SITETRACKER Deploy What's Next

Accelerating Solar Deployment

How software can turbocharge efficiency and boost profits

The energy sector is rapidly evolving, yet the pace of global warming outstrips these changes. As a crucial element in the fight against climate change, renewable energy generation, particularly solar power, is witnessing an unprecedented boom. Leveraging cloud-based software from Sitetracker, which integrates seamlessly with Salesforce, leaders in solar project development, construction, maintenance, and asset management are maximizing this growth opportunity. This technology enhances efficiency, minimizes risks, and boosts portfolio expansion and profitability in the burgeoning solar market.

Challenges Facing Solar Development

To meet the ambitious net-zero emissions target by 2050, set by the U.N. Paris Agreement on climate change, solar energy is critical. Industry experts suggest that achieving this goal requires the global installation of 455 gigawatts (GW) of new solar capacity annually until 2030.[1]

With an ambitious target ahead, the formidable challenge facing solar developers is to deploy solar generation at a speed and scale unprecedented in history, and to maintain this momentum for the rest of this decade. No easy task, especially when you consider the hurdles involved, which range from initial development tasks such as site selection and permitting, to engineering, procurement, construction, and eventually, operations, maintenance, and asset management.

Each stage demands intelligent tools capable of standardizing processes, yet flexible enough to handle the variability inherent in individual projects. The goal is to streamline operations, thereby enhancing efficiency and reducing overhead costs.

The obstacles are particularly acute for developers with a large volume of projects. As the solar market grows, numerous developers are facing a competitive setback due to their reliance on outdated informational tools.

Many still employ a disjointed array of methods — including traditional pen and paper, spreadsheets, word processing documents, texts, emails, databases, and the informal knowledge carried by key personnel and contractors — to manage project inputs and track important milestones. Unfortunately, when development teams use such diverse means, handoffs are poor and information is lost, compounding the other obstacles solar developers face.

That means, for many developers, accurately determining profitability is a rough estimate made on the fly. Profit margins remain in flux until the project is completed.

[1]Bloomberg New Energy Finance, New Energy Outlook 2022.

Solar developers, particularly those with a large portfolio of projects, need an intelligent set of software solutions to standardize processes. Intelligent tools lower overhead costs, capture efficiencies and produce higher profitability.

Intelligent software solutions help developers more effectively manage projects, assets, sites, and field resources so they can capitalize on market demand. Developers need software tools that can be deployed across the project life cycle, from initial development to engineering, procurement and construction, and then to the eventual handover to operations, maintenance, and asset management.

In this context, cloud-based software solutions like Sitetracker and Salesforce have become pivotal, aiding in the swift and efficient rollout of solar infrastructure, essential to fully realize the promises of a solar-powered future.

Who are Salesforce and Sitetracker?

Salesforce has provided software as a service (SaaS) since 1999, helping companies connect with customers in a whole new way. Its pioneering formula of Data + AI + CRM + Trust helps companies embrace artificial intelligence across Customer 360, its complete portfolio of products that unites every team around the customer on an integrated, metadata-driven platform.

Sitetracker is a global software company dedicated to accelerating the transition to a fully connected and sustainable future. Built on Salesforce, Sitetracker provides a standardized yet flexible approach to managing projects, empowering everyone from executives to field crews with the centralized, real-time information they need.

A cloud-based platform, Sitetracker allows solar developers, engineering, procurement & construction (EPC) firms, and operations, maintenance and asset management teams to manage their diverse and critical activities in one location. This can be accessed from the field as well as headquarters.

Solutions like Sitetracker, which is built on the Salesforce platform, are the driving force behind a cleaner, greener future, where every click, every algorithm, and every line of code contributes to a sustainable planet powered by the limitless energy of the sun. Together, Salesforce and Sitetracker are scripting a world where software is the driving force behind a brighter and more sustainable tomorrow.

Salesforce and Sitetracker are better together. Salesforce and Sitetracker believe in harnessing the power of technology to drive positive change, and nowhere is this more evident than in the realm of solar energy. With the industry facing such pressure to deliver now, software is not just lines of code, but a silver bullet for efficiency and acceleration; the catalyst for a global solar revolution.

Solar Power: A Large and Competitive Market

Around the world, nearly 510 gigawatts (GW) of solar generating capacity came online in 2023, nearly 50% more than the solar capacity that was added in 2022, according to the International Energy Agency (IEA). Most of that new solar generation was utility-scale, generally defined as one megawatt or more in generating capacity.[2]

Globally, solar deployments will grow by over 400 GW per year over the 2024-2028 period, projected by the Paris-based energy agency. That rate represents a doubling or even tripling of historical growth patterns from 2016-2022, it added.

Future growth rates could exceed 600 GW per year if governments around the world take steps to remove institutional impediments to the growth of renewable energy, IEA said in its recent *Renewables 2023* report.

In the U.S., Wood Mackenzie and the Solar Energy Industries Association (SEIA) estimated that about 32 GW of solar power were added last year.[3] Most of that was utility-scale.

(Figure 1)

US SOLAR PV INSTALLATIONS AND FORCASTS BY SEGMENT, 2014-2028

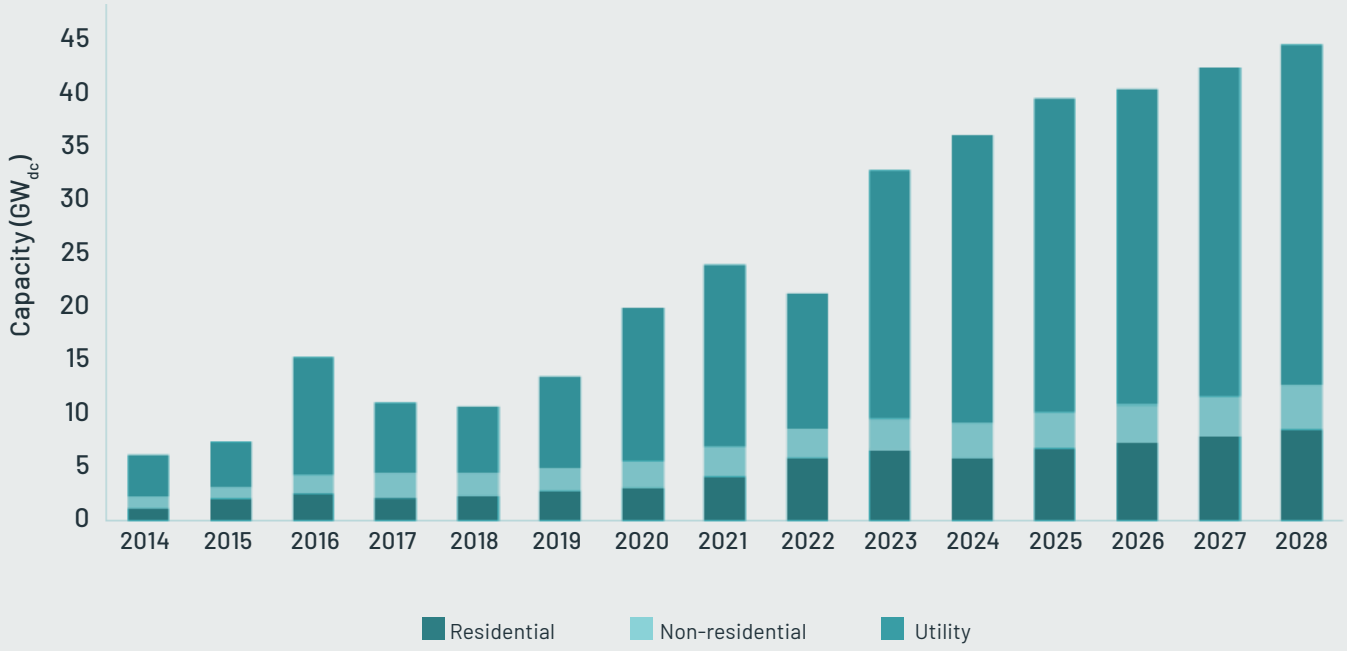

Figure 1

[2]International Energy Agency, Renewables 2023 (January 11, 2024).

Rising retail electricity prices, corporate sustainability commitments, and the tax incentives in the Inflation Reduction Act of 2022 are combining to drive growth in U.S. solar power over the next few years. Another driver is resiliency.

In the U.S., commercial deployments of solar power grew approximately 1,700 MW in 2023, reaching an annual average growth rate of about 9%, according to Wood Mackenzie and the Solar Energy Industries Association (SEIA).

The firms projected that annual commercial solar additions will surge to nearly 2,000 MW in 2024. In 2028, the firms project about 2,500 MW of new commercial solar generation will be constructed.

(Figure 2)

In addition to the drivers of solar power noted above, commercial property owners in the U.S. want to monetize underutilized assets like rooftops or unused land by installing solar panels.

Both globally and in the U.S., growth in solar generation is driven most significantly by utility-scale solar deployments. This is true historically and is projected to continue.

Tyler Lancaster, a partner with Energize Capital, sees a bright future for solar power, particularly for climate software companies and digital platforms that are accelerating various elements of the sustainability movement.

The Chicago-based climate software investment firm, which manages more than $1.2 billion in assets, has invested more than $100 million in Sitetracker across its venture and growth equity strategies. Lancaster said he is pleased with how Energize Capital's investment in Sitetracker has enabled the company to pursue growth and take extraordinary care of its customers.

UTILITY SOLAR INSTALLATIONS AND FORECAST, 2020-2028

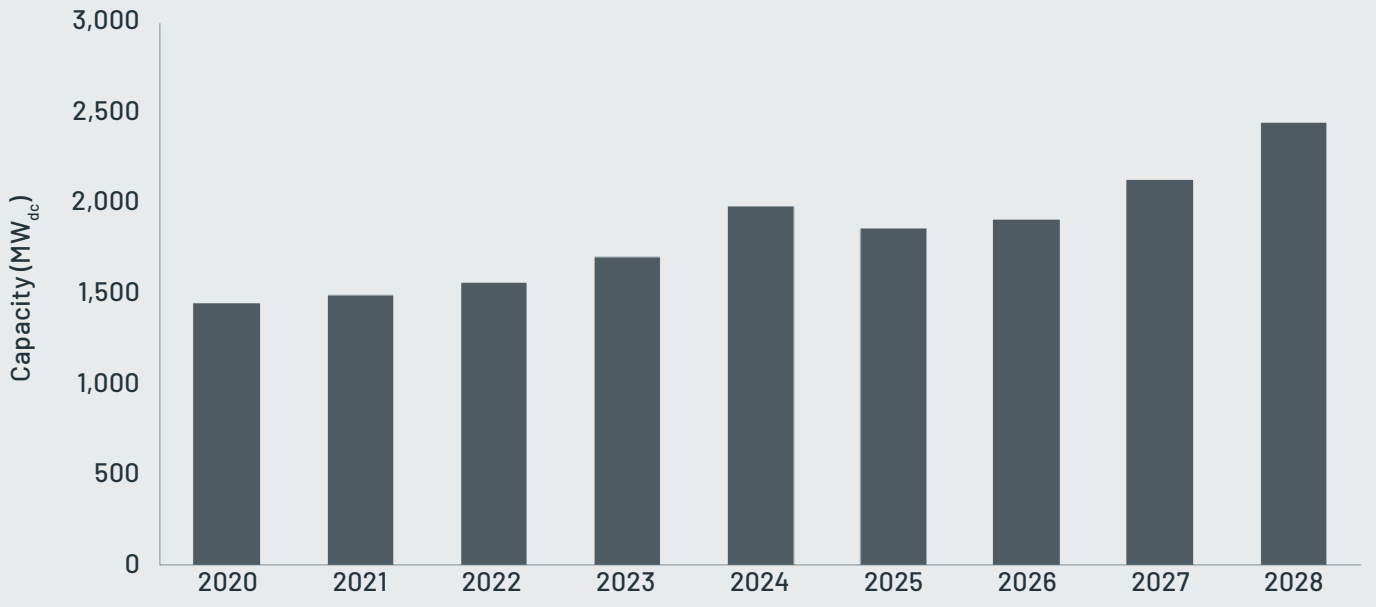

Figure 2

[3]Wood Mackenzie and the Solar Energy Industries Association, US Solar Market Insights, Q4 2023 (December 2023).

"We're expecting tremendous growth to come in the U.S. commercial and utility-scale solar market," Lancaster said. "As an industry overall, solar has been growing at 10% to 20% per year over the past few years, and we expect that to continue and potentially even accelerate with some of the recent support from the Inflation Reduction Act, which specifically provides more lucrative incentives and tax support for the commercial solar sector in particular."

"The solar market is a large and competitive one," agreed Sylvia Leyva Martinez, a principal analyst with Wood Mackenzie and co-author of the firm's quarterly solar energy reports. "Anything a developer or EPC can do to automate the management of inputs can provide them with a noticeable edge."

For commercial solar projects in particular, "anything that improves efficiencies and lowers costs will increase the economic attractiveness of those projects." She continued: "Energy is not necessarily the first tier of concerns for commercial companies, but a lot of companies have a lot of roof space. As those companies seek to fulfill their net-zero goals, putting solar panels on the roof can help. Commercial solar also helps insulate commercial customers from rising electricity costs."

The enactment of the Inflation Reduction Act in August 2022 (IRA) replaced the federal Investment Tax Credits, which, for solar, were declining. But the IRA has made solar power a much more attractive option to commercial customers as well as developers, as projects of less than one MW are eligible for a 30% tax credit.

An additional 10% tax credit is available for projects in areas that have been hurt by the energy transition, such as communities where coal mines or coal-fired power plants have closed or are closing. If the project meets domestic content requirements, as outlined in the IRA,an additional 10% credit is available, on top of the 30% and 10%.

Those IRA credits began trickling out in 2023, but that trickle is expected to turn into a river in 2024 and beyond.

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> **Principal Analyst, Wood Mackenzie**

"The solar industry, including developers and smaller EPCs, is going through the next phase of development and growth," Lancaster commented. "In the initial stages, developers managed with extensive manual processes and by simply adding more personnel to address scaling challenges. However, as solar equipment costs have decreased, there's been a noticeable increase in the percentage of 'soft' costs, such as non-hardware expenses, within projects. This trend highlights the inefficiencies in the internal processes of developers and EPCs."

Lancaster added, "With the expanding influence of solar energy, it's becoming increasingly crucial for developers to adopt software and digital platforms. This shift is not just about growing more efficiently; it's about reducing those soft costs and reinvesting the savings into business expansion."

Larger and more established developers, EPCs, O&Ms, and asset management teams have more centralized and digitized data and processes, which puts smaller players at a competitive disadvantage.

"Having a centralized and digitized platform is necessary to drive the growth that we expect all segments of solar to have over the next few years," Leyva Martinez commented.

Generally, labor accounts for about 25% of the cost of a solar project, and anything that can be done to automate tracking project inputs like labor creates an efficiency in time that ultimately translates into project savings and better project economics, the Wood Mackenzie analyst said.

"The solar market is very attractive right now, and that means it is drawing more competitors. It's reaching a point where anything a developer or EPC could do to differentiate their service and make their processes more efficient in terms of materials management, labor management, process management, licensing management, construction management is going to set a business apart and give them the competitive edge," she continued.

"One of the tools certainly could be the use of centralized platforms from Sitetracker and Salesforce to become more efficient, lower their costs, accelerate project development and construction and have projects that are economically more attractive than their peers," she continued. "That could support the search for new investment capital too."

Lowering Risks

Time is money, and nowhere is that adage truer than in solar development. Whether you're talking about the challenges of juggling the hundreds or thousands of individual assets necessary to complete a few 100-to-200 MW utility-scale projects, or managing dozens of 1-MW commercial builds, the time necessary to manage these projects is extensive and the room for error and rework is vast.

Because Sitetracker and Salesforce were built in collaboration with those who would use those platforms, they are more flexible and easily configurable compared to large enterprise resource planning (ERP) tools.

Looking at solar developers specifically, many have dozens, even hundreds, of small sites with a geographically distributed workforce, oftentimes one that is heavily reliant on local contractors. Send the wrong crew or equipment to the wrong site and you have wasted time and fuel. The risks that crews or equipment will accidentally be sent to the wrong site rises with the number of projects under development.

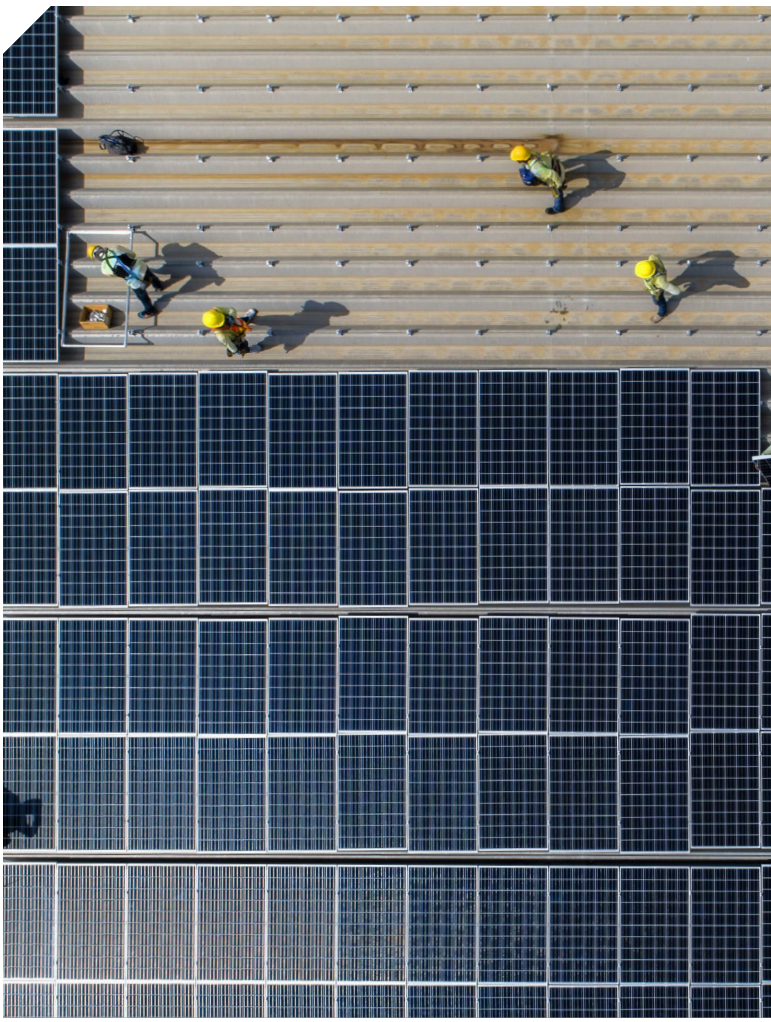
"Solar developers and EPCs often have different workflows and internal systems, all of which operate in a very dynamic environment" Lancaster said. "They need a platform that easily integrates into their existing platforms and processes. Sitetracker and Salesforce works alongside developers and EPCs to configure their software system to fit seamlessly into a customer's preexisting workflow."

"Because Sitetracker and Salesforce were developed collaboratively with users," he continued, "they are customer-centric in ways that other platforms, which were developed internally and then released to the market, are not."

"We learned about Sitetracker because we were talking to developers and EPCs that were using that platform on our network. We asked those customers, 'what are your current challenges and pain points? And what specifically are you using to manage the construction and maintenance of your projects?' Time after time, customers said they were using Sitetracker. Solar developers have unique business challenges, and they were using Sitetracker to address some of them."

Lancaster continued: "Sitetracker's leadership, and the entire team, has been customer-obsessed from the start. They have also brought in leaders who have specific experience in commercial solar development to even better serve those customer needs. Many Sitetracker employees were users of the platform before they joined the company."

Maulik Patel, director of technology at New Columbia Solar, said he is grateful for the way Sitetracker helps his company track risks. "We are very mindful about capturing the different risks of each project — permitting risk, engineering risk, construction risk, legal risks, financing risks, managing the project after it is completed. We are now much better able to document potential risks throughout all aspects of a project so we can take steps to mitigate them."



Creating Efficiencies

New Columbia Solar, a rapidly expanding commercial solar project developer and operator based in Washington, D.C., with around 40 projects in its portfolio, faced unique challenges as it grew into Maryland and Virginia suburbs. The varying permitting requirements of different counties necessitated a more efficient management platform.

In 2021, the company adopted Sitetracker, which significantly streamlined the tracking of these diverse requirements. Patel reported a marked improvement in project completion speed, attributing it to the superior management capabilities of the software.

"We're completing projects more quickly, in part because we have better software to manage our work processes," he said.

"Our ability to enter new markets and scale our business comes down to our ability to do things efficiently because we're doing a lot of small projects," Patel continued. "Developers often have a hard time scaling due to the high fixed costs of each project."

"Each jurisdiction has its own requirements to build a solar project, and we really have to be in tune to what each jurisdiction requires. We need to be able to track those requirements efficiently so we can report on them internally. Every project that we build is built according to a template, and that template is customized based on the physical requirements of the project, ground mount vs. roof mount, and the specific requirements of the local jurisdiction."

New Columbia Solar replaced the database it was using with Sitetracker so it could more effectively modify and scale and track to a specific county the different types of projects that it was developing, whether they were behind the meter or in front of the meter.

Patel emphasized the importance of efficiency in their expansion and scalability, particularly given the small scale and high fixed costs of their projects. Sitetracker's ability to handle distinct requirements of each jurisdiction and tailor project templates based on specific local and physical requirements has been key.

Building commercial solar projects often is costly due to fixed expenses like equipment, permitting, and labor. Patel highlighted that reducing project duration enhances profitability. Sitetracker plays a crucial role in scaling their operations, ensuring trackability and efficiency in project management.

"One of the things that we're trying to improve is our ability to scale, and a lot of that comes down to doing these projects in a trackable way that can be comparable and efficient."

Patel said his company can construct small-scale projects that other developers have a hard time doing because it can track cycle times and requirements more efficiently than other firms. That capability makes small projects more profitable for the company.

New Columbia Solar also operates the commercial solar projects it constructs, and it uses Sitetracker to automate its asset-management requirements. It has used spreadsheets to track work tickets, but that became too unwieldy. Now it uses Sitetracker to create customized work tickets each day, assign the tickets to individuals, track the work performed on site, close out a ticket, and report on the tasks.

"Sitetracker has made that process much more efficient and much more standardized," Patel said. "Prior to using that platform, we had a hard time keeping track of all the different maintenance work we were performing at any given site. Having a system enables us to track historical site visits, and that in turn enables us to reduce the number of truck rolls or site visits that maybe should not have happened, which saves us money and more importantly, time."

"Now, our assets are performing better, and we're spending less time in D.C. traffic on unnecessary truck roles."

"Sitetracker is helping reduce our development cycle times by 30%. In turn we are also reducing our working capital needs, which is particularly important in a high interest rate environment."

— Maulik Patel
Director of Technology, New Columbia Solar

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Patel estimated that New Columbia Solar has been able to manage three times the number of solar projects without hiring any additional staff.

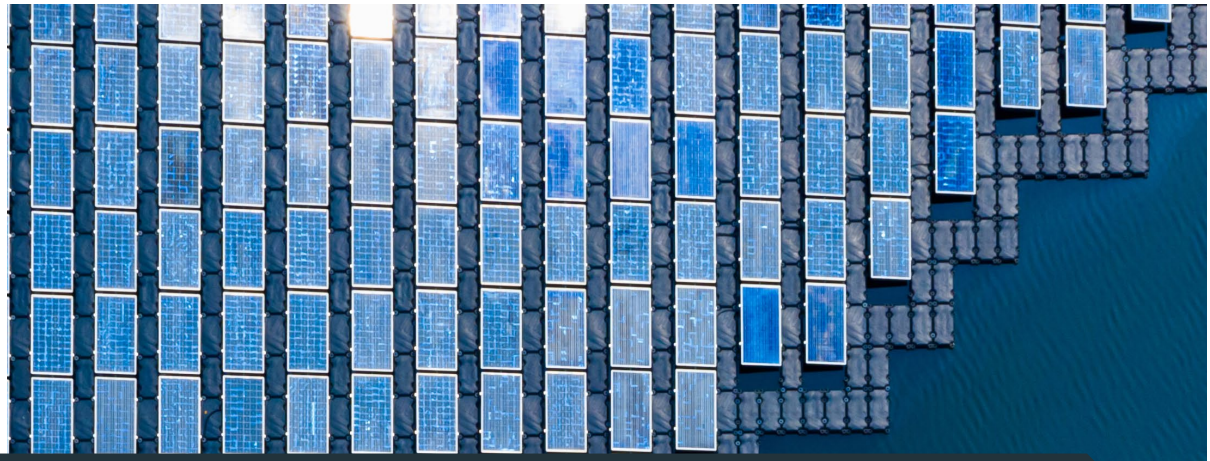
New Columbia Solar installed an ERP platform in 2023, and now it is assessing an inventory management system. It plans to adopt a purchasing management system as well, and ultimately integrate all those platforms into Sitetracker so the management team will be able to better understand how all of its costs, timelines, and processes affect profitability.

Increasing Profitability

Although specifics vary from one project to another, soft costs (i.e., costs not associated with hardware) account for about 50% of the total cost of a solar installation. In general, any reduction in those costs flows straight to the bottom line. Some companies have cut soft costs by up to half using advanced software platforms like Salesforce and Sitetracker.

"Our company is now able to organize more effectively around projects," said New Columbia Solar's Patel.

"We now can bring together stakeholders from various departments and with different technical capabilities on the Sitetracker platform to meet, communicate more efficiently about projects, track all the information in one place, and to deliver these projects more efficiently to our customers."



Moving Forward

The energy transition won't happen with the speed and pace that is needed without integrated data powering automated relationships between assets and people across companies in the industry. It will take flexibility, speed, and the earnest efforts of all stakeholders. And that starts from data-driven decision-making.

To meaningfully contribute to combating climate change, solar developers, EPCs, O&M teams, and asset management companies must focus on scaling their operations efficiently while also capturing and implementing continuous improvements to their processes. This involves automating administrative tasks of low value, optimizing processes, centralizing data, and ensuring easy access to that data for decision-makers and field crew leaders alike.

As the solar sector becomes increasingly attractive in the renewables space, drawing more competitors, it's imperative to reduce soft costs and boost profitability. Surviving and excelling in this competitive arena demands improved project predictability and accelerated construction timelines.

A single source of truth is required to survive and thrive in what promises to be a fast-growing but increasingly competitive solar market.

Transitioning to a cloud-based platform is essential for enhancing the accuracy and timeliness of reporting and analysis.

For solar companies, success hinges on shifting from a decentralized, analog data approach to a centralized, digital data management system. Providing an exceptional customer experience is key; in its absence, competitors will undoubtedly take the lead.