

Maximizing solar project bankability, power production and minimizing risk with intelligent design



Multi-megawatt photovoltaic (PV) projects require expert engineering and system design to meet the world's growing energy demands. Choosing the right engineering company can be a decisive factor in the success of utility-scale PV projects and distributed generation projects. While legislation and policy are driving the long term growth of solar power in the US, intelligent engineering and design can match emerging technologies with specific site conditions to produce the optimum energy output and lowest cost of ownership.

Solar power in the US remains linked to several critical factors including, government policies, federal tax regulations, state incentives, fluctuating market forces, and local grid capacities. Unlike other countries, the US doesn't have a single state-owned utility, but 50 different states, each with its own regulating body, local ordinances and unions. In this climate, it's more important than ever for project owners, developers, and EPC contractors to engage with an experienced US partner that can provide world-class engineering and technical solutions. This kind of intelligent system design impacts a whole range of project factors, not only maximizing total energy production but minimizing risk, creating a predictable and stable source of energy, maintaining a facility over its lifetime, and even the bankability of a project.

Solar is a likely contender to be the fastest growing energy source in the US over the next 20 years. In addition to changes in government policy, part of that shift will depend on finding ways to decrease installed costs of solar farms. Of course panel prices have lowered considerably in the last decade as have installation costs. In the US, we are seeing a growing application of pre-fabricated system components, highly optimized installation techniques, and the use of time-and-motion studies. An earlier cost-cutting measure is direct-bury aluminum as an alternative to the expense of copper wiring. Increasing the efficiency of modules—more watts per panel—is further decreasing the balance of energy costs. For example, scientists at Stanford University and MIT have just announced a new kind of solar cell which absorbs higher energy light particles. This technology may

ultimately achieve a power efficiency of more than 35%. 1,500 Volt (VDC) components that allow further reduction in wiring costs and increased production are also being adopted.

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Intelligent engineering requires the experience to deal with unique site conditions and individual local grid requirements. Design professionals have to be familiar with multiple state codes and local utility requirements which can drastically affect project timing and completion. Grids affected by a high penetration of solar energy can become destabilized without energy storage capability or advanced grid integration features. Increased plant voltages can reduce cost and balance of system requirements, but need expert supervision to educate local jurisdictions as to the plant's safety and efficiency.

As engineers anticipate new developments in photovoltaic cell efficiency, battery storage, and advanced plant components, we must balance the use of emerging technologies with the long-term value engineering in overall plant design, costs, and lifetime energy production. It is the engineer's job to understand what project developers envision and to work with them to ensure the best project for the best value.

With 54 years of professional engineering experience, Blymyer Engineers has developed a commanding portfolio, completing over 500 solar projects representing over 2.2 GW (including an impressive 450 MW completed in 2015). Our approach to each project is unique: we team with owners/developers and design custom solutions to solve complex challenges posed by individual sites. Our goal is to efficiently extract maximum power—even under extreme conditions of climate and topography. Our company is nimble, competent, and our engineers are known for their excellence and quality of product.

Reasons to choose Blymyer Engineers

- Over half a century of engineering expertise and experience
- Solid background in industrial engineering and alternative energy projects
- Construction cost-savings. We understand PV economics, up front costs and long term costs. We identify alternatives that will save time and money.
- Robust Design. We optimize system performance, conduct site evaluations, and perform production modeling. Additional expertise in layout, balance of system engineering, racking, foundations, conduit and wire management and performance modeling.
- Risk Reduction. Especially in cases with projects deploying prototype and new technologies.
- Team synergy with clients, coupled with rapid turnaround and response

COMPANY

Blymyer Engineers is a leading California based consulting firm providing photovoltaic design and engineering services. At the forefront of the growing solar industry Blymyer Engineers is recognized as one of the major consulting firms in the renewable energy field.

EXPERTISE

Blymyer Engineers brings specialized knowledge of PV economics, including up front and long term costs, as well as how to best optimize project performance. This enables us to offer accurate, up-to-date analysis of a PV site and its power production potential for proper project planning, design, construction and operation. Services include energy modeling, feasibility studies, design development and documentation, project management, cost estimate and construction management, energy analysis, interconnection application, permitting, value engineering and BOS, structural review, startup.



Blymyer Engineers at a glance

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CANOPY AND ROOF MOUNTED INSTALLATIONS FOR COMMERCIAL, INSTITUTIONAL AND MUNICIPAL CLIENTS

BUSINESS:

Full service engineering consultants in renewable energy with major focus on solar energy. Company also has fueling and environmental divisions.

TYPES OF CLIENTS:

Project Owners, Project Developers, Lenders, EPC Contractors, Municipalities and Government Agencies

DATE FOUNDED:

1961. Significant background in industrial engineering. Entered solar market in 2002. Also works in cogeneration, battery storage, fueling stations, CNG/LNG, biofueling, hydrogen fuel cells. Licensed in most US States. Originated the concept of Pre Check approvals from the California State Architect (DSA).

PARTIAL LIST OF CLIENTS

OpTerra, Solar City, REC Solar, Chevron Energy Solutions, Swinerton Renewable Energy, First Wind, Eaton, Solar World, Distributed Sun, Siemens Energy, Sun Edison, EDF Renewables, NRG Energy, Hanwah, Convergence Energy, Toshiba, Samsung C&T America, Signal Energy, S Power, 8 Minute Energy, Abengoa, Black and Veatch, Recurrent Energy, Parsons, Duke Energy, Florida Light and Power, LA Department of Water and Power, US Army Corps of Engineers, US Marine Corps, Panasonic, Bank of America, American President Lines, ConAgra, Constellation, SunTech, Pepsi, Cargill, Matson Freight Lines, Anheuser Busch, UniSys, Hewlett Packard, Scatec Solar, Federal Express, Avis, ET Environmental, Coca Cola, Oracle Corporation, The Gap, Walmart, HSBC, Sony, AT&T, Google, Tesla Motors

LARGEST SOLAR PROJECTS:



K-Road, 250 MW AC, Moapa Utah



Springbok, 107 MW AC, California high desert



Red Hills, 80 MW AC, Utah



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