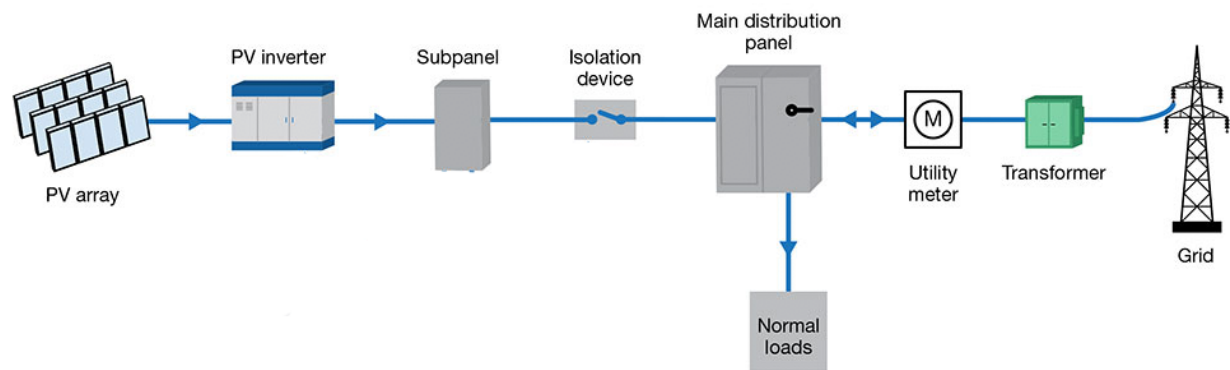


# Roadmap for Implementing Solar

*An overview of the major steps and information exchange required to successfully implement solar photovoltaic projects at commercial and industrial facilities.*

SunPeak specializes in the design, engineering, construction, and ongoing operation of commercial and industrial solar photovoltaic (PV) systems. These systems are typically “grid interactive” and work in conjunction with a facility’s utility service. Grid interactive solar PV systems do not replace, or in any way disrupt, the facility’s existing utility service.



The above diagram shows the basic building blocks of a modern grid interactive solar PV system. Most systems do not involve battery storage, but that can be incorporated for additional power demand management and load shifting functionality. As the diagram indicates, no changes are made to the utility service which assures 100% availability of utility power, regardless of time of day or weather conditions.

The solar PV system is typically interconnected “behind-the-meter” as a supply circuit into the main distribution panel of the facility. This arrangement assures that all power generated by the solar PV system is consumed by the facility first. If surplus power is being generated by the system (solar production > facility load), the surplus power will export to the grid. A bidirectional utility meter is typically incorporated into the design, which allows credit to be offered by the utility to the customer for surplus power.

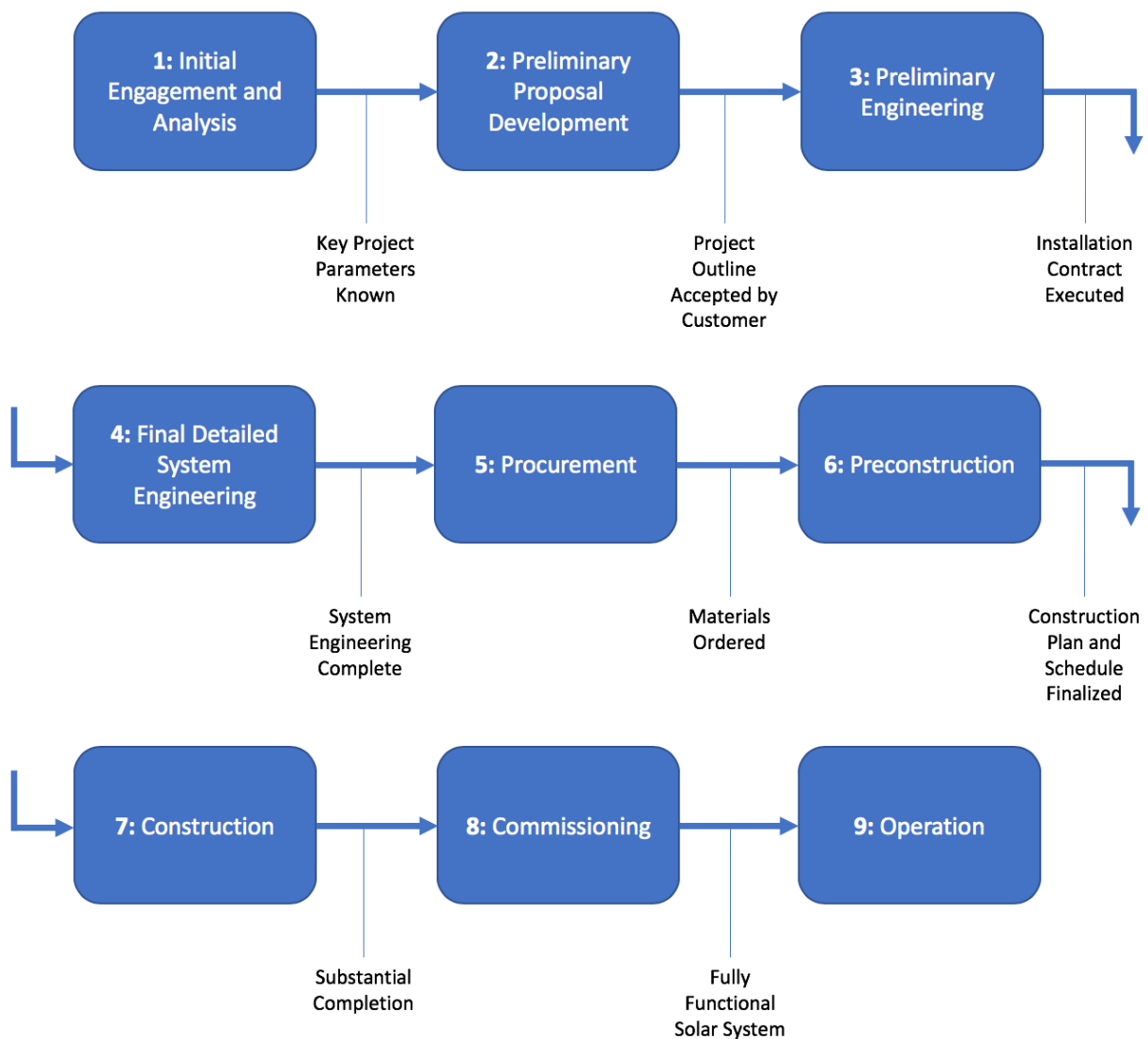
In most cases, the solar PV system will only provide a portion of the facility’s power. In this case, all of the electricity from the solar PV system is consumed by the facility, and the remaining power is drawn from the grid in the traditional fashion. In this scenario, 100% of the solar power is being consumed by the facility, and the rate of consumption from the grid is lower than it would have otherwise been had the solar system not been contributing. This leads to a net reduction in the electrical costs to the facility, which leads to a positive return on investment.

These systems have been deployed globally at commercial scale for many years and the technology is mature. With proper planning and coordination, a solar PV system can offer reliable, clean and inexpensive electricity for your facility for decades to come.

## Process Overview

SunPeak is a turn-key provider of solar PV systems, and handles the entire process of “going solar” from initial energy analysis through planning, engineering, procurement and installation. We also function as a long-term partner to ensure the system is always operating optimally and in good condition to provide decades of clean reliable power.

All projects have their own unique requirements; however, they typically follow a development and implementation process that is outlined below.



| Phase                                                                               | SunPeak Task                                                    | Customer Inputs                                                                                      |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>Phase 1:<br/>Initial<br/>Engagement and<br/>Analysis</b>                         | <b>1a</b> Understand Key Customer Goals                         | Complete Premeeting Goals Form<br>Convey Key Customer Goals                                          |
|                                                                                     | <b>1b</b> Energy Analysis                                       | Historical Energy Consumption Spreadsheet, or Energy Bills                                           |
|                                                                                     | <b>1c</b> Power Demand Analysis                                 | Interval Data (.csv or .xlsx file), or<br>Permission to Download Directly from Utility               |
|                                                                                     | <b>1d</b> Available Area Analysis                               | Limitations of Available Area<br>Setback Requirements                                                |
|                                                                                     | <b>1e</b> Facility Analysis                                     | Age/Condition of Roof/Access Points<br>Additional Requirements                                       |
|                                                                                     | <b>1f</b> Utility Analysis                                      | Utility Rep Contact Information                                                                      |
|                                                                                     | <b>1g</b> Financial Incentive Analysis                          | Incentives That May Be Desired                                                                       |
| <b>MILESTONE: Key Project Parameters Known for Preliminary Proposal Development</b> |                                                                 |                                                                                                      |
| <b>Phase 2:<br/>Preliminary<br/>Proposal<br/>Development</b>                        | <b>2a</b> Preliminary Design & Layout                           |                                                                                                      |
|                                                                                     | <b>2b</b> Budgetary System Price Quotation                      | Specific Component or System Needs<br>Preference on Extended Warranty<br>Budgetary Guidance (if any) |
|                                                                                     | <b>2c</b> Energy Production Estimates                           |                                                                                                      |
|                                                                                     | <b>2d</b> Return on Investment Metrics                          |                                                                                                      |
|                                                                                     | <b>2e</b> Environmental Offset Metrics                          |                                                                                                      |
|                                                                                     | <b>2f</b> Operations & Maintenance Options with Estimated Costs |                                                                                                      |
|                                                                                     | <b>2g</b> Presentation and Discussion of Preliminary Proposal   | Proposal Acceptance                                                                                  |

| MILESTONE: Preliminary Project Outline Accepted by Customer |    |                                                                                                                                                              |
|-------------------------------------------------------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Phase 3:<br>Preliminary Engineering                         | 3a | Detailed Site Inspection<br>Scheduled Access to Facility<br>Site Assessment Form Assistance                                                                  |
|                                                             | 3b | Review of All Relevant Standards<br>Any Known Requirements                                                                                                   |
|                                                             | 3c | Structural Feasibility Analysis<br>Facility Structural Drawings                                                                                              |
|                                                             | 3d | Electrical Feasibility Analysis<br>Facility Electrical Drawings                                                                                              |
|                                                             | 3e | Glare Analysis                                                                                                                                               |
|                                                             | 3f | Major System Specification                                                                                                                                   |
|                                                             | 3g | Generate EPC Agreement<br>Execute EPC Agreement<br>Project Milestone Payment #1 (10%)                                                                        |
| MILESTONE: Contract Executed for Installation               |    |                                                                                                                                                              |
| Phase 4:<br>Final Detailed System Engineering               | 4a | Incorporation of All Relevant Standards                                                                                                                      |
|                                                             | 4b | Single-Line Diagrams and Electrical Schematics                                                                                                               |
|                                                             | 4c | Fully Dimensioned Mechanical Layout Drawings                                                                                                                 |
|                                                             | 4d | Structural Drawings and Report                                                                                                                               |
|                                                             | 4e | Utility Interconnection Application<br>Customer Signature                                                                                                    |
|                                                             | 4f | Permitting                                                                                                                                                   |
| MILESTONE: System Engineering Complete                      |    |                                                                                                                                                              |
| Phase 5:<br>Procurement                                     | 5a | Procure All Major Equipment, Including Modules, Inverters, Racking, Monitoring, and Balance of System (BoS) Components<br>Project Milestone Payment #2 (30%) |

| <b>MILESTONE: All Materials Ordered with Scheduled Delivery</b>  |           |                                                                                                          |
|------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------|
| <b>Phase 6:<br/>Preconstruction</b>                              | <b>6a</b> | Material Delivery Plan Customer Approval                                                                 |
|                                                                  | <b>6b</b> | Material Staging Plan Customer Approval                                                                  |
|                                                                  | <b>6c</b> | Material Handling Plan Customer Approval                                                                 |
|                                                                  | <b>6d</b> | Electrical Outage Plan Feedback on Electrical Outage Preferences and Limitations                         |
|                                                                  | <b>6e</b> | Final Construction Schedule Customer Approval                                                            |
|                                                                  | <b>6f</b> | On-Site Preconstruction Customer Meeting Meeting Participation by Facility Personnel Involved in Project |
|                                                                  | <b>6g</b> | Materials Delivered Project Milestone Payment #3 (30%)                                                   |
| <b>MILESTONE: Final Construction Schedule and Plan Finalized</b> |           |                                                                                                          |
| <b>Phase 7:<br/>Construction</b>                                 | <b>7a</b> | DC Mechanical Scope                                                                                      |
|                                                                  | <b>7b</b> | DC Electrical Scope                                                                                      |
|                                                                  | <b>7c</b> | AC Electrical Scope                                                                                      |
|                                                                  | <b>7d</b> | Monitoring Scope                                                                                         |
|                                                                  | <b>7e</b> | System Testing Project Milestone Payment #4 (25%)                                                        |
| <b>MILESTONE: Substantial Completion</b>                         |           |                                                                                                          |

|                                                  |           |                                    |                                                                                                                       |
|--------------------------------------------------|-----------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Phase 8:<br/>Commissioning</b>                | <b>8a</b> | System Inspection                  |                                                                                                                       |
|                                                  | <b>8b</b> | Utility Interconnection            |                                                                                                                       |
|                                                  | <b>8c</b> | Final Punchlist                    |                                                                                                                       |
|                                                  | <b>8d</b> | Quality Assurance                  |                                                                                                                       |
|                                                  | <b>8e</b> | Customer Orientation               | Meeting with Facility Personnel<br>Responsible for Ongoing Operation of<br>System                                     |
|                                                  | <b>8f</b> | System Documentation               | Project Milestone Payment #5 (5%)                                                                                     |
|                                                  | <b>8g</b> | Marketing                          | Marketing Goals Input<br>Engagement with Customer<br>Marketing Personnel<br>Review of Press Release<br>Event Planning |
| <b>MILESTONE: Fully Functioning Solar System</b> |           |                                    |                                                                                                                       |
| <b>Phase 9:<br/>Operation</b>                    | <b>9a</b> | Operations and Maintenance<br>Plan | Customer Feedback and Acceptance<br>of Chosen Plan                                                                    |
|                                                  | <b>9b</b> | Ongoing Performance<br>Monitoring  |                                                                                                                       |
|                                                  | <b>9c</b> | Annual System Inspection           |                                                                                                                       |

## Detailed Solar Project Process Explanation

The above overview is explained below in more detail. As mentioned earlier, SunPeak is responsible for all activities on this list. We will communicate with you to let you know when information inputs or customer requirements are needed. Our goal in sharing this outline is to give you a good feel for what the process looks like and what is involved with integrating solar into your operation. Our job is to take full ownership and control of this process, leaving you to run your business knowing you have an experience and professional team handling everything.

1. **Initial Engagement and Analysis.** The first step in the process involves SunPeak learning more about your specific goals, constraints and situation. All projects are unique, and we start by gathering the key information necessary.
  - a. **Understand Key Customer Goals.** All projects start with a conversation. What are your key goals for going solar? Energy cost savings? A specific return on investment rate? Improving employee engagement? Reducing your organization's carbon footprint? In the early-stages of our conversation, we want to understand what is important to your project, and what is not. This will help us craft a system that is consistent with your needs.
  - b. **Energy Analysis.** System sizing is one of the first things we'll take a look at, and to do that we need information on how much electricity your facility is consuming. Ideally, we would get 12 months of historical electrical usage in the form of a digital file (spreadsheet or delimited text), but we can also work with a single electric bill if that is all we have. Generally speaking, the more information we have, the better. This information also provides us insight into your electrical rate structure, which is important for payback calculations.
  - c. **Power Demand Analysis.** Most systems do not include batteries or other means to store surplus energy, which requires that the solar power (production) curve is lower than the facility load curve. This reduces or eliminates surplus power from being produced. Absent a favorable "net metering" arrangement with the utility, surplus power exported to the grid has a poor payback and therefore should be minimized. To perform an optional power demand analysis, we will need a file from your utility called the "interval data" that provides data on the facility's power load. The dataset will be typically in intervals of 15 minutes and span the course of a year. This data is not provided without specially asking for it and is used by the utility to establish your monthly "demand charges," which are common for commercial electrical plans.
  - d. **Available Area Analysis.** SunPeak uses satellite and aerial photography resources to analyze your facility's roof area or adjacent available land. Prior to performing this analysis, we invite your preferences for system location, mounting type and

keep-out zones. From there, we have the design constraints necessary to begin work on a preliminary layout.

- e. **Facility Analysis.** For roof-based systems, the conditions and type of roof are important. Generally speaking, it is better to install solar on a new roof than an old roof so the longevity of the two assets are paired properly. We'll also take a preliminary look at the facility's electrical service, such as phase-type, voltage and amperage rating of the incoming electrical service.
  - f. **Utility Analysis.** Utility policy, with respect to solar, varies widely from one utility to another. Some offer favorable "net metering" policies, whereby any surplus power delivered to the grid can receive full retail value for the electricity. Others can actually impose a "solar tax" on any grid-interactive solar system, which can erode payback. Taking an initial look at your utility's solar policies is vitally important and is an integral part of all SunPeak systems early-on.
  - g. **Financial Incentive Analysis.** There are many financial incentives available to adopt solar today, which also varies widely by location. At the federal level, the Investment Tax Credit (ITC) and accelerated depreciation treatment of the asset are the two largest and most common economic incentives for all systems being installed at locations that have a customer with tax appetite. Beyond that, state grants, Solar Renewable Energy Credits (SRECs), utility-sponsored grants and local programs can add to the available incentives. SunPeak will investigate which incentives could apply for all new systems and is an integral part of what we do on the front-end of all projects.
2. **Preliminary Proposal Development.** The above information and analysis are then used as an input for roughing out the system size, costs and financial payback calculations. If all of the information was gathered properly in the first phase of engagement, SunPeak is largely self-sufficient in generating a professional proposal that will outline all the key results you need to decide on a solar project.
- a. **Preliminary Design & Layout.** SunPeak will superimpose a preliminary solar layout onto the specified area for your facility, either roof or ground-based. Basic information on your facility's electrical service will be used to make core component decisions. The energy analysis will also be a key input on ensuring the system is properly sized.
  - b. **Budgetary System Price Quotation.** Assumptions will be used to estimate a budgetary price for the system, including system size, interconnection costs and mounting type. This system price will be used as a basis for ROI calculations and other incentives, such as the Investment Tax Credit (the tax credit is presently equal to 30% of the system price).

- c. **Energy Production Estimates.** Solar energy simulation software will be applied to the preliminary design, which considers the azimuth (direction the solar system is facing), module tilt angle (relative to horizontal), geographical location and weather factors to output an energy estimate (kWh) the system will produce each month. In the northern hemisphere, solar produces more electricity in the summer than winter due to both increased duration and intensity in summer.
  - d. **Return on Investment Metrics.** The current electrical utility rate establishes the value of the electricity being produced by the solar system; i.e. the “avoided cost.” All new energy produced by the solar project will be that much less energy being purchased from the local utility. A pro forma is built over the system’s expected lifespan (30+ years), and assumptions are made on utility cost inflation rates, module degradation and financing scheme to output metrics that are usable by your team for financial evaluation. Internal Rate of Return (IRR), Net Present Value (NPV), Levelized Cost of Energy (LCOE) and other metrics are all provided, amongst others.
  - e. **Environmental Offset Metrics.** The majority of electricity in the United States is still generated by fossil fuels, such as coal and natural gas. Solar electric production helps offset the need for electricity from these dirty sources. The Environmental Protection Agency (EPA) publishes standard coefficients associating energy units (kWh) with CO<sub>2</sub> and other greenhouse gas emissions, which allows for an easy calculation for how many tons of CO<sub>2</sub> the new system will offset over the projected lifespan of the system. This information can be used for your sustainability programs and external public communications.
  - f. **Operations & Maintenance Options with Estimated Costs.** Solar photovoltaic systems are remarkably low maintenance, but nothing is totally maintenance-free. It is recommended that some budget is set aside each year to ensure the system is maintained in optimal condition for decades of performance. SunPeak’s Return on Investment (ROI) calculations include a budget for these costs, which are discussed and fully disclosed in the preliminary proposal. It is the customer’s decision on whether they’d like to use SunPeak after the system is installed for periodic and ongoing monitoring and maintenance of the system.
  - g. **Presentation and Discussion of Preliminary Proposal.** All of the above aspects are bundled in a concise proposal that SunPeak will review with you. This preliminary work and discussion can be the basis for next steps, either: 1.) proceed with the project as-is, 2.) make some modifications and re-evaluate, or 3.) put the project on hold for another time.
3. **Preliminary Engineering.** Once the customer has accepted the preliminary proposal, it is time to begin investing more resources into the next level of detail. The primary goal of this phase is to 1.) ensure the project is feasible across all factors, and 2.) validate the project cost assumptions made during the preliminary proposal development phase.

- a. **Detailed Site Inspection.** During this visit, we will need access to most aspects of the facility's electrical infrastructure and proposed installation area. This will help identify points of interconnection, conduit runs, array location, amongst other key information. A standardized site assessment form is completed and used later as an information input into final engineering.

Additionally, SunPeak uses sophisticated Global Positioning System (GPS) surveying technology to quickly and precisely locate all relevant coordinates for the project. This is an important cross-check to the preliminary boundary information already obtained via satellite and aerial photography and ensures accurate site information is present in our Computer Aided Design (CAD) modeling.

- b. **Review of All Relevant Standards.** All solar systems must comply with National Electric Code (NEC) and Underwriters Laboratory (UL) standards, but additional local codes and engineering standards may apply as well. SunPeak will want to understand if there are any additional engineering requirements for the project, perhaps driven by a customer's insurance company; e.g. FM Global.
- c. **Structural Feasibility Analysis.** For all roof-based systems, a structural analysis needs to be performed on the building with the new loading assumptions from the added weight of the solar system. For ballasted flat-roof solar, a good ballpark loading assumption is 3-4 psf, but can be higher or lower depending on application. In most cases, this will not pose a problem for the building, but it can for pre-fabricated buildings, agricultural facilities, or any other structure built with a tight factor of safety. Collateral loads from other sources, such as HVAC, electrical or fire protection, can also play a role in the building's additional load-bearing capability. Any available structural or architectural drawings of the building are useful at this stage.
- d. **Electrical Feasibility Analysis.** There are three principal ways to interconnect a commercial solar system: 1.) back feed into the main switchgear or subpanel, 2.) employ a "behind-the-meter" "line-side" connection, or 3.) connect on the utility-side of the meter and utilize a virtual metering agreement with the utility. Each method has its various advantages and disadvantages, and factors such as the available capacity of the existing electrical infrastructure, utility policies, and assessment of the associated costs and complexities with each concept will influence the chosen solution.
- e. **Glare Analysis.** A glare analysis is required by the Federal Aviation Administration (FAA) if the proposed system falls within a specified range of an airport. SunPeak has significant experience with both the required glare analysis, as well as the subsequent FAA application that needs to be submitted for project approval.

- f. **Major System Specification.** At this stage of engineering, the major components are finalized such as the type and quantity of solar modules, inverters and racking. There is also enough information gathered at this stage to calculate the length of conduit runs, specify any needed transformers or electrical upgrades to complete the project. A conceptual single-line diagram and representative layout is established, which allows close estimation of project costs.
      - g. **Execute Engineering Procurement and Engineering (EPC) Agreement.** All of the above information is captured in a final proposal and installation contract, which we call an EPC Agreement. Upon execution of the document and initial project deposit, we can move forward with the final engineering and installation of the system.
- 4. **Final Detailed System Engineering.** This is the stage of the project where all the details are fully incorporated, with the generation of a final set of engineering drawings and a detailed Bill of Materials.
  - a. **Incorporation of All Relevant Standards.** The standards already reviewed are incorporated into the design, so the system will be compatible with all project requirements by all stakeholders; e.g. local and state government, insurance company, and the utility.
  - b. **Single-Line Diagrams and Electrical Schematics.** Detailed electrical drawings are created, which are used to communicate with both local inspectors and the utility during the interconnection process.
  - c. **Dimensioned Mechanical Layout Drawings.** The final layout is adjusted, as necessary, and mechanical engineering drawings are generated that locate all project boundaries, obstacles, keep-out zones and system dimensions. The drawings are annotated for full communication between the engineering team and field installation personnel.
  - d. **Structural Drawings and Report.** The preliminary structural review already performed is now detailed by a professional structural engineer (PE), and stamped. This PE stamp and structural report is part of the submission process for the building permit.
  - e. **Utility Interconnection Application.** The electrical specifications, single-line diagrams and other schematics are submitted to the local utility along with an interconnection application. This starts a process within the utility to review the system's potential impact on the grid, which will later be incorporated into the Interconnection Agreement at the time of commissioning.

- f. **Permitting.** Project drawings are submitted to local government with some nominal fees. There are two core aspects to the required permitting for most projects:
    - i. **Building permit.** In addition to structural review, some projects may be subject to aesthetic approval. This is especially true for buildings in historic districts or otherwise aesthetically sensitive regions. These matters will have already been considered prior to the design of the system, and plan approval typically takes less than four weeks.
    - ii. **Electrical permit.** Updated electrical code is published every three years by the NEC, and local government typically adopts the most current version of the code some period of time later (often several years). The submitted design must satisfy all code that has been adopted locally, which is typically based on some version of the NEC; e.g. NEC2017, NEC2014, or NEC2011.
5. **Procurement.** All major equipment with lead times associated with them are ordered. SunPeak has developed strong buying relationships with its suppliers and has a focus on keeping the list of suppliers as short as possible. This maximizes buying power and minimizes complexity, both of which lead to more competitive installation costs for our customers. Also, our equipment and its suppliers have been thoroughly vetted for quality, longevity and ongoing warranty support.
- For smaller projects, SunPeak may pull materials out of its inventory, but for large projects the major equipment is typically shipped directly from manufacturer to the project site. Briefly, the major portions of the solar project that must be procured are:
- a. **Modules.** Often referred to interchangeably as “solar panels,” these will be either 60-cell or 72-cell modules that are either polycrystalline or monocrystalline. Type and scale of project will dictate what is the most appropriate.
  - b. **Inverters.** The scale of the project and the facility’s voltage service will dictate the type and quantity of inverters ordered for a given project. String inverters (30-50 kWac each, typically) are the most common solution, but central inverters can be appropriate for large ground-based projects above 1000 kW. SunPeak utilizes no microinverters in any of its systems.
  - c. **Racking.** There are many different types of racking available for both roof and ground-based projects. Typically, these systems are either aluminum (roof) or galvanized steel (ground). The racking supplier works closely with SunPeak on final engineering to ensure adequate performance over the duration of the system’s life, regardless of wind or snow conditions.

- d. **Monitoring.** SunPeak includes independent solar energy production monitoring equipment on all of the systems it installs. Data is uploaded and stored in a cloud-based server every ten minutes, which can be used for on-site visual dashboard performance displays, validation of customer ROI and troubleshooting.
  - e. **Balance of System (BoS).** All other materials, including combiner boxes, wire, grounding clips, conduit, disconnects and connectors make up the remaining list of needed components necessary to complete the project.
6. **Preconstruction Assessment and Planning.** As the scheduled construction launch date approaches, SunPeak's project management team will schedule an in-person preconstruction meeting to go over all of the important topics that need to be communicated by both SunPeak and customer to ensure a successful and seamless project.
- a. **Material Delivery Plan.** A plan needs to be established for the timing of materials being delivered to the site. When can they be delivered? What procedures do we need to be aware of for delivering materials to the site? Where will material be temporarily stored between delivery and use?
  - b. **Material Staging Plan.** After materials are delivered, how will they be moved from their temporary storage location to the construction activities? For roof-based systems, it is particularly important to ensure roof loading constraints are considered for momentary loading by palletized material, which often accounts for a significantly higher structural load pressures than the calculations associated with the final installed system. Also, preservation of the roof is also a key consideration to ensure there is no damage to the roof.
  - c. **Material Handling Plan.** How will materials be conveyed from point of delivery to point of use? For roof-based systems that are many floors up, a crane may need to be employed. For lower systems, a telescopic forklift may suffice. The material staging plan also will have an impact on the handling plan.
  - d. **Electrical Outage Plan.** For the vast majority of the time while the system is being constructed, the activity will have no impact on the facility's operations or electrical service. However, near the end of system completion, a momentary break in electrical service is typically required to complete the wiring of the solar output into the facility's electrical switchgear. This is typically budgeted around four hours, but can vary by project complexity and can often be scheduled at night or on a weekend to minimize disruption. If electrical disruption is absolutely unacceptable, a backup generator can be employed to bridge the few hours of expected downtime.

- e. **Final Construction Schedule.** Once the delivery schedule is known for materials, labor is allocated, and project schedule approvals are obtained by the customer, a final construction schedule can be established. On most projects, the timeline leading up to construction exceeds the timeline of the construction itself and in many cases the construction window can be rather short. Project size and complexity have major impact on the required construction timeline.
  - f. **On-Site Preconstruction Customer Meeting.** SunPeak meets with the customer personnel that will allow access to the facility. This meeting is typically held with the facility management.
  - g. **Materials Delivered.** Once materials are delivered, and all previous steps are complete, construction can begin.
7. **Construction.** The installation of the system can be subdivided into five main areas of scope of work:
- a. **DC Mechanical Scope.** This scope relates to the installation of the racking system (either roof or ground) and the solar modules themselves. The modules come pre-wired out of the factory with pigtails that can be simply connected in the field to form “strings.”
  - b. **DC Electrical Scope.** The system “strings” are either gathered in a DC combiner box or run independently back to the input side of the inverter. For roof-mounted systems, these circuits are housed inside conduit. The DC electrical scope includes all work from the modules to the inverter.
  - c. **AC Electrical Scope.** On the output (AC) side of the inverter, electrical work must be done to connect the inverter(s) to the facility. This is otherwise referred to as the “interconnection.” It must be completed by a master electrician and is often the most technically involved aspect of the electrical construction.
  - d. **Monitoring Scope.** The system that will monitor solar production performance must be installed, which typically involves interface with the internet via Wi-Fi or Ethernet communication links.
  - e. **System Testing.** After the system is fully installed, the installation team goes through a detailed checklist checking the system performance at the sub-system and total system level to ensure everything is working properly.
8. **Commissioning.** At this point, the system is substantially complete, and all that remains is gaining final inspection and approval by both the local Authority Having Jurisdiction (AHJ) and the utility.
- a. **System Inspection.** A meeting is scheduled with the local AHJ (inspector) to observe and confirm that everything was installed consistent with adopted code.

- b. **Utility Interconnection.** On a separate meeting, representatives from the utility meet with SunPeak to ensure the system meets the utility's requirements for anti-islanding and rapid shutdown characteristics. The final installation is cross-checked with the specifications disclosed in the Interconnection Application, which then leads to the execution of the final Interconnection *Agreement*.
  - c. **Final Punchlist.** Typically, there are a few "open items" at this stage that require attention before the system is turned over to the customer. This final punch list is generated and remedied.
  - d. **Quality Assurance.** A final quality check is performed by SunPeak quality and operations personnel.
  - e. **Customer Orientation.** A meeting is scheduled between SunPeak and facility personnel that will be taking the lead on-site for ongoing operation of the system. While the system will require virtually no attention or intervention, it is helpful to go through how the system functions so there are knowledgeable people on-site if future operational questions or issues arise.
  - f. **System Documentation.** Any modifications to the engineering plans that are necessary to accurately reflect how the system was actually installed will be made, which generates a final set of "as-built" documentation. These drawings accompany the SunPeak Owner's Manual for the project, which is turned over to the customer.
  - g. **Marketing.** Most customers have a desire to be recognized for their investment and contribution to clean-energy in their community. Depending on the size and profile of the system, news media are often eager to publish these types of positive stories about local business leadership. SunPeak often works with the customer on a press releases, scheduling and assisting in public events, and the development of marketing videos that can be incorporated into corporate materials.
9. **Operation.** The system is up and running, providing clean, inexpensive and hassle-free electricity. A well-maintained system can provide many decades of nearly free electricity.
- a. **Operation and Maintenance Plan.** To assist in the periodic maintenance of the system, SunPeak offers a variety of service levels. The customer decides what level, if any, SunPeak will be involved after the project is complete for ongoing operations and maintenance.
  - b. **Ongoing Performance Monitoring.** With the monitoring system in place, SunPeak will continue to monitor its performance. Any disruption to production

will be known to SunPeak immediately, which allows us to react and remedy any situation.

- c. **Annual System Inspection.** Depending on the level of O&M plan chosen, SunPeak will provide an annual system inspection and routine maintenance to assure “like-new” operation over the duration of the system’s life.