternative)

DER – Market Definitions

- **Wholesale DER** – Distribution level DER that participates in wholesale power market, controlled by the Interconnect Operator (i.e. PJM).
- **Non-Wholesale DER** – Behind meter customer DER to reduce load and Utility load. Not controlled or available to the Interconnect Operator.
- **Demand Response** – Customer to utilize on site DER at request from the Interconnect Operator to reduce load on the Utility.
- **FERC Order 841** – Demands ISOs' and RTOs' to allow Distributed Energy Storage to participate in wholesale markets. This will accelerate the development of innovative renewable energy solutions.

DER - Microgrids

- Sometimes referred to a "Hybrid" system
- An Energy System that is comprised of one or a combination of DER components, coupled with a control system that optimizes the use of the energy components
- Can operate synched to the grid or independent from the grid (Islanding) automatically
- Varies in total size. Can power a home, facility or town

Our DER Offerings

EPC Model: Design and install DER base on client's needs

- Up to the Utility level
- Determine the best solution
- Calculate the payback on investment
- Determine energy savings

Complete solutions that provide energy service expertise

- Decarbonize based on client's goals
- Partner with DER equipment manufacturer
- Partner with a long-term maintenance company
- Maintenance on DER systems
- Monitoring systems

Outsourcing of Energy Services

- Using technology to analyze and help drive efficiency
- Use expertise to prepare feasibility studies for equipment upgrades

Budgeting

- Prove the savings and payback to justify the cost
- Finance the installation and maintenance
- Partner with a financing company
- Contracts (10-20 year)

24/7 SERVICE & SUPPORT

FULL LINE OF I.B. ABEL SERVICES:
ELECTRICAL / COMMUNICATION / UTILITY
ENGINEERING / AUTOMATION / RENEWABLE / SUBSTATION

Contact the I.B. Abel team today at **(888)-9IB-ABEL** or visit **ib-abel.com**