Solar Master Plan

OAKLAND UNIFIED SCHOOL DISTRICT (OUSD)

Chapter 6

Design-Build Contract for Photovoltaic System Installation

Design-Build Contract for Photovoltaic System Installation

INTRODUCTION TO RFP TEMPLATE

Procuring a commercial-scale solar photovoltaic ("PV") system for a school district can and should be a solid investment for the district. PV systems should reduce utility costs for several decades and protect the district against rising electricity costs. Nevertheless, the landscape of solar PV procurement is dotted with projects in which the cost-saving potential of solar PV was not fully realized. Some school districts have ended up signing sole-source contracts with a solar vendor but without qualified assistance in crafting the contract terms or negotiating the pricing. In many cases, the results have been PV installations that are more expensive than they need to be; not as well designed, constructed, and maintained as they ought to be; and contracts that do not obligate the vendor to do proper operations and maintenance (O&M) and performance monitoring. Conducting a competitive procurement for design-build solar PV systems – if the procurement process is done rigorously and with the assistance of experienced, knowledge-based advisors or consultants – helps ensure competitive pricing, contractual protection, and successful system performance.

While districts that have relatively large installations planned (i.e., ~1 MW or larger) are likely to benefit from professional assistance in developing an RFP and evaluating proposals, districts that are considering smaller installations may find it more difficult to justify the cost of professional assistance and decide to carry out the RFP process on their own. The Request for Proposals (RFP) template that follows will help a district that opts to procure a PV system without the help of a consultant in avoiding some of the pitfalls experienced by other school districts. In addition, some districts have created internal solar committees composed of interested and informed community stakeholders to review smaller projects. KyotoUSA is also available to provide suggestions and recommendations to any interested school district regarding where to get help.

The template integrates features from RFPs for several successful school district solar PV procurements in California. No single RFP will work best for all districts. Each district and its advisors from whom this template was assembled included or excluded certain components from the RFP to achieve that district's particular goals. The number, size, and types of PV systems that the district seeks will influence the RFP content. So too will the market conditions, the local utility's rate structures (including whether there is a "solar friendly" rate structure), whether or not the district has or expects to secure solar incentives, specific external regulatory and legal requirements, and the district's own legal and procurement requirements and particular procurement strategy. For all these reasons, this RFP template should simply be a starting point for your district's specific PV project.

The Case for Using a Competitive Process

It is generally advantageous to use an RFP process to acquire a PV system. The justification is to achieve the best possible pricing and system quality. Rarely will a solar vendor shave its profit margin without being forced to do so by a strong competitor. A vendor may agree to reduce its price in negotiations, but, unless there is a competing proposal, a district generally will not know how much further the price could be lowered. In recent years, PV module prices have dropped dramatically, making it difficult to know whether competitive pricing from just several months ago is still the best pricing possible. Using an RFP process will also make it more likely that quality as well as price considerations will be emphasized. The best solar PV offer is rarely the lowest-price offer; rather, it is the offer with the best combination of price, output, quality components, performance assurances, and construction management expertise. A district will have difficulty evaluating the overall worthiness of a sole-source proposal if there are no competing proposals to which it can be compared.

The Importance of Having Qualified Assistance

Taking this RFP template from its current form to one ready for issuance by an individual district to solar PV vendors may require assistance from one or more experts knowledgeable about PV procurement and contracting as well as rate and economic analysis. Important judgments will need to be made both in crafting the RFP and in evaluating the resulting proposals. Analysis and evaluation should also be done pre-RFP (i.e., regarding the district's current and projected electricity usage patterns, the potential for switching to alternate electric rate structures, the potential to feed solar electricity into the utility grid and any associated limitations, and estimates of optimally sized solar PV systems), and post-RFP (i.e., evaluating on a comparable basis the various proposals in terms of each firm's strength, experience, proposed system designs, O&M agreements, and performance guarantees). A good consultant and a good attorney, each with the requisite experience, knowledge, and skills, generally pay for themselves on projects as large as 1,000 kW (1 MW) or more.

The consultant will provide significant value by: (a) writing an RFP that fits the needs, circumstances, and goals of the district; (b) providing an integrated analysis of system sizes and outputs, rates, and expected solar PV savings in order to solicit the systems that offer the best cost-savings potential; (c) designing strong long-term performance guarantees; (d) designing the RFP and reviewing the proposals in such a way that a clear "apples-to-apples" comparison can be made, which will facilitate the selection of the truly superior vendor/proposal/system; (e) conducting scenario analyses of different PV systems under different utility rate forecasts; (f) discovering pertinent information about the competing vendors through the RFP, interviews, reference checks, and the

consultant's prior knowledge and experience; and (g) bringing all this analysis to bear in contract negotiations.

The attorney will provide value by ensuring that the commitments made in the proposal are carried into the contract; that the contract complies with public contract codes and all other applicable regulations, laws, and standards; and that the resolution of negotiable and open-ended issues reflect an overall fair balancing of issues from the district's perspective. Although it is somewhat risky to generalize about costs, it is not unusual for qualified consultant services to cost 1 to 2% of the overall contract cost. Attorney services may be more expensive per hour, but attorneys typically are needed for much less time than the consultant because an attorney's involvement is primarily or even solely during contract negotiations. Attorneys' fees can thus be expected to be less than consulting fees.

Setting the RFP "Bar"

Preparing a responsive solar PV proposal can be a large undertaking for potential respondents to the RFP. An RFP must strike a balance between:

1. setting the bar high enough in terms of the amount and quality of information required so that the resulting proposals provide the district with enough specificity about what is being proposed and enough information about the vendor, and

2. not setting the bar so high that vendors are dissuaded from putting in the effort to develop a responsive proposal.

Setting the bar at the right level requires thoughtfulness throughout the drafting of the RFP. For example, generally, the more lucrative the business opportunity – i.e., the larger and pricier the system being procured – the more a district can require of RFP respondents without dissuading them from preparing proposals. Similarly, an RFP seeking proposals for many different school sites generally imposes greater demands on the respondents, so, all other factors being equal, it might be prudent in such cases to require less technical specificity in proposals. A district might be interested in receiving alternate proposals for a given site; the district should consider whether the extra work required of the responding vendors to prepare alternate proposals appears justified by the relative attractiveness (i.e., the profit potential) of the business opportunity.

How Many Responses Does the District Need?

A key purpose of an RFP is to attract a sufficient number of qualified solar vendors. A "sufficient" number is generally at least three, but two may be sufficient if the two vendors offer comparable system scope and if each is cost competitive with the other.

District Owned or Power Purchase Agreement?

The RFP template is written for a district that intends to pay for the PV system up front, with its own capital or financing it has secured or a combination of the two. Districts interested in considering a power purchase agreement (PPA), in which the district does not own the PV system but merely "hosts" the system and purchases the electricity output from the system's owner, would need to supplement this RFP template with additional language specifying the PPA arrangements the district may be seeking.

The RFP template is written to suit a variety of circumstances that an individual district might encounter. When using the template, the district should make the language quite specific so that it is easier for the responding vendors to know what the district is and is not interested in considering. Preparing complete, responsive proposals is a lot of work; the last thing an RFP should be is so vaguely written that it scares off reputable, high-quality, competitive vendors or results in proposals that fail to meet the district's needs. In the latter case, a district may have to reissue a rewritten, better-scoped RFP, which is time consuming and can impose significant extra costs.

Performance Guarantee

Having a performance guarantee as part of a district's contract with the winning solar vendor can provide a strong measure of long-term performance assurance and thus instill confidence in the district's decision makers that the winning vendor's electricity production claims will be achieved. A strong performance guarantee provides an incentive to the solar vendor to keep the PV system in good repair, minimize the system's down time, and keep the PV modules clean.

The RFP template invites respondents to propose contractual language for a performance guarantee but does not specify performance guarantee language. Ostensibly, there is an incentive for competing vendors to submit strong performance guarantee language because this language will make a proposal more attractive. Unfortunately, at least at this point in the development of the commercial solar PV industry, many vendors' proposed guarantees are likely to be relatively weak, i.e., they may provide quite limited long-term performance assurance. Often, the guarantees are little more than what are provided by the manufacturer warranties included in the solar PV contract.

It goes beyond the scope of this discussion to address details of a strong performance guarantee. The important point to remember is that a performance guarantee should obligate the solar vendor to compensate the district monetarily whenever the value of the PV system's actual production is less than an agreed-upon minimum value, such as the 95% level specified in this RFP template. A contract may also be negotiated that contains an even higher minimum value, or, perhaps, a lower one. The "value" of the solar PV system is primarily based on the electricity bill reduction that results from the PV system's actual electricity production. If a district has secured a performance-based incentive, the value of the PV system would also include the monetary value of the incentive. If a district has the ability and inclination to sell Renewable Energy Credits (RECs) produced by its PV system, a performance guarantee could also include RECs as one of the value components.

Key issues to address in crafting a performance guarantee, and a brief example of how these issues may be addressed, include the following:

- weather variations as they affect electricity output (a reasonable approach is to "correct" the PV system output for weather that deviates from typical conditions, which is fairly straightforward using nearby weather station data)

- the likelihood that electricity rates will rise significantly over the long term (it is typical to include a set utility rate "escalator" in which the starting utility rate increases by a specified percentage each year – say, 3-4% per year, based on historical records – of the guarantee period, thereby increasing the value of the solar output in later years)

- the fact that electricity is generally valued on a time-of-use basis, making some periods of solar production more valuable than other periods (a reasonable approach is to use the expected hourly production profile of the solar PV system to calculate the annual weighted average time-of-use "avoidance" rate)

- both planned and unplanned system outages (it is reasonable to hold the vendor harmless for "acts of god" and "acts of utility" while making the vendor responsible for outages related to its own maintenance activities and to equipment failures)

- generally expected degradation in the PV cells over time (it is typical to build in 0.5% output degradation per year of PV system operation).

Pulling the Elements Together

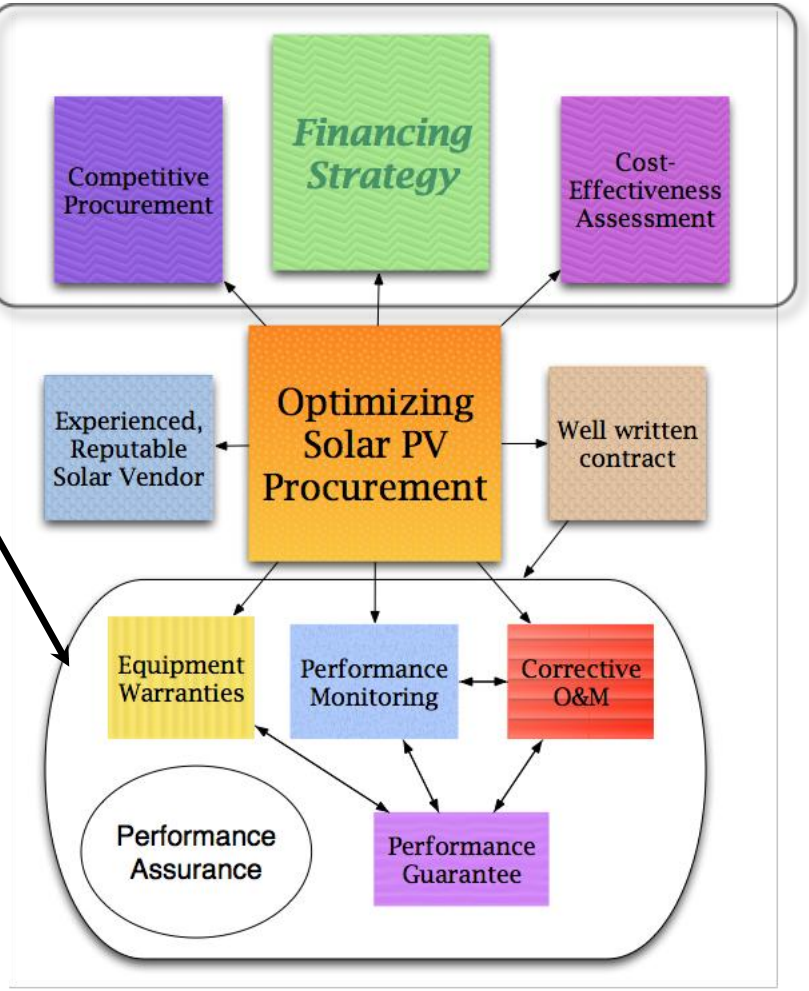
Figure 1 depicts key elements of a successful solar PV RFP process. Paying careful attention to each element will go a long way toward achieving a successful outcome. It is equally important to address each piece in view of and in coordination with all other related pieces. Finally, it is vitally important to have someone in charge of and driving each of the RFP process components, as well as an overall project manager keeping the total RFP process in view and championing its successful outcome with an eye toward procuring the best value PV system possible. Good luck!

Figure 1.

A School District's Ultimate Objective When Procuring a Solar PV System: Creating the *Highest Value* Solar System

Use a rigorous, tightly integrated competitive procurement and evaluation process.

- The key **monetary** considerations are shown on the top.
- The key **performance assurance** considerations are shown on the bottom. Warranties alone are not sufficient to protect your investment.
- Both sets of considerations--***monetary*** and ***performance assurance***--are essential to maximizing the value of your solar system.
- A strong ***competitive procurement process*** not only delivers good pricing and terms but also enables you to select a well qualified solar vendor.
- All these elements need to be tightly integrated, both in your overall **procurement process** and in the **crafting and negotiation of your contract**.



Prepared by Clyde Murley (clyde.murley@comcast.net)

SEQUOIA FOUNDATION - SOLAR SCHOOLS ASSESSMENT AND IMPLEMENTATION PROJECT (SSAIP)

Request for Proposals
(RFP) No.

Design-Build Contract for

Photovoltaic System Installation

(Insert Location)

Vendor's Conference & Site Walk-through: Date (time)

Proposals due by: Date (time)

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For more information related to Solar America Showcase, please visit:
http://www.solar.energy.gov/solar_america_showcases.

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INTRODUCTION

A Request for Proposal (RFP) process requires development of a package with essential information, well defined objectives, and evaluation criteria that will enable potential vendors to provide high quality/high value proposals at competitive pricing. The RFP can be targeted to local businesses or cast wider to state or national vendors. When the focus of the RFP is performance, then the criteria slanted toward "best value" will be more effective than "lowest price." [1]

A performance-based design-build RFP will describe specific "end-state" and performance objectives. The following are a few key objectives of a Design-Build RFP:

1. Find a high quality vendor-partner for design and construction
2. Ensure an open and competitive process
3. Develop concrete, measurable project requirements
4. Receive innovative technical solutions with competitive pricing

The use of an experienced renewable energy projects consultant familiar with California schools is recommended and may be instrumental in ensuring incentive requirements are met and impact to schools is minimized. Schools may also benefit from keeping the following elements under consideration throughout the RFP process:

1. Benchmark the district energy use
2. Site conditions for potential PV locations (including roof condition)
3. Minimize the impact to schools, e.g., school closings during project installation
4. Integrate PV awareness and education into the school and classroom

[1] Clyde Murley; Solar Program Manager, Community College League of California; Spring 2011 ACBO Conference; May 16, 2011

SECTION 1: OVERVIEW, OBJECTIVE AND SITE INFORMATION

OBJECTIVE

The objective of this document is to develop a Request for Proposal (RFP) that can provide a model to identify and select the most qualified and cost-competitive design-build contractor (Contractor) for the survey, design, Division of State Architect approval, installation, commissioning, and service of a "grid-connected" photovoltaic (PV) system (Project) of future solar projects in the three school districts within the Bay Area or in other public school districts in the State of California. This document is intended to provide guidance to school districts on the PV procurement process. It is strongly recommended that school districts obtain the guidance of local experts who keep up with the ever changing field of renewable energy and the best practices of financing, construction, and procurement and, focus on renewable energy for schools.[2]

SITE INFORMATION

For the sake of the RFP the term "District" will be used to mean the implementing school district. The District is looking for the best combination of price including cost per unit output; technology; post-construction services, experience and proven performance; qualifications; optional items such as educational opportunities and customer kiosk; and overall thoroughness of proposal and responsiveness to the RFP. In making its solar PV vendor selection, the District reserves the right to take these factors into account as it sees fit.

The District's award of contracts, if at all, will be made in accordance with applicable statutory requirements and will be based on the Contractor's skill, experience, qualifications, proven performance, cost, value, operations and maintenance support, guarantee of stated kWh performance of the PV system, overall thoroughness of proposal and responsiveness to this RFP.

The District will acquire the Project from the Contractor pursuant to a Design-Build Contract (DBC) entered into with the Contractor selected through this RFP process. The DBC will be on a District provided form.

The District will own the Project and intends to finance the direct purchase through the use of District Funding, General Obligation Bonds, Federal Bonds, or Tax Exempt Leasing as they may be available. Responses to this RFP that offer a Power Purchase Agreement (PPA) or other ownership model will be considered non-responsive and will not be reviewed. Additionally, the District intends to secure incentives through Pacific Gas and Electric (PG&E) or other electricity utility under the California Solar Initiative (CSI). RFP respondents are responsible for ensuring that any proposed system is in compliance with the requirements of the CSI program (see California Solar Initiative Program Handbook, published by the California Public Utilities Commission (CPUC), for further details on the CSI).

When a low interest federal bond is being used, e.g. Qualified School Construction Bonds (QSCB) and/or Clean Renewable Energy Bonds (CREB), an objective of the District is that the electric savings combined with any incentives cover re-payment of the (bond type) within the bond repayment period.

[2] Clyde Murley

The District is considering one solar installation with the location currently undetermined to be selected based on the most cost effective investment in solar including annual electric bill reduction, space, technology, and solar incentives including CSI opportunities.

For purposes of the RFP, the District has identified areas on school roofs and/or parking lots that are available for PV installations. Respondents should confine their proposals to the use of these areas. [See appendix A]

The following school sites are being considered for the project:

	1	2	3
School Name			
Street Address			
City			
Annual Electricity Usage (kWh)			
Annual Cost			
Rate (PG&E Electric Rate)			

The District generally expects the selected location and system size to be optimized based on the available space, incentives, solar resource, and project economics with consideration given to long-term system operations and maintenance, performance, and impact to roofs and infrastructure.

[Insert statement about easement or other agreement for system access for future O&M if included]

[Insert interconnect agreement information]

SECTION 2: SOLICITATION PROCESS

Responses to this RFP must be submitted in writing and signed by an authorized officer of the respondent. Each respondent must provide sufficient information to enable the District to understand the overall proposal, the materials and services to be provided. The District reserves the right to deem any proposal as non-responsive and to give it no further consideration. The District also reserves the right to request clarification and/or additional information from any respondent.

Responses to the RFP are due no later than [Date and Time]. Responses submitted after this date and time cannot be accepted, and responses that are incomplete or do not conform to the requirements of this RFP will not be considered.

Responses shall consist of

- One (1) signed original
- Three (3) printed copies of submittals
- Two (2) CDs, each containing
    - A PDF file of the response
    - An Excel file of the hourly kWh production estimate for each proposed site system
    - An Excel file of the calculations and analyses used to demonstrate compliance with the X-year QSCB payback requirement
- An electronic version of the entire response sent to [Contact Name at Contact Email].

Responses must be delivered to:

[District Name]
[Attn: District Contact, Office Title]
[District Mailing Address]

All questions to this RFP must be received by [Date and Time ~ 2 weeks prior to the RFP due date and directed by email to

[Contact Name]
[Office Title]
[Email address]

RFP SCHEDULE:

Milestone	Date & Time
Request for Proposal released to vendors	
Vendors' conference and site visit	
Written questions due	
Answers delivered	
Proposals due	
Interviews of short-listed respondents	
Update District "Board" and request direction to negotiate with firms in order of ranking	
Conclude contract negotiations	
Board considers / approves final solar contract	

The District reserves the right to interview any or all respondents to this RFP, or to ask for additional information or clarifications. The District reserves the right, at its sole discretion, to accept a response that does not satisfy all requirements but which, in the District's sole judgment, sufficiently demonstrates the ability to produce, deliver, design, permit and install grid-connected PV projects and to satisfy the major requirements set forth in this RFP. The District reserves the right to change the above schedule.

DISTRICT MODIFICATION TO RFP:

The District expressly reserves the right to modify any portion of this RFP prior to the latest date/time for submission of RFP responses, including without limitation, the cancellation of this RFP. Modifications, if any, made by the District to the RFP will be in writing; potential respondents who have obtained this RFP from the District prior to any such modifications will be issued modifications to the RFP by written addenda.

NO ORAL CLARIFICATIONS/MODIFICATIONS:

The District will not provide any oral clarifications or modifications to the RFP or the requirements hereof; no employee, officer, agent or representative of the District is authorized to provide oral clarifications or modifications to the RFP. No respondent shall rely on any oral clarification or modification to the RFP.

PUBLIC RECORDS:

Except for materials deemed Trade Secrets (as defined in California Civil Code §3426.1) and materials specifically marked "Confidential" or "Proprietary", all materials submitted in response to this RFP are deemed property of the District and public records upon submission to the District. The foregoing notwithstanding, the District may reject for non-responsiveness the RFP response of a respondent who indiscriminately notes that its RFP response or portions thereof are "Trade Secret", "Confidential", or "Proprietary" and exempt from disclosure as public record. The District is not liable or responsible for the disclosure of RFP responses, or portions thereof, deemed to be public records, including those exempt from disclosure if disclosure is by law, by an order of a court of competent jurisdiction, or which occurs through inadvertence, mistake or negligence on the part of the District or its agents or representatives. If the District is required to defend or otherwise respond to any action or proceeding wherein request is made for the disclosure of the contents of any portion of a RFP response deemed exempt from disclosure hereunder, by submitting a response to this RFP, each respondent agrees to defend, indemnify and hold harmless the District in any action or proceeding from and against any liability, including without limitation attorneys' fees arising there from. The party submitting materials sought by any other party shall be solely responsible for the cost and defense in any action or proceeding seeking to compel such disclosure of such materials; the District's sole involvement in any such action shall be that of a stakeholder, retaining the requested materials until otherwise ordered by a court of competent jurisdiction.

ERRORS/DISCREPANCIES/CLARIFICATIONS TO RFP:

If a respondent: (i) encounters errors or discrepancies in this RFP or portions hereof; or (ii) requires clarifications of any portion of the RFP, the respondent shall immediately notify (insert contact name, title, email address). Responses of the District to the notice of any errors or discrepancies herein, or request for clarification will be in writing; if, in the sole judgment of the District, any

clarification response affects the RFP or other respondents, the District will issue the clarification response by a written addendum distributed to all potential respondents who have theretofore obtained this RFP from the District.

SECTION 3: ASSUMPTIONS AND PROJECT REQUIREMENTS

PROJECT ASSUMPTIONS

Respondents are asked to make the following general project assumptions:

- Access during [allowable working hours], with vendor responsible to meet the District safety and security requirements.
- Required completion [date].
- Assume CSI Performance Based Incentive (PBI) will be [designate incentive including cost per kWh incentive for initial five years of operation of government owned solar systems]. The District may, at its discretion, submit the CSI reservation prior to, or at the conclusion of the RFP process. The winning bidder will be responsible for the coordination of the submission and/or completion of the CSI reservation process.

  For further information on CSI program, visit:
  http://www.gosolarcalifornia.org/documents/CSI_HANDBOOK.PDF.

COMPLIANCE WITH LAWS AND DISTRICT CONSTRUCTION PROCEDURES

Contractor will be required to comply with all relevant federal, state, and local statutes, regulations, ordinances, rules, orders, and other laws in any Contract with the District including but not limited to the following as appropriate:

- Division 2, part 7, chapter 1 (commencing with section 1720) of the California Labor Code, which requires payment of prevailing wages and regulates working hours.
- Project Labor Agreement requirements of the District's Bond Construction Program.
- Sections 11135 and 12940 of the California Government Code, which prohibit employment discrimination on the basis of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, or sex. Workers' safety laws, including but not limited to regulations promulgated by Cal-OSHA.

Contractor is expected to be inclusive in any proposal obtaining all necessary permits, including but not limited to permits required by the State of California; and shall pay all taxes and regulatory fees including interconnect processing cost.

CODES AND STANDARDS

All products, components, construction, and installations must comply with applicable codes, standards, and rating methodologies, including but not necessarily limited to the following:

- All equipment provided, where applicable (e.g. PV modules, inverters and meters) must meet the equipment certification and eligibility requirements of the current California Solar Initiative or its successor.
- If PV modules using hazardous materials are to be provided by the respondent, then the environmental impact of the hazardous material usage must be discussed, including any special maintenance requirements and proper disposal/recycling of the modules at the end of their useful life. Modules containing hazardous materials must comply with the EPA Landfill

Disposal Requirements. Any additional costs and/or District responsibilities related to PV modules containing hazardous materials must be clearly identified.

- UL certification
- National Electrical Code – [Most current].
- Title 24 of the California Code of Regulations.
- All outdoor enclosures should be at minimum rated NEMA 3R.
- Occupational Health and Safety Administration (OSHA) directives.
- Pacific Gas and Electric Company's applicable interconnection requirements.
- All system components and design and construction work must comply with the requirements of the Division of State Architect (DSA) and California Department of Education.

WARRANTY AND SERVICE CONTRACT REQUIREMENTS

- Provide a detailed 10 year operations and maintenance plan with three 5 year options.
- All respondents must offer comprehensive on-site training in PV system safety, operations and maintenance consistent with the warranty and service contract provisions.
- The respondents standard warranty coverage will be twenty (20) years for any PV panels, and ten (10) years for all inverters, or consistent with current CSI Guidelines for PV System warranty requirements, whichever is greater; and should provide daily system monitoring, annual on-site system inspection, including system testing and routine preventive maintenance, repair and/or replacement of defective parts (equipment and labor).
- Provide optional extended warranties on inverter and other key system components.
- System performance monitoring and historical data access should be provided to the District via a secure website. This service is to be provided for 5 years with four 5-year options.
- Performance monitoring data should include system energy and power production, ambient temperature, wind speed, and insolation.
- Provide an option for public access to production and consumption information.
- Work performed by the Contractor must not render void, violate, or otherwise jeopardize any preexisting District facility or building warranties.

SECTION 4: SUBMITTAL REQUIREMENTS

TRANSMITTAL LETTER

Each response should include a transmittal letter signed by a party authorized to sign binding agreements for the project described by this RFP. The letter shall clearly indicate that the respondent has carefully read all the provisions in the RFP.

QUALIFICATIONS

COMPANY INFORMATION

Company Profile

- Year founded
- Status (private or publicly held)
- Number of employees (full-time, excluding contractors)
- Number of employees in California (full-time, excluding contractors)
- Total revenue and Megawatt Peak (MWp) installed for the past three (3) years.
- Local office location.

Construction and Professional Engineering Licenses held by Company or full-time employees:

Provide information confirming a contractor's license in active and good standing with the Contractors State License Board. Have all necessary licenses (architectural and engineering) to design the project.

- Provide a list of all California State Contracting Licenses, including classification and number
- As applicable, list the name and license number of at least one full-time employee that is a professional engineer in each of these disciplines:
    - Electrical
    - Structural
    - Mechanical

Financial Performance

- If public, provide a website link to your audited annual investment reports. If private, the short listed companies will be asked to provide audited financial statements for the past two (2) years. The statements will be audited with the firm present and the firm will be allowed to take statements after the review.

Legal

- If applicable, provide a summary of the issues and the status of any lawsuit your firm or any executive officers of your firm have been a party to involving the performance of any equipment it has installed.

Project Team

- Identify and provide full contact information for the Proposal Team leader.
- Identify each business entity, person or firm involved in the proposal and their role (e.g. design, installation, permitting, equipment supply by component, operations and maintenance)

- Provide resumes of personnel directly involved with the development of the proposed systems

Insurance & Bonding

Provide the following information on your firm:

- Commercial General Liability Limits (per occurrence and aggregate)
- Commercial Automobile Liability Limits (per occurrence and aggregate)
- Professional Liability Limits (per occurrence and aggregate)
- Employer's Liability Limits (per occurrence and aggregate)
- Employment Practices Liability Limits (per occurrence and aggregate)
- Product insured for damage during installation / Builders' Risk Limits
- Number or Percentage of employees covered by Workers' Compensation Insurance
- List your firm's Experience Modification Rate (EMR) (California workers' compensation insurance) for each of the past three premium years
- Financially viable insurance (rating)
- What is your company's bonding capacity?

Solar Project Experience

- Describe all the currently operating, non-residential, grid-connected PV systems similar in size to the scope of this RFP [kW (ac)] that your company installed in California within the past three (3) years (not in development). For each, provide the following information:
    - Total kilowatt peak (kWp) installed/ system size (kWp rating)
    - Customer/owner name with contact person's name, email, address, phone number, and system location
    - Installation date and on-line date
    - Current operating status
    - Precise role(s) your company performed for the project (e.g. material supplier, lead contractor, electrical subcontractor, design, consulting, etc.)
    - Indicate the type of system:
        - Rooftop
        - Ground-based
            - Fixed
            - Tracking
        - Carport
            - Fixed
            - Tracking
    - Indicate if the customer/owner was a California public school or community college. If so, describe your experience with the Division of State Architect (DSA) in gaining the necessary DSA approvals.
    - Indicate if the installation was for multiple sites
- Describe any additional elements of your experience or offered services that you believe the District should take into account when evaluating your proposal.

PROPOSED SOLAR PV SYSTEMS

The proposal for each school should be developed by focusing on the most cost-effective way to produce solar PV at that site. For each of the schools identified in this RFP (See Section 1) provide the following information. Additional information on each of these sites is contained in *Appendix A, B, and C*

TECHNOLOGY OVERVIEW

- Provide a detailed description of the complete system proposed for each of the schools identified in this RFP.
- Indicate the specific location, dimensions, and "footprint" of each proposed system.
- Indicate system size in both kWp (dc) and kW (ac) terms, based on applicable California Energy Commission conventions.
- Describe the key design and construction features of the systems that serve to optimize performance and aesthetics on each site.
- Provide details of mounting system. Identify any products or mounting strategies unique or proprietary to the respondent.
- When roof mounted, consider technologies that minimize or eliminate roof penetrations; include a warranty letter demonstrating an established working relationship with the roofing manufacturer or installer to provide integrated consultation to maintain roof integrity.
- Describe any identified issues or challenges and provide detailed strategies for resolution.
- Provide anti-theft/anti-vandalism measures as a separate line item for each site considered.

SYSTEM COMPONENTS

PV Modules

- Number of PV modules for each proposed school.
- PV module description and brand and model number.
- PV module efficiency %; PV cell efficiency
- Provide manufacturing data sheets for the proposed PV modules
- Indicate the PTC ratings for the proposed PV modules.
- Provide an explanation for your choice of PV module.

Inverters

- Number and size for each proposed system.
- Inverter brand(s), model(s), and efficiency (%).
- Provide manufacturing data sheets for the proposed inverters.
- Provide an explanation for your choice of inverter.

Roof Mounting Systems

- Describe each type of mounting system proposed, and its features to optimize performance and to enhance aesthetics at each school site.
- Describe system capability to minimize or eliminate roof penetrations.
- Describe specific activities to maintain roof integrity.
- Do you manufacture your own mounting system?

Project Implementation Schedule

- Submit a detailed implementation schedule for all of the proposed PV systems indicating the expected milestones and timing.

System Performance Monitoring, Warranty and Service Contract

Performance Estimation

- How many of your employees are dedicated to PV system performance estimation, and what is their FTE equivalent?
- Provide resumes of your employees engaged in system monitoring.
- Do you own, maintain, and update your own estimation tool? If so, provide a detailed description of the tool and the associated performance estimation methodology, including but not limited to weather assumptions. If not, identify and provide a detailed description of the modeling tool your company uses to estimate PV system performance, and its associated performance estimation methodology, including but not limited to weather assumptions.
- Provide a detailed description of the methodology and procedures used, and research conducted to ensure accuracy and calibration of performance modeling.

Performance Verification & Monitoring

Performance verification and monitoring must meet the eligibility requirements of the California Solar Initiative which include performance monitoring requirements.

- Provide a detailed plan for performance verification and monitoring including methodology, end-user interface, low performance alerts.
- At a minimum, provide web-based performance verification and monitoring service for 5 years with four 5 year options.
- Describe proposed system performance monitoring and customer access of historical data via secure website.
- Provide as a line item option, a customer kiosk; demonstrate strategy for educational opportunity and show production and consumption information.
- Provide the number of employees employed by your firm in charge of system monitoring and their associated FTE equivalent.
- Provide resumes of individuals in system monitoring.
- Provide the number of operational systems under management.

System Maintenance and Support

The District intends the Contractor to provide for comprehensive operations and maintenance of the PV system(s). The operations and maintenance should be presented as a term of ten years with three 5 year options.

- Provide a complete description of the scope and price of the proposed maintenance of the Project,
- Provide a detailed description of Contractor's relevant prior experience performing system maintenance. Highlight distinguishing elements of the services to be provided that will benefit the District and optimize system performance.

- State the location of the nearest service office.
- If maintenance is to be sub-contracted, identify the subcontractor and provide a detailed description of their relevant experience and qualifications.
- Response Rates impact rebate and electricity savings benefits.
    - Include service office address and phone number
    - Telephone response time, not to exceed 2 hours from alert to confirmation of alert
    - System outage response time, not to exceed 24 hours from alert to repair team on-site
    - System outage response time from notification to maintenance and repair.

PERFORMANCE HISTORY

- For the systems maintained by the proposed maintenance firm, what is the average system availability?
- Provide at least three years of actual system energy production data that demonstrates system performance and availability, and indicates the degree of accuracy of predicted performance, for at least five existing grid-connected PV projects similar to the proposed project.

WARRANTIES AND SERVICE INFORMATION

- Provide a PV module warranty that meets the requirements of CSI and as a minimum a period of 20 years.
- Provide an inverter warranty that meets the requirements of CSI and as a minimum a period of 10 years.
- For roof mounted systems, provide a roof guarantee to maintain the integrity of the roofing system at the PV system penetration points for the remaining life of the roof at installation.
- Include a copy of the PV module warranty.
- Include a copy of the inverter warranty.
- Provide your standard system warranty and service contract provisions.
- Confirm whether your company finds the warranty requirements acceptable.

PERFORMANCE GUARANTEES

Provide detailed descriptions and price impact for solar PV output performance guarantees. Submit actual contract language to be used for a performance guarantee including your standard terms for such guarantees. Performance guarantee should target 95% annual estimated output for ten years with three 5 year options.

CONTRACT

The District will provide a Design-Build Contract form to a short-listed group of firms or to the top-ranked firm(s) during the District's evaluation process.

PRICING AND PERFORMANCE INFORMATION

For each school identified in this RFP, describe the PV system you propose to design and build, providing the following information.

The applicable measure of cost effectiveness is the expected 25-year electric bill savings compared to the non-solar option. Consider:

1) Applicable utility tariff(s);

2) Provide results of calculations for both a utility rate escalator of 4.5% per year and 3% per year.
3) CSI and other available incentives; and associated participation deadlines;
4) Pre-solar electric bill; and the avoided electricity costs including savings from consumption ($/kWh) and where applicable savings from demand charges ($/kW);
5) Specify all other assumptions including any assumed tariff switch following the installation of the PV system and provide information supporting permissibility of the switch.

The proposed price for each school should reflect any and all cost savings, incentives, and price discounts. All pricing elements should be well described with assumptions and calculations included.

1) System size (kWp)
2) Total gross, all-inclusive system price (design, permitting, installation, commissioning, warranties, guarantees, and maintenance service). Cost and services shall include, but not necessarily be limited to:
    - All electrical switch gear preparation to accept solar system
    - All electrical connectors, cabling and components necessary for a complete solar system
    - Complete electrical engineering services including diagrams
    - Complete structural engineering services including diagrams
    - Planning and design review services
    - Utility interconnection agreement processing costs
    - Rebate application processing and coordination
    - Incentive program inspections coordination
    - Local building and electrical inspection coordination
    - Secure storage facility at job site for all PV system equipment and supplies
    - Lavatory facility at job site
    - System operation and safety manuals and customer training
    - Final PV system "as-built" schematics
    - Final clean-up to "broom clean" conditions
    - Post-construction services
        - Operations and maintenance (10 years with three 5 year options)
        - Performance monitoring (5 years with four 5 year options)
        - Performance guarantee (95% for 10 years with three 5 year options)
3) System Performance
    - One complete year of hourly kWh production estimates with date and time stamp for each hour (excel format)
    - Expected total cumulative kWh output over 25 years
    - Expected annual performance degradation over 25 years (expressed as % degradation per year)
    - Identify the model(s) used to derive the kWh production estimates and describe and discuss all associated modeling assumptions.
4) Provide the cost per unit of expected output ($/kWh) as well as all underlying assumptions:
    - Over 15 years; and
    - Over 25 years.
5) Calculate estimated incentives including the PG&E or other utility incentive (i.e., California Solar Initiative Incentive)

6) State any additional assumptions made in the course of developing responses to 1) through 5)

Provide recommendation for the school and system(s) that achieve the best overall economics and provide supporting discussion and analysis. Provide calculations and analyses in working, formula-based Excel spreadsheets.

Provide recommendations for added-value line items the District may consider including

1. Provide optional detailed Educational Opportunities Plan including a Customer Kiosk, student access to web-based monitoring results, teacher training and curriculum.

APPENDIX A: SITE SOLAR ASSESSMENT WITH SITE AERIAL VIEWS

For each school to be considered in the District, the RFP should provide:

- School Name,
- Location, and
- Estimated Gross Available Area (square feet)
- Picture with available area highlighted
- Site Solar Assessment
    - Site specific notes related to the potential project
    - Identify potential obstructions e.g., trees, other buildings

APPENDIX B: ELECTRICAL DIAGRAMS AND SITE PLANS

Provide diagrams and site plans

Or provide a website where potential contractors can download the information

- Include site specific notes related to the potential project
    - Roof system age, type
    - Structural integrity for mounting the system
    - Area for inverters, etc
    - Available conduit

APPENDIX C: HISTORICAL ELECTRICITY USAGE DATA

Provide data for schools within the District to be considered or provide a website where data can be downloaded.

APPENDIX D: RFP PROCESS, LESSONS LEARNED, AND CHECK LIST

THE RFP PROCESS[3]

1. Scope the Project – for community support and the best quality proposals, provide an avenue for stakeholder input and develop a well-defined project scope;
2. Identify Project Constraints – budget, deadlines, technical requirements;
3. Write the RFP – to ensure high quality technical solutions and competitive pricing, enlist experience, hire a seasoned advisor and engage stakeholders;
4. Identify information that vendors must include - determine the information needed to make the best fit selection for the school district and the project.
    a. Describe in detail the firm's proposal to address the requirements outlined in this RFP, including details such as technologies to be used.
    b. Provide a timeline for the completion of this proposal; if the project involves a multi-phase approach please provide approximate timeframes.
    c. Describe the fee structure and how the organization will be charged. The costs involved may be categorized separately as design, construction, maintenance, and other post construction.
    d. Provide a brief history and profile of the firm and its experience providing services for organizations similar to ours. Provide a list of the firm's clients comparable to our organization; include contact name, telephone number, website location, services provided and length of service.
    e. Describe the project process and methodology including sample deliverables from past projects of similar size and scope. Document examples of the firm's experience in designing/developing each of the project requirements.
    f. List the project team and short biographies of each team member.
    g. Provide an unsigned copy of your standard service contract for our review and any additional stipulations of which we should be aware.
5. Develop scoring criteria weighted to reflect project priorities
    a. Effective project solution that meets project constraints and objectives;
    b. Clear description of deliverables;
    c. Monitoring plan;
    d. Maintenance plan;
    e. Performance guarantee, what does it include and how much extra does it cost;
    f. Reasonable timeline;
    g. Detailed and reasonable pricing, utility rate, $/kwh from pv system, impact of changing utility rate;
    h. Strong project team;
    i. Corporate longevity;
    j. Performance track record;
    k. Customer satisfaction;
6. Distribute the RFP considering preferences such as local companies, companies with experience working with schools - RFPs are often placed electronically with project

[3] Clyde Murley

documents available for download; save potential bidders time and resources if only accepting local vendors;
7. Describe the RFP timeline – include dates for RFP release, submitting RFP questions, question responses published, proposal submission, notification of finalists, finalist interviews, selection, contract signed;
8. Review proposal responses starting with an initial read-through with attention to their proposed solution;
9. Narrow the field based on key criteria such as vendor experience and track records; discussions with contact references; and appraisal of sample work;
10. Invite the short list to present their solution to your evaluation team;
11. Score the responses and make a selection;
12. The proposal is a starting point, use as-is or refine the details, finalize deliverables and schedules, and include them in the contract as an addendum;
13. Negotiate and sign the contract.

LESSONS LEARNED [4]

Lesson 1: Craft RFP and organize responses to facilitate an "apples-to-apples" comparison.

Lesson 2: Require a proper analysis of electrical rates; compare actual utility rate schedules with expected/derived hourly solar production; research solar-favorable tariffs.

Lesson 3: Determine cost effectiveness; most solar PV will pay off during the operating lifetime of the solar system. Don't rely on solar vendors' analyses alone; get a year's worth of hourly solar production estimates from your vendors; obtain informed estimates of future electricity costs, surcharges, and Renewable Energy Credit values. Incorporate long-term maintenance and equipment replacement costs.

Lesson 4: Require strong performance monitoring; evaluate vendors' monitoring capabilities and track records; visit the facilities of finalist vendors to observe their monitoring system for existing customers; request performance data from past customers; and tie monitoring to corrective response in your contract.

LESSON 5: Evaluate performance guarantee options; determine the value of the guarantee as written and how much it cost; tie guarantees to both lost utility bill savings and lost solar incentive savings.

LESSSON 6: Educate along the way; support your implementation team and decision makers with knowledge and examples; and clarify the benefit/cost/risk of solar against the *status quo, e.g.* continuing to get all your electricity from the utility.

LESSON 7: Engage an Expert; partner with an experienced consultant to write your RFP; assist with proposal evaluations, meeting with utilities, understanding tariffs, rates, and incentives; and to support all of the phases of the project through construction and performance testing.

LESSON 8: Require system commissioning

[4] Clyde Murley

LESSON 9: Include performance based operations and maintenance and review system performance

LESSON 10: Engage the roofing manufacturer to ensure roof systems are not compromised.

RFP CHECKLIST

- Cover Letter
- Signature Page
- Title Page
- Table of Contents
- Schedule of Events
- Standard Terms and Conditions
- Special Terms and Conditions
- General Information
    - Definitions
    - Purpose or Intent
    - Background
    - Method of Payment
    - Contract Term
    - Presentations or Demonstrations
    - Pre-Proposal Conference
- Technical Specifications
    - Specifications (Goods)
    - Scope of Work (Services)
    - Scope of Activity
    - Project Management
    - Deliverables/Measurable Standards Schedule
    - Support
    - Training
    - Maintenance
- Vendor Requirements
    - Mandatory Requirements
    - Vendor Organization
    - Vendor Qualifications & Experience
    - References
    - Financials
    - Resumes
- Proposal Response Format
- Cost Proposal
- Method of Evaluation & Award
    - Evaluation Criteria
    - Discussions, Best & Final Offer
    - Negotiations

Attachments

APPENDIX E: DEFINITIONS

Definitions[5]

Expected Performance Based Buydown (EPBB): The EPBB incentive methodology pays an up-front incentive to participants installing systems less than 30 kW in size that is based on a system's expected future performance. EPBB incentives combine the performance benefits of PBI with the administrative simplicity of a onetime incentive paid at the time of project installation. The EPBB Incentive will be calculated by multiplying the incentive rate by the system rating by the Design Factor.

Host Customer: An individual or entity that meets all of the following criteria: 1) has legal rights to occupy the Site, 2) receives retail level electric service from PG&E, SCE, or SDG&E, 3) is the utility customer of record at the Site (GM CSI only) or owns the site, 4) property owner or persons/entity responsible for the building at the location where the generating equipment will be located (MASH only), 5) is connected to the electric grid, and 6) is the recipient of the net electricity generated from the solar equipment (GM CSI only).

Insolation: A measure of solar radiation energy received on a given surface area in a given time. It is commonly expressed as average irradiance in watts per square meter (W/m^2) or kilowatt-hours per square meter per day ($kWh/(m^2 \cdot day)$) (or hours/day).

Interconnection: The equipment and procedures necessary to connect an inverter or power generator to the utility grid; IEEE Std. 100-1996 – *The physical plant and equipment required to facilitate transfer of electric energy between two or more entities. It can consist of a substation and an associated transmission line and communications facilities or only a simple electric power feeder.*

Interconnection Agreement: An interconnection agreement is a legal document authorizing the flow of electricity between the facilities of two electric systems. Under the CSI Program, eligible renewable energy systems must be permanently interconnected and operating in parallel to the electrical distribution grid of the utility serving the customer's electrical load. Portable systems are not eligible. Proof of interconnection and parallel operation is required prior to receiving an incentive payment.

Kilowatt (kW): KW is a unit of electrical power equal to 1,000 watts, which constitutes the basic unit of electrical demand. The watt is a metric measurement of power (not energy) and is the rate (not the duration over which) electricity is used. 1,000 kW is equal to 1 megawatt (MW). Throughout this Program Handbook, the use of kW refers to the CEC-AC wattage ratings of kW alternating current inverter output.

Kilowatt Hour (kWh): A kWh is the use of 1,000 watts of electricity for one full hour. Unlike kW, kWh is a measure of energy, not power, and is the unit on which the price of electrical energy is based. Electricity rates are most commonly expressed in cents per kilowatt hour.

Measurement and Verification (M&V): A process or protocol to confirm the actual energy savings realized from a project once the project is implemented and operating.

[5] California Public Utilities Commission, California Solar Initiative Program Handbook, June 2010.

Megawatt (MW): Unit of electrical power equal to one million watts; also equals 1,000 kW.

Meter: A device used to measure and record the amount of electricity used or generated by a consumer. The CSI Program requires accurate solar production meters for all solar projects that receive incentives. Systems receiving an EPBB incentive require a meter accurate to within ± 5%, while systems receiving PBI payments require a more precise meter accurate to within ± 2%.

Metering System: A metering system should include all distinct components necessary to measure the energy produced by a solar generating system. This must include equipment that allows the system to monitor and record 15-minute interval data either internally or externally through additional equipment such as a data logger. The system must include a 2% accurate meter either socket based or panel style allowing for a visual or remote display.

Net Energy Metering (NEM) Agreement: An agreement with the local utility which allows customers to reduce their electric bill by exchanging surplus electricity generated by certain renewable energy systems such as the PV systems the CSI subsidizes. Under net metering, the electric meter runs backwards as the customer-generator feeds extra electricity back to the utility. The CSI Program permits net energy metering agreements.

Photovoltaic (PV): PV is a technology that uses a semiconductor to convert light directly into electricity.

Power Purchase Agreements (PPA): specific to a PPA for purchase of on-site solar electricity; a PPA is an agreement for the purchase of the solar electricity generated and consumed on the Host Customer Site.

Performance Based Incentives (PBI): The CSI Program will pay PBI in monthly payments based on recorded kWh of solar power produced over a five-year period. Solar projects receiving PBI incentives will be paid a flat per kWh payment monthly for PV system output that is serving on Site load. The monthly PBI incentive payment is calculated by multiplying the incentive rate by the measure kWh output.

Performance Data Provider (PDP): A PDP service provider monitors and reports the energy production data from the solar energy system to the Program Administrator to serve as the basis for PBI payments.

Site: The Site is the Host Customer's premises, consisting of all the real property. Each individual Site must be able to substantiate sufficient electrical load to support the proposed system size.