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The Solar Operations and Maintenance Opportunity: Now and Beyond

By Russell Clarke

How the rise of solar photovoltaics (PV) is creating significant Operations and Maintenance (O&M) opportunity for today's engineering and construction (E&C) industry.

The rise and development of solar O&M presents an opportunity for many regional solar Engineering, Procurement and Construction (EPC), electrical and energy services firms. The economic and logistical challenges associated with systems maintenance at a smaller scale have provided an upstart to many middle-market providers. This opportunity continues to present itself for local providers that can serve the immediate needs of clients profitably—both in their locales and across various regions.

It is difficult to ignore the rise of solar PV as a contributor to the portfolio of power generation. More than 69GW of total installed solar capacity has been added across the U.S. during the last couple of decades, with an additional 61GW expected to be deployed over the next five years.[1]

This fragmented landscape across various market segments has allowed many contractors to benefit from opportunities created by demand on the part of quality solar PV EPC providers. Top global E&C providers, along with smaller solar-focused EPC contractors, have all contributed to the growing base of solar assets connected to the grid.

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[1] SEIA, U.S. Solar Market Insight and GTM Research.

As with any infrastructure asset, the ongoing O&M is a critical component of long-term project success. But unlike many other long-standing classes of infrastructure, the recent explosion of solar PV has created an O&M landscape that is still in flux, particularly in specific segments. This leaves a potentially valuable opportunity for current and future providers that—as the landscape begins to settle—can serve fragmented market segments.

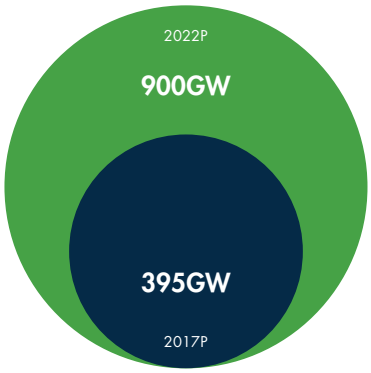
In this article, we explore the solar O&M opportunity, discuss why firms should care about it, and provide recommendations on how to tap into this growing market.

A Growing and Segmented Market

The solar PV marketplace is divided into distinct segments, including utility scale, nonresidential (sometimes referred to as Commercial and Industrial (C&I)) and residential. Each segment has its own market intricacies, resulting in differing landscapes of providers across these end markets as well as across these end markets and geographies.

EXHIBIT 1

An Opportunity of Significant Scale[2]



Despite several changes that could dampen project pipelines, the growth in solar is poised to maintain its momentum. Investment Tax Credit (ITC) changes and the 30% tariff on imported solar panels are expected to have a muted impact compared to the industry's initial worst fears. Most providers have already priced this speed bump into future projects and prebought panels—moves that will help ease the cost of higher panel prices over the next several years (as the tariff steps down). Looking past this slight headwind, the solar industry appears to remain cautiously optimistic about strong continued growth.

Regardless of the growth outlook, the assets in the ground (and those under construction) still require (O&M) services. The long-term, recurring revenue stream on the backend can help insulate the fluctuations in a project-based revenue stream that is at the mercy of development cycles. For companies that do both, the value of the complementary components can be greatest during times of muted construction volumes.

A Focus on Midsized Operation Services

Across the value chain of solar O&M services, consolidators value the operations component for these reasons:

- Its position of oversight and control—allowing providers to drive work across large portfolios and react to any changes in maintenance and service delivery, including flexibility in service delivery models.
- Efficiencies of scale—controlling the operations allows for centralization of geographically dispersed portfolios that can be simultaneously monitored, thus enabling the benefits and efficiencies gained from greater scale and service.

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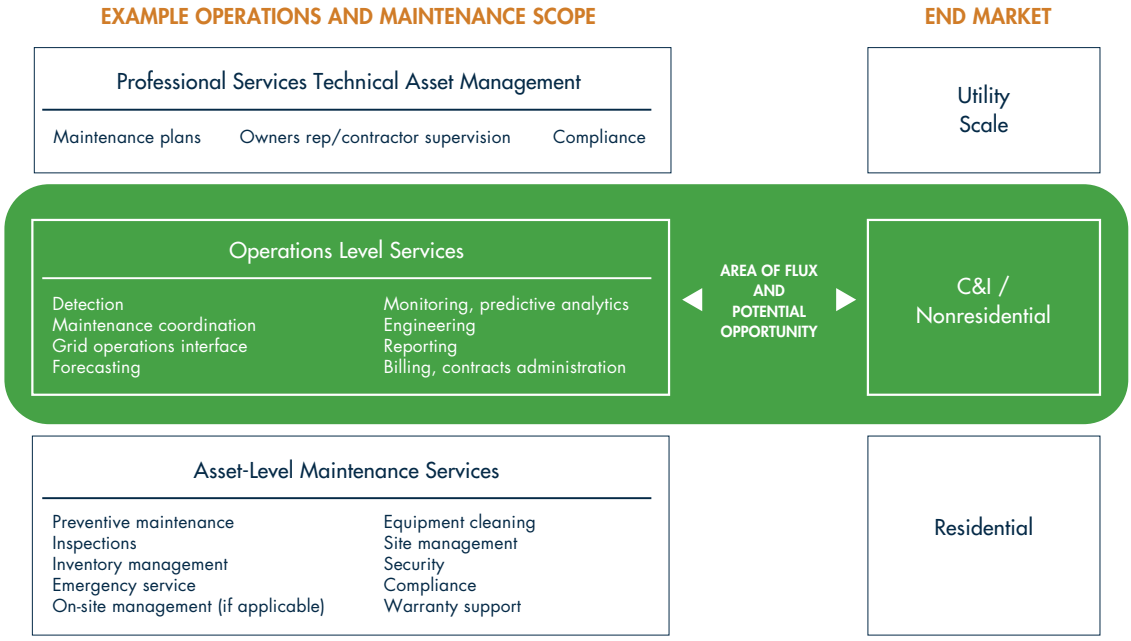
[2] Greentech Media, Cedric Brehaut, December 2017.

EXHIBIT 2

The Solar Operations and Maintenance Value Chain



Source: Derived from FMI analysis, research and discussions

This level of the vertical chain currently commands a very high level of attention and is where the differentiation can really take effect. In certain instances, customer relationships, consistency of service and growth channels all sit at this level, creating a dynamic middle ground where the industry landscape is still in flux, leaving the opportunity door wide-open. It also acts as a natural area of bifurcation between the large utility-focused O&M providers and those smaller providers whose portfolios are made up of more localized assets that do not require full-time, on-site O&M personnel.

Factors That Can Impact Providers

A number of aspects contribute to the resulting solar O&M landscape, providing differentiating factors for those firms currently serving and looking to serve the market. They include:

The Impact of Critical Mass

The challenges of serving smaller-scale assets across multiple locations remain a key factor when looking at the variations in the landscape. The size of the asset, as well as its geographic relation to other assets, can lead to key synergies for personnel utilization, replacement part inventory management, distribution and general logistics. Plants of sufficient scale that have full-time, on-site personnel face different challenges than smaller nonutility-scale

plants do. With critical scale come efficiencies from increased labor productivity and quicker response times. However, smaller scale enables a more localized and diverse landscape of providers, thus allowing new entrants and presenting opportunities for the development of service efficiencies.

Technology as a Differentiator

Technology is allowing improved capabilities to be implemented across the O&M spectrum and is being employed as:

- A barrier to entry (via cybersecurity requirements).
- A cost-saving tool.
- An avenue for improved future performance.

Cybersecurity is a critical area of growing importance that creates both a barrier to entry and a differentiation factor for providers in certain markets. Meeting cybersecurity compliance requires strong capabilities in system security and benefits companies with built-in expertise (while acting as a barrier to others). This all contributes to a concentrated landscape of sophisticated utility scale O&M providers.

For example, at the centralized operations center of SOLV, a division of Swinerton and one of the leading solar O&M providers with more than 4GW under O&M, an in-house cybersecurity team of three people works to maintain the highest level of protection. "The cybersecurity aspect is a key hurdle that we are skilled at handling in-house, providing a critical capability that has helped SOLV lead in serving large utility-scale portfolios," says Angelo Purpa, operations director.

Immediate response to performance guarantees is crucial in avoiding significant costs associated with unexpected downtime on large-scale utility portfolios. This economical driver for utility O&M providers pushes the continued implementation of technology to help avoid unplanned outages or material malfunctions.

The benefits associated with technological advancement and better utilization range from improved monitoring systems and software to more reliable and durable balance of system (BOS) components. Technology can also help address logistical challenges associated with workforce and inventory management. With the falling cost curve of many system components, O&M providers can leverage less expensive BOS components, leading to lower costs and better plant performance.

What Does This Mean for Potential Providers?

Opportunities for service providers are plentiful. Here are just three key areas to consider:

Easy Opportunities Can Add Up. Obtaining significant scale of solar PV under management might be a distant goal, but obtaining smaller scale by aggregating these projects can certainly add up. Service providers across the value chain have been leveraging this need, gradually growing their footprints and capabilities with each new asset under management. As long as O&M providers are serving these assets profitably and achieving critical scale, the portfolio impact achieved through this "bundling" can be significant. Providers can grow assets under management, both by serving self-constructed projects and as a third-party O&M provider—which is the ultimate goal of many large providers associated with major EPC or product companies.

With Scale, There Is Demand. While there are providers that have O&M business models that service projects they have developed, constructed and occasionally own, the ultimate goal for many is to be able to be a significant third-party O&M provider. The third-party O&M landscape does not currently have a large number of options for companies looking to enter the space via an acquisition. This creates an opportunity for smaller companies that can reach a critical scale (of assets under management) and those EPC, electrical and energy services firms that have O&M divisions of scale. Growing to become a third-party provider of choice has its roots in the ever-expanding landscape of power-producing assets. By expanding the O&M focus to include all of the distributed energy resources, the market opportunity and landscape of providers can grow significantly. Ultimately, the pairing of batteries with solar, wind and "negawatt"-focused initiatives will greatly increase O&M needs. Solar is a key component of that distributed energy resource (DER) portfolio.

Long-Term Stabilization. In addition to growing revenue and associated margin, long-term O&M contracts can add a valuable component of stability to historically project-based businesses. The value that consistent service contracts can add for these companies has internal benefits from the insulation it provides from market cycles as well as the potential value in the event of a sale of the company. In mature geographic markets, the pace of solar installations is more muted compared to emerging markets. However, the revenue stream from solar O&M could eventually rival development and EPC revenue streams. While in certain cases, margins remain modest (and can be subject to increasing pressure on larger and more competitive projects), providers focused on the midscale opportunities can often recognize healthy margins for these services.

Additional revenue streams (such as O&M) on the back end and development fees on the front end allow solar providers to offer the "full-service" package and benefit from diversified revenue streams for the entire project cycle. By acting as full-service providers, firms can effectively develop a "self-feeding" loop.

With a fragmented local and regional market for midsized projects, companies that are ready, willing and able to serve the solar PV market should take advantage of this opportunity. As solar PV continues to grow, and as additional DERs are added alongside it, the outlook for certain areas of the O&M landscape appears bright.

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