



Distributed Infrastructure Asset Management and Novel Technology Assessment

Solar, Energy Storage and Electric Vehicle Charging

Black & Veatch Management Consulting, LLC (Black & Veatch) offers a comprehensive asset management lifecycle solution specifically targeted for distributed infrastructure (DI) assets across the U.S. and internationally. Our approach is based on a proprietary, cloud-based, Solution as a Service (SaaS) platform that provides competitive monitoring and diagnostics and operations and maintenance services for DI asset portfolios over broad geographies that include solar photovoltaics (PV), energy storage systems (ESS), electric vehicle (EV) charging, distributed generation, and any combination of these as microgrids.

Black & Veatch's U.S. and international footprint, experience across multiple asset types, economies

of scale, and proven program and risk management solutions allow DI owners to engage with a single asset manager for their entire portfolio. We offer high-quality preventive and corrective maintenance services, data analytics, billing and settlement, asset performance enhancements, technology assessments and engineering services as a "one-stop" solution. This is unique in the market resulting in lower costs and improved asset performance.

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BLACK & VEATCH
MANAGEMENT CONSULTING



Managing New Technology Risk

As a world leader in distributed energy infrastructure, Black & Veatch professionals understand the technical, operational, regulatory and economic issues our clients face. We use our expertise to provide them with independent, third-party assessments of new technology offerings before they invest. Our clients receive comprehensive, independent reviews of technology performance claims and verification of manufacturing quality and capabilities. To date, Black & Veatch has performed more than 175 independent assessments in North America, Asia and Europe to evaluate technologies and equipment used in distributed energy infrastructure and the manufacturers behind them.

The Black & Veatch Value

Our services build on Black & Veatch's extensive engineering, procurement and construction (EPC) experience and in-depth technical expertise. We are a leader in the design, management and execution of distributed infrastructure projects and provide monitoring, maintenance and other asset management services to hundreds of sites nationwide. Black & Veatch's knowledge of distributed energy technologies includes years of assessing new products, processes and technologies for manufacturers and the financial community. We understand what is important to DIAM asset owners as well as key stakeholders and can provide effective, high-quality solutions throughout the asset lifecycle.

Advantages of Our Capabilities

International Footprint	Experience with Multiple Asset Types	Economies of Scale	Risk Management Solutions	Novel Technology Assessment
				

Why You Need Us

Solar and Energy Storage

These are increasingly competitive with traditional energy technologies. The price of PV and energy storage continues to rapidly decline and the ability to forecast and manage these assets continues to improve. The PV and PV + storage operations and maintenance (O&M) service market for the U.S. is expected to exceed \$1.3 billion in 2024 and will continue to grow significantly.

Microgrids

Increasing focus on resilient distributed energy generation systems- Distributed energy systems such as microgrids, are an important part of minimizing the impact of hurricanes, wildfires and other extreme events on energy supply. Aggregate demand for asset management of distributed energy systems in the U.S. is expected to reach about \$5 billion by 2025.

Electric Vehicles

There are currently over 1.5 million electric vehicles (EV) in the U.S. By 2030 this number is expected to reach 19 million. This growth is fueling the rapid development of EV charging infrastructure in the U.S. where there are currently over 20,000 charging stations. The EV charging station market today is over \$2.5 billion and is projected to reach \$ 27.7 billion by 2027.

Services

Solar, Energy Storage, EV Charging

- Monitor assets round the clock through our four U.S. monitoring and diagnostic (M&D) operations centers.
- View and analyze system performance to identify underperformance, issue alarms and identify the root cause of underperformance for prompt resolution.
- Monitor and diagnostics platform can be easily scaled up to enable new sites, contractors, and facility or asset variations.
- M&D platform can be configured to support additional work and asset management-related services.

Operations and Maintenance

- Provide preventive and corrective maintenance.
- Deploy and manage primary backup preventive and corrective maintenance resources.
- Maintain strategically deployed stock of spare parts.
- Identify potential replacement for items no longer manufactured or out of warranty based on our deep knowledge of equipment design and availability.
- Recommend and execute asset redesign, upgrade or refurbishment to improve performance.
- Update assets at the end of their service life.
- Provide invoicing based on billing determinants.

Solar

- Provide a fast and convenient browser interface to visualize and evaluate the energy production of individual solar PV sites as well as the energy production within a state or other multiple site roll-ups.

EV Charging

- Provide a scalable enterprise analytics environment, along with the data structuring, visualization and mathematical tools necessary to solve complex fleet operating and planning challenges.
- Manage to charge in concert with parameters of transportation operations.
- Leverage onsite solar and storage resources
- Manage the assets required for charging across a wide geography.
- Carefully test in the lab and then deploy software updates to chargers.
- Manage updates to chargers that are required by customer operations or tenant turnover.

Novel Technology Assessment

- Establish whether the product performs as expected.
- Evaluate the product quality and that of the materials and components used in making it.
- Assess the product's reliability and durability.
- Judge how the performance will change over time.
- Opine on the relevance of the warranty.



Building a World of Difference.®

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