DOE Office of Indian Energy Procurement

National Renewable Energy Laboratory
July 2015

List of Acronyms

CMLS Centralized Mailing List Service

CSD customer service director

DOE Department of Energy

ECM energy conservation measure

ESCO energy services company

ESPC energy savings performance contracting

FEMP Federal Energy Management Program

GSA General Services Administration

GWAC Government Wide Acquisition Contracts

IGA investment grade audit

M&V measurement and verification

MAS Multiple Award Schedule

NOITA notice of intent to award

NCSC National Customer Service Center

NOO notice of opportunity

NREL National Renewable Energy Laboratory

O&M operations and maintenance

PPA power purchase agreement

RFP request for proposal

RFQ request for quote

SIN special item number

SOW scope of work

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The following sections are included:	. 25
 General Requirements: Requirements to include with all PV projects. Other standard requirements (such as NEC) could be added so it is a comprehensive list 	. 25

2	Sourcing VARs: Requirements to include if power factor correction using the inverter is desired—either because the site already has a poor power factor or because the PV system is expected to negatively impact the site power factor	
3	Micro-grid Ready/Other Grid Support: Requirements to include either because the PV project should be micro-grid ready, or because there is other grid support that would b beneficial to the site and/or utility.	
M	licro-Grid Ready, Power Factor, and Utility Grid Support RequirementsGeneral Requirements (not all-inclusive):	
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Introduction

Procurement has the potential to add value to your organization. It matches the needs of your organization with what the market can provide. It's about building relationships with key stakeholders and suppliers. The skillsets required in the procurement process range broadly from project management, to research, to conflict resolution, analysis and negotiation. Collaboration is a key skillset that must be utilized before, during and long after the procurement process. A good procurement process can have a strong and positive impact on costs, benefits and risks, and bring about efficiency and innovation.

Frequently Asked Questions

What Does GSA Do?

GSA stands for the General Services Administration, which is a government agency established in 1949. The agency is tasked with managing government buildings and real estate, providing product and service procurement support, and developing policies and regulations.

GSA is most widely known for its development of the GSA Schedules Program. The Program was created to streamline government purchasing of commercial products and services and to leverage the buying power of the federal government in the process.

What Is a GSA Schedule Contract?

GSA Schedule Contracts, also known as GSA Schedules or Federal Supply Schedules, are indefinite delivery, indefinite quantity long-term contracts under the GSA's Multiple Award Schedule (MAS) Program. GSA Schedule Contracts were developed to assist federal employees in purchasing products and services; they contain pre-negotiated prices, delivery items, warranties, and other terms and conditions that streamline the buying process.

Who Is Eligible to Use GSA Schedule Contracts?

GSA Order Administrative 4800.2H, <u>Eligibility to Use GSA Sources of Supply and Services</u>, provides detailed information regarding those agencies, activities, and organizations that have been determined to be eligible to use GSA Schedule Contracts.

Tribes and tribal organizations are deemed executive agencies, and each Indian Tribe or tribally designated housing entity shall be considered to be an executive agency in carrying out a program, service, or other activity under a block grant pursuant to the Native American Housing Assistance and Self-Determination Act.

What Is eBuy?

eBuy is an online request for quotation (RFQ) tool designed to facilitate the request for submissions of quotations for a wide range of commercial supplies and services offered by GSA Schedule Contractors who are on GSA *Advantage!* Database.

eBuy allows federal, state, and local government agencies (buyers) to maximize their buying power by leveraging the power of the Internet to increase Schedule Contractor participation in order to obtain quotations that will result in a best-value purchase decision.

How Do I Know I Am Getting the Best Price?

GSA's goal is to be the best-value supplier of choice. GSA Schedule Contracts are negotiated with the intent of achieving the contractors' "most favored customer" pricing/discounts under similar conditions. In order to ensure that they receive the best value at the lowest overall cost when using GSA Schedule Contracts, agencies are encouraged and empowered to seek price reductions at any time before placing an order.

When Acquiring Commercial Supplies/Services Covered by GSA Schedule Contracts, Is It Really Easier to Purchase from GSA Schedule Contracts, as Opposed to Procuring on the Open Market?

Purchasing from GSA Schedule contracts offers the following advantages over procuring on the open market:

- GSA has determined prices under Schedule Contracts to be fair and reasonable.
- Pre-award synopses are not required for Schedule purchases, and post-award synopses are only required when the opportunity was restricted to a sole source or a limited number of firms under an approved Limited Source Justification.
- Schedule Contracts have been awarded in compliance with all applicable laws and regulations.
- Administrative time is reduced.
- Schedule Contracts offer a wide selection of state-of-the-art commercial supplies and services.

Procurement Process

To ensure the best procurement, or the acquisition of goods, services or works from an external source, the U.S. Department of Energy (DOE) is offering this packet as a simplified guidebook that Tribes can use as a quick reference. It is favorable that goods, services or works are appropriate and they are "procured" at the best possible cost to meet the needs of the acquirer in terms of quality and quantity, time, and location. Procurement can be broken down into three segments.

Develop and Issue RFP

Make Selection **Negotiate Contracts**

Developing an RFP for Facility- and Community-Scale Projects

An RFP gives vendors an opportunity to respond to requested goods, services, or works. In energy efficiency and renewable energy, typical RFPs are to purchase systems, a power purchase agreement (PPA) or an energy services company (ESCO).

To bypass reinventing a procurement process, note that Native-owned projects are eligible to access GSA pricing.

Tribes can avoid much of the work associated with a request for proposal (RFP), and still have the control and quality of starting from the beginning.

- 1. Consider GSA as a resource for procurement: http://www.gsa.gov/portal/category/20998.
- 2. GSA has access to project developers, engineering and construction contractors, and environmental permit contractors.
- 3. See the GSA handbook at the end of this packet to guide you through this time-saving alternative to procuring your own RFP. Also, make contact with your state's tribal GSA source and call them personally if you have questions. You can locate a regional or state representative at this site: http://gsa.gov/portal/staffDirectory/searchStaffDirectory?utm_source=OCM&utm_medium=print-radio&utm_term=HP_11_Footer_contactus&utm_campaign=shortcuts#contactUsForm.

1. Developing the RFP

- a. The timeline for selecting a developer can be from one month to one year but is typically two to five months.
- b. Use a knowledgeable writer of the RFP, someone involved in the project such as a project leader, contract officer, attorney, site manager, energy manager, or technology experts.

- c. Key dates, including proposal meetings, site visits, and the due date should be listed up front. A description of how questions will be handled and answered should also be listed up front, along with a contact person.
- d. The process of selection should be clear and contain well-defined criteria (see "Evaluating the RFP" section below).
- e. The RFP technical specifications or "scope of work" (SOW) should contain required elements that will produce comparable items (apples to apples) for fair evaluation and award. The degree and specificity that each of the topics addressed in a given RFP process will vary.
- f. Don't forget operations and maintenance (O&M). Who is going to perform it; how often; how will warranties be managed if necessary to replace equipment; how much will it cost?

Example: RFP for PPA

If the tribe is directly purchasing the equipment, then certain things such as equipment warranties will be very important since the tribe will be the owner. However, if the RFP is to select a PPA provider, the tribe will likely put more emphasis on the bidder's demonstrated ability to finance the project. how much production the bidder will guarantee, and buy-out options, for example. When contracting for a PPA, it is common to let the bidder propose the type of equipment the bidder intends to use if the bidder's proposal is selected, rather than have the host specify a particular brand of module, for example. In both cases, the SOW will be a thorough description of the proposed project, the characteristics of the site, and a detailed overview of what the village is interested in procuring.

- g. The following should be included in an SOW:
 - i. Project scale
 - ii. Type of renewable energy technology
 - iii. Site information:
 - 1. Location
 - 2. Interconnection requirements as known
 - 3. Applicable codes and standards
 - 4. Roof structure, soils, other (as applicable and available)
 - 5. Site prep: fencing, roads, grading limitations, etc.
 - 6. Installation requirements: min./max heights of equipment, vegetation mitigation, design standards for structural/electrical
 - iv. Equipment minimum standards and warranties
 - v. Expected minimum performance (recommended) or capacity (energy output)
 - vi. Strategy for training maintenance and operations staff
 - vii. Commissioning plan
 - viii. Special conditions such as requiring high-efficiency equipment, stipulating "Made in the USA" or mandating that construction jobs go to tribal members

NOTE: DOE's National Renewable Energy Laboratory (NREL) strongly encourages RFPs to include the **System Advisor Model Tool (SAM)**. Using the SAM tool will show the levelized cost of energy of the proposal and therefore the overall competitiveness of different generating technologies. For more information on this tool, contact Sherry Stout at Sherry.Stout@nrel.gov.

2. Issuing the RFP

- a. The RFP must be made available to a wide breadth of potential responders in order to allow any qualified vendor to submit, and to avoid favoritism or nepotism.
- b. It is suggested the RFP be issued to tribal, federal, and industry networks.
- c. Open meetings should be hosted by the Tribe for potential RFP responders to allow for a review of the RFP and questions. A record of the questions should be available to responders who could not attend the meeting(s). The goal is to ensure all developers get the same information.
- d. A tour of the project site should be given, and could be concurrent with the proposal meetings.

3. Evaluating the RFP

- a. Since the objective is to develop a fair and equal process, the evaluation criteria should be described in the RFP.
- b. A scoring system should be assigned to weigh the importance of each proposal criteria. Choose three to five criteria that are somewhat subjective and can capture the best value.
- c. An evaluation panel is recommended to consist of an odd number of members (typically three to seven members). The end goal is to select the best bidder based on the criteria chosen to guide the selection process and to do so in a transparent way that does not leave the village open to protests from unsuccessful bidders.
- d. Typically there are two approaches to reviewing proposals: Choosing the best value, which weights criteria on technical importance, or selecting a proposal based on the lowest price, with technically acceptable items that do not have much product variance.

i. Best value:

- 1. Typically three to five criteria with weighting based on importance
- 2. Score proposal on each criterion
- 3. Challenge point: This method is somewhat subjective and can lead to contentious, time-consuming evaluations but is a good method for capturing best value

ii. Low price, technically acceptable

- 1. Proposals initially stripped of pricing/cost information
- 2. First evaluation determines proposals that meet technical hurdle
- 3. Technically acceptable proposal with lowest cost gets award

- 4. Advantage point: This is a more transparent process but may not capture best value
- 4. Sample evaluation factors for award
- 5. Making the proposal selection
 - a. To evaluate the responders' proposals, and with clear evaluation criteria in place, the proposal is selected and a contract will then be awarded. Notification to the responders whose proposals were not accepted should be made with a professional letter, thanking them for their time. There are four typical approaches to awarding contracts. (Note: the first proposal "award based on proposal" takes the least amount of time, while the others will take more time. "Award with discussion and negotiation" will likely take the longest time but may yield fewer surprises down the line for a contract).
 - i. Award based on proposal: awarded solely on merits of proposal
 - Tying the award process back to scale, when selecting a contractor for a small, facility-scale project, for example, the Award Based on Proposal may be sufficient. However, for a larger, more complex community-scale project, follow-up discussions and negotiations might be needed to address bidder questions, tease out unclear information from the bid response and selecting a winner.
 - ii. Award with discussion: awarded on proposal but contingent on clarifying discussions
 - iii. Award with discussion and negotiation: awarded on proposal but contingent on further negotiation
 - iv. Award with best proposal:
 - 1. Best proposals are short-listed
 - 2. Short-listed proposals are asked for their best final proposal revision
 - 3. Award based on final proposal revision

A sample RFP template for solar and wind projects can be found in Appendices A and C.

ESPC ENABLE: New Funding Program

ESPC ENABLE is a procurement vehicle for awarding projects (administered through the GSA) for small federal facilities to install targeted energy conservation measures (ECMs) in six months or less. Examples of projects include:

Lighting

Water

Simple HVAC controls

HVAC system replacement

Solar photovoltaic

Project assistance from the Federal Energy Management Program (FEMP) is cost-free and can include project management and technical support.

To learn more about one-on-one project assistance for an ESPC ENABLE project, contact: Michelle Rathbun at mrathbun@energetics.com.

ESPC ENABLE Procurement Process

- 1. Phase 1: Acquisition Planning (this phase should take one to two weeks)
 - a. Gather resources, including people and data to hold a project kick-off meeting with the ESPC ENABLE acquisition team.
 - Complete key project information, including potential scope and utility data and develop a **Draft Acquisition Plan**.

Steps in the ESPC ENABLE Procurement Process can be found here: http://energy.gov/eere/f emp/espc-enableprocurementprocess#phase1.

- c. Result: You are now ready to post your RFQ/Notice of Opportunity (NOO) on GSA eBuy (or Fed Biz Ops for site-specific projects).
 - *Note: This is also referred to as an ESCO expression of interest form and the final proposal requirements
- 2 Phase 2: ESCO Selection
 - a. Prepare **SOW** while awaiting ESCO offers.
 - b. Accept ESCO offers or completed expression of interest forms
 - c. Evaluate offers and select and ESCO using the ESCO Evaluation Guide and Worksheet.
 - d. Send written letter to unsuccessful ESCOs.
 - e. Issue Notice of Intent to Award (NOITA) to successful ESCO.
- 3. Phase 3: Investment Grade Audit (IGA) and Award

- a. Conduct kick-off meeting to prepare for on-site IGA
- b. ESCO performs on-site IGA with the **IGA Tool** provided by the Federal Energy Management Program (FEMP)
- c. ESCO presents IGA findings (outputs from the IGA tool) for review
- d. Agency requests ESCO prepare and submit final proposal
- e. ESCO prepares and submits final proposal based on the final proposal requirements
- f. Agency reviews submittals and engages in negotiations
- g. Parties agree to pricing and ESCO completes financing
- h. ESCO locks down financing and agency awards task order
- 4. Phase 4: Installation
 - a. ESCO presents project plan matching scope of work and site requirements
 - b. ESCO installs ECMs and schedules inspection and commissioning with agency
 - c. ESCO performs commissioning according to Guidelines and Checklist for Commissioning and Government Acceptance of ESPC ENABLE Projects
 - d. ESCO performs post installation measurement and verification (M&V) according to the ESPC ENABLE M&V Plan Template
 - e. ESCO presents commissioning and final M&V results in post-installation M&V and commissioning report (see Guidelines and Checklist for Commissioning and Government Acceptance of ESPC ENABLE Projects)
 - f. Agency completes project acceptance using **FEMP-provided project acceptance** checklist
 - g. Performance period begins
- 5. Performance Period
 - a. Agency or ESCO conducts an audit per the M&V plan
 - b. ESCO generates annual M&V report based on audit results
- If you would like a digital copy of the sample templates for the ESPC ENABLE procurement process, see **Amy Hollander** (amy.hollander@nrel.gov) for a data stick.

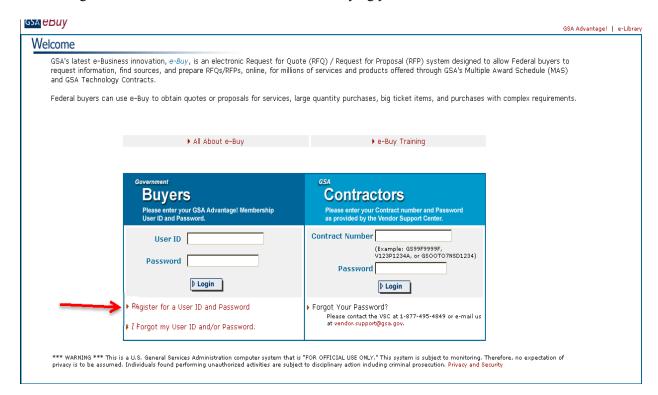
c. Agency receives annual M&V report, reviews/approves, and issues payment

Step-by-Step Online GSA Process

This step-by-step process will be utilized once the RFP is created in order to make the proposal available to contractors or responders. This step-by-step process is drawn from the GSA's eBuy website for training. For more details, visit the GSA website and click on "eBuy Training":

https://www.ebuy.gsa.gov/advantage/ebuy/start_page.do

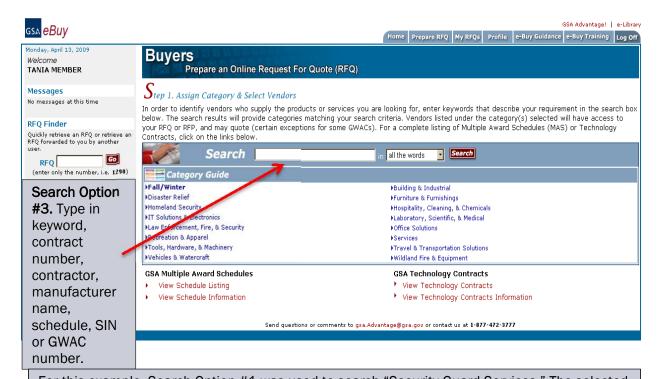
Step 1. Register for a User ID and Password on the GSA eBuy website: https://www.ebuy.gsa.gov/advantage/ebuy/start_page.do. You will be prompted to fill out the registration form and will be sent an email verifying your federal status.



Step 2. Once signed in, you will be directed to the Buyers Homepage. On the left is the message center, which displays alerts of recent activity concerning your RFQs. The first step in the RFQ process is to find sources for the service needed. There are three ways to do this, depicted below:

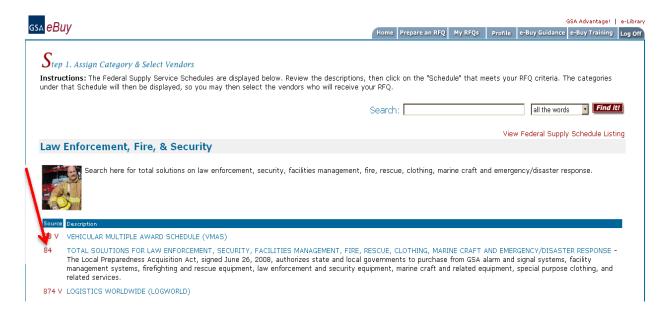




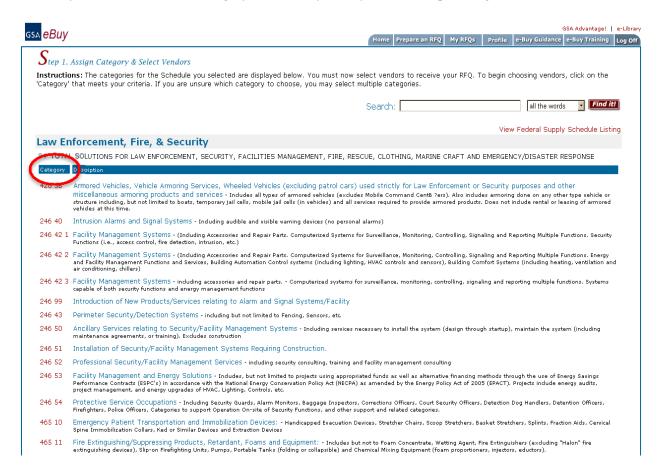


For this example, Search Option #1 was used to search "Security Guard Services." The selected category was "Law Enforcement, Fire & Security." You may want to look at energy-related services more implicitly.

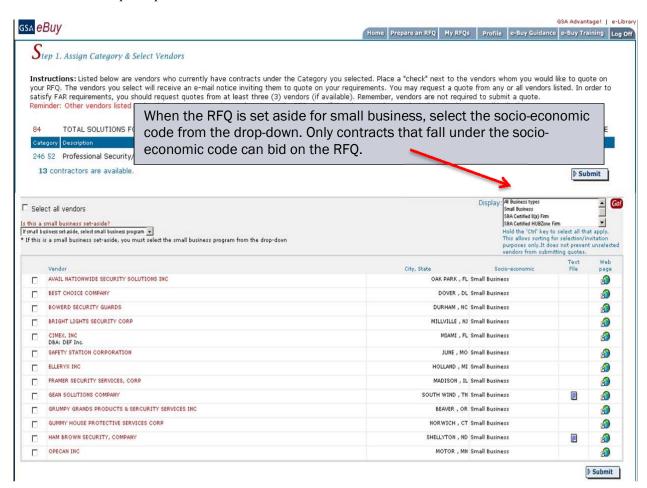
Step 3. Assign the category that best fits the needs of your RFQ. This example shows Law Enforcement, Fire, & Security, and you may want to choose Schedule 84.



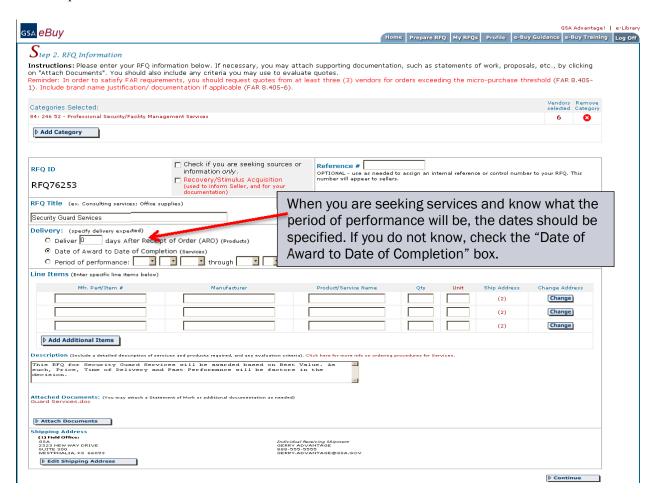
Step 4. The categories for the schedule you selected are then displayed and you must select a vendor(s) to receive your RFQ. Click on the category that meets your criteria to begin choosing vendors. If you are unsure which category to choose, you may select multiple categories.



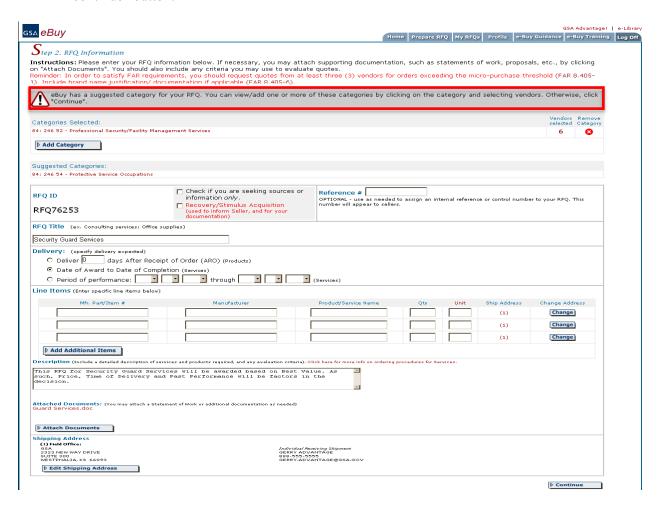
Step 5. The next page will display all sellers who have contracts under the category you selected. Place a check next to the vendors you would like to quote on your RFQ and press "submit." You should request quotes from three or more vendors.



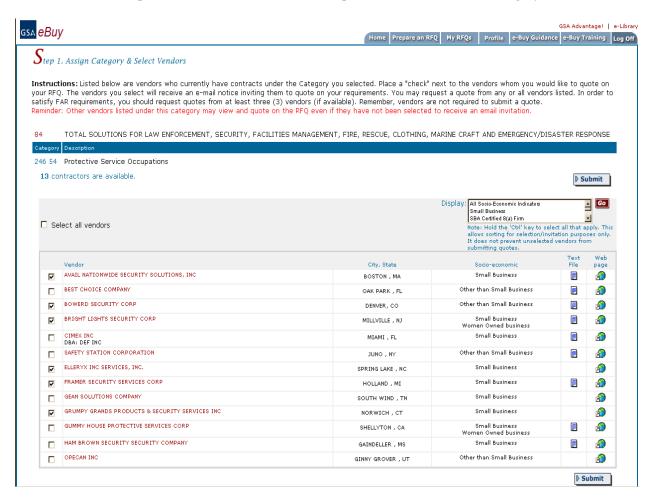
Step 6. Enter your RFQ information and, if necessary, attach supporting documentation, such as statements of work, proposals, etc. You should also include any criteria you may use to evaluate quotes.



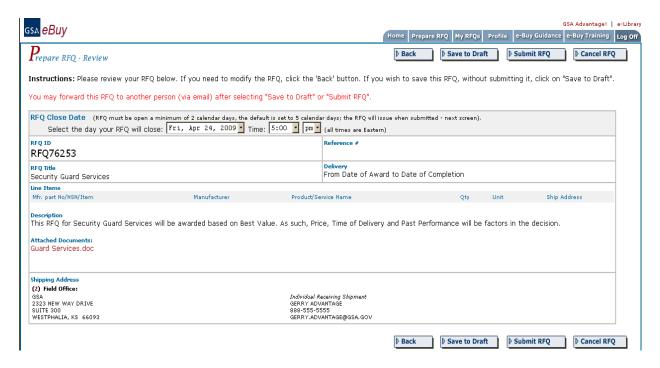
Step 7. On occasion, eBuy will suggest additional or alternative categories to post your RFQ. To use a suggested category, click on the category title. To continue without making any changes, click the "continue" button.



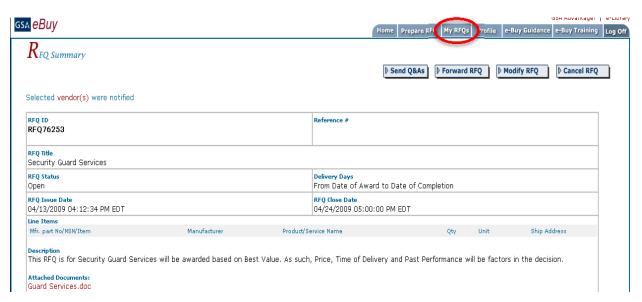
Step 8. If you choose to select additional or alternative categories, you will then repeat Step 5. Select your vendors and press "submit." The RFQ will be updated to reflect the new category.



Step 9. On the review page, you must specify when the RFQ will close. The minimum requirement for an RFQ to be open is two days, but the default is five days. Be sure to allow the contractors sufficient time to submit a quote. (Note: The closing times should be based on Eastern Time zone). When the RFQ is completely finished and ready to be submitted, click the "Submit RFQ" button.



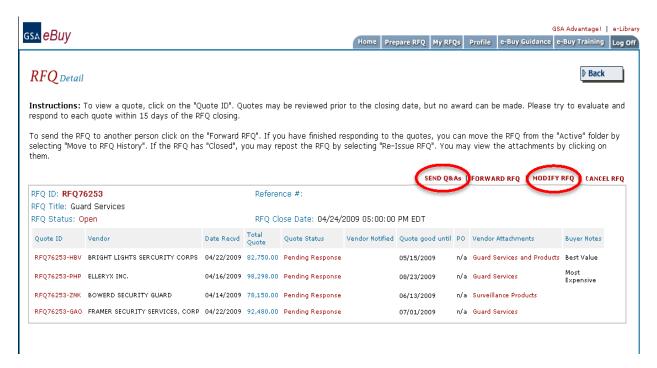
Step 10. The RFQ has been submitted and all sellers that were selected will now receive an email notification about the RFQ. In addition, the RFQ will be posted for viewing by all sellers under the specific SIN. You can access your RFQs at any time by clicking "My RFQs" at the top of the page.



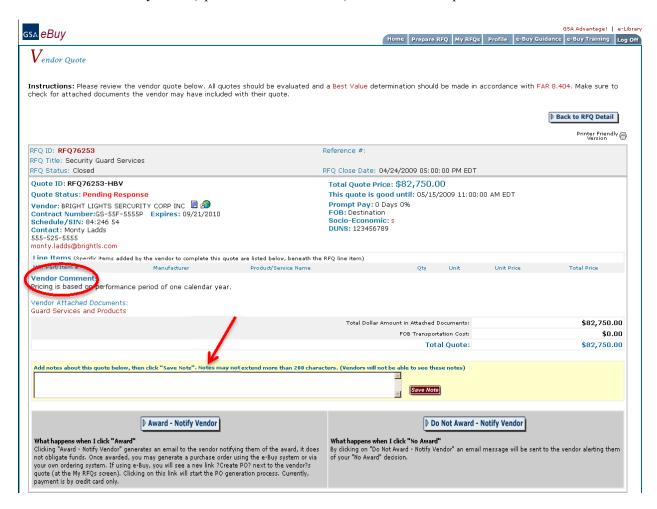
Step 11. To view all active RFQs, simply click on the RFQ ID and all activity will be displayed.



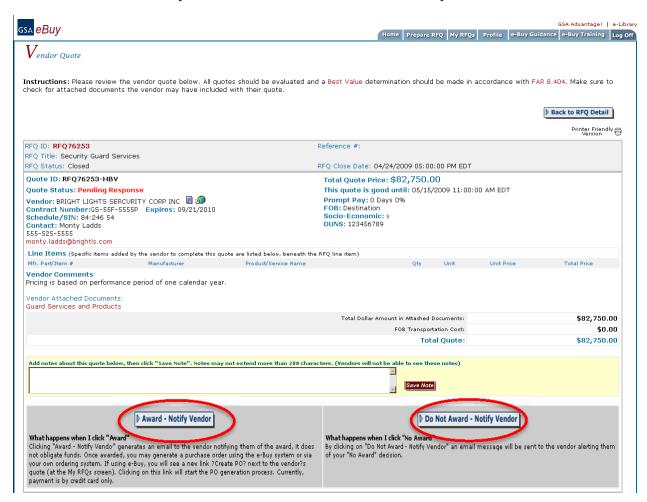
Step 12. At any time while the RFQ is open, you can modify the contents by clicking on "Modify RFQ." You can also answer any questions that should be shared with all vendors by clicking the "Send Q&As" link.



Step 13. The seller's contact information, total quote price, and other relevant information can be found on the Vendor Quote page. Review all comments and attached documents submitted by the seller and make any notes (optional and confidential) relevant to each quote.



Step 14. When you have reviewed all quotes and are ready to make an award decision, you can click on the "Award – Notify Vendor" button or "Do Not Award – Notify Vendor" button.



Online GSA Resources

The following online resources are pulled from the Tribes and Tribal Organizations Desk Reference from GSA's Region 10 and will be useful in various steps of the procurement process.

GSA Global Supply Program

GSA Global Supply provides easy and flexible requisition-based ordering for office supplies, tools, computer products, safety gear, and more. Before offering products to its customers, GSA Global Supply conducts competitive procurements to ensure compliance with the Federal Acquisition Regulations and other relevant mandates. With procurement complete and compliance guaranteed, customers can confidently place simple requisitions with GSA Global Supply for desired items without having to solicit comparison prices from multiple sources. Since this is a requisition and not a procurement action, Indian Preference does not apply. An activity address code is required. To learn about the GSA Global Supply Program, visit www.gsa.gov/globalsupply.

Multiple Award Schedules Program

GSA establishes long-term, government-wide contracts with commercial firms to provide access to millions of commercial products and services at volume-discount pricing. These are known as Multiple Award Schedules (MAS), Federal Supply Schedules, or Schedules. To learn about the MAS Program, visit www.gsa.gov/schedules. GSA has also created a manual to assist you; click on "MAS Desk Reference" or visit http://www.gsa.gov/portal/category/100755.

GSA SmartPay Program

The GSA SmartPay Program is the largest government payments program in the world, serving more than 350 federal agencies, organizations, and Native American tribal governments. The program offers four business lines of charge card solutions, including: Purchase, Travel, Fleet and Integrated. To learn more about the GSA SmartPay Program, visit www.smartpay.gsa.gov. Information on eligibility determination and program application for Tribes and tribal organizations can be found at www.smartpay.gsa.gov/about-gsa-smartpay/eligibility.

GSA eLibrary

GSA eLibrary is the online source for the latest contract award information for GSA Multiple Award Schedules, Department of Veterans Affairs Schedules, and Technology Contracts. It allows users to search by keywords, contract number, contractor/manufacturer name, schedule name, schedule, number, category, etc. Visit the website for useful information on GSA eLibrary. (http://www.gsaelibrary.gsa.gov)

GSA Advantage!

GSA *Advantage!* is the federal government's premier online ordering system that provides access to thousands of contractors and millions of services and products. Included are GSA Global Supply products and GSA Schedule Contractor's products and services. Anyone may browse on GSA *Advantage!* to view and compare the variety of products and services offered. Visit the website for useful information on GSA *Advantage!*.(www.gsaadvantage.gov).

GSA eBuy

GSA eBuy is an online RFQ tool designed to facilitate requests for submission of quotations for a wide range of commercial supplies (products) and services. By leveraging the power of the Internet, GSA eBuy increases contractor participation to obtain quotations that result in best-value purchase decisions. Buyers can also use GSA eBuy to request information and find sources to fulfill their requirements. Visit the website for useful information on GSA eBuy (www.ebuy.gsa.gov).

GSA Customer Assistance

The following customer assistance resources are pulled from the Tribes and Tribal Organizations Desk Reference from GSA's Region 10.

GSA Centralized Mailing List Service

Through the Centralized Mailing List Service (CMLS) website, you can access electronic versions of the publications, including flipbooks of GSA Global Supply catalogs. You can also subscribe to specific publications with the CMLS application. Printed versions of many publications are available if electronic versions don't meet your needs. (www.gsa.gov/cmls)

Customer Service Director(s)

GSA offers a worldwide network of knowledgeable Customer Service Directors (CSDs). Wherever you're located, there is a CSD in your region to assist you with problem resolution and answer any and all questions relating to GSA and its procurement solutions. The CSDs also offer seminars on a variety of topics to educate customers on purchasing procedures and inform them of offerings and solutions available from GSA (www.gsa.gov/csd).

To find your CSD for your state: http://www.gsa.gov/portal/staffD irectory/searchStaffDirectory OR

View <u>GSA's Leadership</u> <u>Directory</u> to see agency senior officials.

National Customer Service Center (NSCS)

Customers are encouraged to call GSA's National Customer Service Center (NCSC) at (800) 488-3111 with general or specific questions about GSA. The NCSC's customer service representatives are knowledgeable about GSA's business lines and their associated products and services and will direct you to a source that will best address your needs. The NCSC can also help verify your order's status, track shipments, resolve order discrepancies or deficiencies, and provide information on merchandise returns and exchanges, as well as address billing inquiries, merchandise quality concerns, and current price quotes. GSA's NCSC is now available to you 24 hours a day, five days a week. From Sunday nights at 8 p.m. Central time (CT) until Friday nights at 8:30 p.m. CT, the NCSC will be ready to assist you (www.gsa.gov/ncsc).

Useful Resources

Energy Conservation Measures (ECMs) offered throughout ESPC ENABLE Program: http://energy.gov/eere/femp/downloads/espc-enable-energy-conservation-measures-ecms-summary

ESPC ENABLE Program Overview: http://energy.gov/eere/femp/downloads/energy-savings-performance-contract-espc-enable-program

FEMP ESPC ENABLE Briefing: http://energy.gov/eere/femp/downloads/espc-enable-briefing

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Appendix A: Solar PV RFPs and PPAs

NREL Project Finance Team Renewable Energy Contract Library:

https://financere.nrel.gov/finance/content/renewable-energy-contracts-library

- o Access a range of sample project documents including:
 - Power purchase agreements
 - Request for proposals for renewable energy projects
 - Interconnection Agreements
 - Engineering Procurement and Construction Contracts
 - Leases
 - And others
 - o Can provide templates and example language for contracts developed by the Tribe.

Federal Energy Management Program (FEMP) On-Site Renewable Power Purchase Agreements:

http://www1.eere.energy.gov/femp/financing/power purchase agreements.html

- o Information, training, and sample documents for several documents necessary to the procurement of renewable energy at federal facilities. Documents include:
- o Power purchase agreements
- o Request for proposals
- o Land use agreements
- And others

NOTE: These documents are provided as templates and examples which will help to guide users in defining their own criteria and scope. Any documents actually used in the

Photovoltaic Project RFP Template

PURPOSE: The intent of the following model "Micro-Grid Ready" RFP language is to enable agencies to plan ahead if there is desire to establish a micro-grid with the solar PV system in the future. Even though the funding needed to establish a micro-grid may not be available at the time the solar photovoltaic (PV) system is contracted for, several simple considerations can be added that will allow the solar system to be part of microgrid. This model language can be taken as is, or modified based upon the PV project goals.

This model language is intended to enable the solar project to provide ancillary services (with or without a micro-grid) that can be important to the serving utility and to reduce power factor charges. The document includes RFP language to include if the solar project is implemented through a third-party financing method such as a PPA or ESPC.

The following sections are included:

- 1) **General Requirements:** Requirements to include with all PV projects. Other standard requirements (such as NEC) could be added so it is a comprehensive list.
- 2) Sourcing VARs: Requirements to include if power factor correction using the inverter is desired—either because the site already has a poor power factor or because the PV system is expected to negatively impact the site power factor.
- 3) Micro-grid Ready/Other Grid Support: Requirements to include either because the PV project should be micro-grid ready, or because there is other grid support that would be beneficial to the site and/or utility.
- 4) **Micro-grid Ready Only:** Requirements that will only be included if the PV project should be micro-grid ready.

Micro-Grid Ready, Power Factor, and Utility Grid Support Requirements

General Requirements (not all-inclusive):

• The PV system shall comply with the National Electrical Code (NEC), Underwriters Laboratories (UL) 1741 "Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources" and IEEE 1547¹ "IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems" and IEEE 1547.1 "IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems," and all other interconnection requirements specified by [serving utility]. The inverters shall be certified by an OSHA Nationally Recognized Testing Laboratory (NRTL) to comply with UL 1741 tests for inverters. If there is a system disturbance (voltage and frequency outside the parameters of IEEE 1547), under normal grid- connected circumstances, the inverters shall turn off and cease to produce power.

Sourcing or Sinking VARs:2

For sites with non-unity power factors³, the addition of PV can further degrade the power factor (as seen by the utility). If the resulting power factor penalty charges justify the added investment cost, the inverters shall have the capability to adjust the site power factor to [x] by sourcing or sinking reactive power. Adjustments shall be either programmed locally (autonomous control) or be implemented upon receipt of a variable power factor command provided by the remote power system controller. The inverters shall have a range of dynamic reactive capability that supports its operation from a [y] leading⁴ to [z] lagging power factor. The intent is to control power factor and to provide electrical distribution system support to the utility if requested. A nonunity power factor for the inverter shall be allowed. The inverter shall be capable of sourcing VARs even when the PV system is not operating, but this feature may be problematic under the current listing.

The contractor shall be compensated for lost real power kWh in exchange for sourcing VARs.5

¹ IEEE 1547 has other documents in the series that provide guidance and recommended practices that may be useful.

² If a site has a poor power factor (PF), inverters can source VARs to improve the PF (if an analysis shows that this is economically desirable). PV systems that are large relative to the site load can negatively impact a site's PF resulting in a PF penalty. The planned PV system should be analyzed to determine if the site PF will be negatively impacted such that PF correction would be beneficial. Note that sourcing VARs will reduce the real power produced (kWh). The economic analysis of whether to have the inverter source VARs should consider all of the options, including installing and operating/maintaining capacitors or paying the PF penalty. The reduction in real power should be considered in the analysis. In some cases it may be desirable for the inverter to sink VARs. If so, this should be considered in the economic analysis.

³ Nonunity power factor is often caused by large inductive loads.

⁴ In rare occurrences, such as some data centers, the site may have a leading PF. Back-up generators do not operate well with a leading PF.

⁵ For PPAs and other projects that don't involve agency appropriations/government ownership. The RFP could include a requirement that the contractor propose how this compensation would be calculated (e.g., use the inverters to record potential kWh vs. actual kWh produced, if they have this functionality).

Micro-Grid Ready/Other Grid Support:

- The inverter shall be capable of curtailing its output in logical steps in response to communication from the system controller (one option is to have the capability to shed individual strings in addition to full curtailment).
- The inverter shall have adjustable trip limit and time delay capability as defined by UL 1741, and advanced power control functionality—including reactive power capability (source VARs)⁶, power increase ramp rate control (and power decrease rate control if storage is available), and curtailment set points.

In some instances, the power system controller set-points may be set outside of the UL1741 and IEEE 1547 (including 1547a) requirements—with mutual agreement between the federal agency, the utility, the contractor [and others such as fire marshal]—to allow for adjustment of the cease-to-energize limits and time delays specified in UL1741/IEEE 1547, including adjustments to the low voltage ride through, low frequency ride through, and high voltage and high frequency ride through specifications⁷.

The inverter shall be able to change settings via remote communications, and be capable of real-time monitoring, diagnostics, and management in the grid interactive mode and micro-grid (intentional island) mode via a remote power system controller and appropriate power analytics software.

Micro-Grid Ready Only:

In addition to connecting and operating in a grid-interactive mode, the contractor's proposed PV system shall be capable of being included in a future micro-grid that can operate when the utility grid is unavailable. This micro-grid could include conventional (engine) generators, other renewable resources and/or energy storage. For the purposes of this RFP, this requirement shall be met by the following:

PV inverters shall be multi-mode DC-to-AC inverters capable of switching between grid-interactive mode and micro-grid (intentional island) mode. The inverters shall comply with the IEEE 1547.4 "Guide for Design, Operation, and Integration of Distributed Resource Island Systems with Electric Power System" standard. While in the grid-interactive mode, the inverters shall be capable of four quadrant⁸ operation (real and reactive power in and out of the inverter).

⁶ See "Source VARs" above.

⁷ HVRT and HFRT may be beneficial in some cases, such as when there is a weak grid.

⁸ Can specify less than four quadrants if it is determined that this would be sufficient.

- If there is no isochronous generator in the system that sets frequency and voltage to the micro-grid, an inverter with battery storage needs to be selected that will do this. Other inverters in the system will sync to this master inverter
- The contractor shall install spare communications conduit [add information such as size and distance] in the trenches that could be used to route future communications cabling to point of common coupling from inverter(s). The communications conduit shall be capable of connecting the inverter with a remote power system controller and any other pertinent equipment. The duct bank shall include spacers to separate communications from power conduits. The contractor shall coordinate with the site staff to ensure that the installed equipment meets micro-grid ready needs, within the budget established in the contractor's proposal.
- The contractor shall also consider space planning issues such as pad space for batteries, as needed.
- The contractor shall cooperate with the site when requested to determine necessary equipment and other changes required to meet future micro-grid requirements. The contractor's proposal shall include [x] hours⁹ for this micro-grid coordination work. If additional effort is required, the contractor will be compensated separately. Micro-grid configuration changes will be funded by the government. The contractor's proposal shall also include details regarding how the proposed equipment meets the above requirements, how the equipment differs from a PV system that would only operate in the grid-interactive mode, and any important considerations.
- The third-party owner will be compensated for all power generated during micro-grid operation using the same pricing schedule as other generation.

⁹ Add details based on the specific situation and what is known about future micro-grid plans.

Appendix B: RFP Micro-Grid Example

White Wolf Yosemite PV-Hybrid System

SECTION 13650

PHOTOVOLTAIC SYSTEMS

1.0 GENERAL

1.1 SUMMARY

- A. Section Includes: Photovoltaic (PV) power generation, inverters and controls, propane generator (supplied by NPS) and storage systems (PV systems) located at White Wolf, Yosemite NP, complete, as specified herein. A single contractor shall be responsible for the design, installation and commissioning of the system.
- B. Related Sections:
 - 1. Division 16000 Electrical.

1.2 REFERENCES

- A. National Electric Code (NEC)
 - 1. Article 690 Solar Photovoltaic Systems.
 - 2. Article 480 Storage Batteries.
 - Article 250 Grounding.
 - 4. Article 110 Requirements for Electrical Installations.
- B. IEEE Standards
 - 1. IEEE 1262 PV Module Qualification for Performance and Reliability.
 - 2. IEEE 937 Recommended Practice for Installation and Maintenance of Lead-Acid Batteries for Photovoltaic Systems.
- C. Underwriter's Laboratories (UL) Standards
 - 1. UL1703 Flat Plate PV Modules and Panels.

- 2. UL1741 Standard for Static Inverters and Charge Controllers for Use in Photovoltaic Power Systems.
- D. National Fire Protection Association Standards
- E. OSHA Standards

1.3 SUBMITTALS

- A. Product Data: Submit the manufacturer's product specification sheet and the manufacturer's installation instructions for all materials to be used.
- B. Shop Drawings: Submit shop drawings showing system design and field connection details. System schematic showing all major components and a sequence of operation shall be part of the shop drawings.
- C. Operation & Maintenance Manual: Submit the operation, installation, and maintenance manuals/instructions for all equipment. The complete manual shall provide operating and maintenance instructions for the system as a whole, performance curves, warranty information, approved shop drawings, recommended and complete parts lists, wiring diagrams, and all other bulletins and brochures pertinent to the operation and maintenance of the equipment.
- D. Commissioning plan

1.4 QUALITY ASSURANCE

A. Installer Qualifications: a licensed solar contractor or a licensed electrical contractor shall install the PV systems described herein. The system shall be designed by an experienced PV/hybrid company with a minimum of five (5) years of successful history and experience with PV/hybrid systems over 10 kW in size.

1.5 DESCRIPTION OF WORK

- A. The Contractor shall provide complete design and installation, commissioning, and testing for a 6 kW_{DC STC} PV array as described in these documents. The array shall be mounted on 2 each top of pole mounts or approved equal mounts at a location identified by NPS within 50 feet of power building. Provide theft resistant hardware for mounting PV.
- B. The PV system shall include a new 16 kW inverter and a new 110 kWh (100 hr rate) battery storage system and it shall be connected to a new NPS furnished, vendor installed 15-20 kW propane fired generator system. System also includes balance of system, over-current protection, charge controllers, combiner boxes, and metering devices as required providing a fully functional code complaint system. Together the hybrid PV/generator system shall supply 120/240 VAC single-phase electrical power to the site through the existing distribution system.
- C. The work includes furnishing and/or paying for all new materials, labor, tools, equipment, transportation and services required for a complete installation.

1.7 SYSTEM OPERATION

A. The system shall have two primary operating modes: stand-alone mode and battery

charger mode. Stand-alone mode shall be the default mode for the system and it should generally occur when the batteries are charged at a level of 20-100% of their full capacity.

- B. When the battery state of charge drops to 20%, the system shall automatically crank the generator and switch to battery charger mode. In this mode, all loads on the site shall be powered by the generator and the inverter shall operate in reverse to charge the batteries from the generator output.
- C. Once the generator has brought the batteries back up to 50% state of charge, the system shall automatically switch back to normal stand-alone mode and switch off the generator.
- D. The PV modules shall directly charge the batteries every day. The PV charge controllers shall optimize PV output by tracking the maximum power point of each PV source circuit as well as providing three-stage charging and overcharge protection for the batteries.
- E. The charge controller shall be programmed to equalize the batteries once per month using PV energy. If equalization has not been achieved within two months an error message shall be displayed on the monitoring equipment.
- F. The 16 kW inverter system shall be comprised of two 8 kW modular inverters that are wired together.
- G. All inverters shall be connected to and controlled by a central processor that insures proper operation mode and intelligently switches inverters on and off to match the load thereby minimizing idle power losses.
- H. Inverter bypass switches shall be provided as a means to bypass the inverter/battery system and power the site with the generator for maintenance and as a means to completely disconnect all inverter and generator power sources from the electrical distribution system on site.

2.0 PRODUCTS

2.1 GENERAL

- A. All materials and equipment required for the work shall be new and shall be furnished, installed and finished in every detail, and shall be selected and arranged as to fit properly into the building spaces.
- B. All equipment shall be listed and labeled per recognized electrical testing laboratory and installed per the listing requirements and the manufacturer's instructions.
- C. All equipment shall be properly grounded per the requirements of the National Electric Code, Article 250.
- D. All outdoor equipment shall be NEMA 3R.

- E. PV modules shall be IEEE 1262 compliant and listed to UL Standard 1703.
- F. All inverters shall be listed to UL Standard 1741.
- 2.2 EQUIPMENT (Furnished and installed by vendor unless otherwise noted)
 - A. PV Modules: Crystal silicon, or a blend of amorphous and crystal silicon, PV modules shall have 25-year limited warranty guaranteeing:
 - 1. That no module will generate less than its specified minimum power when purchased.
 - 2. Continued power of at least 80% of guaranteed minimum power for twenty-five years.
 - B. Combiner boxes: Outdoors rated, Outback PSPV or approved equal. Proper sized breakers for each series string shall be provided.
 - C. Inverters: 2 each Outback GS8048 or approved equal. Install in existing generator building.
 - D. Monitoring Equipment: Outback Hub and Mate. Battery Temperature Compensator shall be provided for all charging equipment. Install in existing generator building.
 - E. Lightning arrestors shall be installed on AC and DC source circuits to protect the inverters and charge controllers.
 - F. Batteries: Deka Solar, 2 volt flooded lead-acid type with non-metallic cases, 4.65 kWh each at 100 Hr rate or approved equal. Batteries shall be configured in 1 bank of 24 batteries each with dedicated battery cables and breaker. Install in ventilated battery box in existing generator building.
 - G. Generator: 120/240 VAC, 15- 20 kW standby rating, LP gas, provided by NPS, installed and commissioned by vendor in existing generator building.

3.0 EXECUTION

3.1 EXAMINATION

A. Beginning the installation means the Contractor has accepted the existing conditions.

3.2 COORDINATION

A. The Contractor shall coordinate with the Contracting Officer on the locations and appearance of all exposed equipment, including but not limited to, PV modules, conduit, inverters, wireways, and control and monitoring equipment. All locations must be approved by the Contracting Officer before the installation begins Maintain as-built drawings on site of all underground conduit locations. Provide as-built drawings at contract completion.

3.3 INSTALLATION

- A. All circuits connected to more than one electrical source shall have overcurrent devices located so as to provide overcurrent protection from all sources (NEC Article 690-9 (A)).
- B. Labels per NEC Article 690 shall be provided.

- C. Cut no structural members. If equipment cannot be properly concealed, notify Contracting Officer. Any patching and cutting done as a result of error or neglect on the part of the Contractor shall be done at the expense of the Contractor.
- D. Attachments: Support all work adequately and per code. All equipment shall be securely attached to the building structure in an approved manner. Attachments shall be of a strong and durable nature.
- E. Shoring: The Contractor shall provide all permanent and temporary shoring, anchoring and bracing required by the nature of this work in order to make all parts absolutely stable and rigid, even when such shoring, anchoring and bracing are not explicitly called for.
- F. Batteries shall be installed on a single layer of 2"x6" structural acid resistant plastic lumber. Installers shall wear protective eyewear, rubber gloves, and rubber footwear while working with batteries. Proper precautions shall be taken to insure that acid is not spilled. Batteries shall be spaced a minimum of 1" apart using 1"x4" structural acid resistant plastic lumber as spacers or approved equal installation. Provide spill containment for the volume of at least one battery.
- G. Battery filling system: SunWize De-ionizer connected to the softened water system. De-ionizer cartridge shall provide a minimum of 600 gallons of pure water. A spare cartridge shall be provided. A purity light that monitors conductivity of the output water and signals when it is time to change the cartridge shall be provided. A Philadelphia Scientific Model "C" battery watering gun with automatic shutoff and sufficient hose to fill all batteries shall be provided.
- H. Battery spill kit shall be provided.

3.4 POWER MAXIMIZATION

A. Contractor shall measure shading effects from nearby trees at all PV array sites and use this information to determine the optimum grouping of series strings. Strings shall be grouped so that major shaded areas cover the least number of groups possible between the hours of 10am-2pm solar time.

3.5 COMMISSIONING

- A. Contractor shall provide complete testing and commissioning of the PV/hybrid system.
 - 1. Verify that all equipment is installed and connected correctly and in accordance with manufacturer's written instructions.
 - 2. Perform startup checks for all equipment per manufacturer's written instructions.
 - 3. Battery Test: After all circuits are energized, verify that batteries are operating at proper voltage relative to the current state of charge.
 - 4. PV Module Test: During the daytime while the sun is shining on the PV array, measure the output current of each sub-array which has separate conductors to the battery room. Verify that current level is similar for sub-arrays of the same size and that the current level is within the range specified on the manufacturer's IV curve given the battery voltage and current light level.
 - 5. Program and adjust all charge controllers, inverters, and monitoring equipment per the requirements of Part 1.7 of this specification (Section 13650) and in

accordance with the manufacturer's recommendations. Verify proper inverter function at full load, 50% load and no load. Verify generator start up at low battery condition, and shut down at full charge and inverter transfer function. Record charge rates. Verify generator output at full load, half load and no load.

- 6. Replace all damaged and/or malfunctioning equipment.
- 7. Provide written report on system performance.
- 8. Provide as-built drawings.

3.6 DEMONSTRATION

- A. Provide a complete walk-through and training service for the PV/hybrid system.
 - Train maintenance personnel on procedures and schedules for starting and stopping, troubleshooting, servicing, and maintaining equipment. Describe and document in O&M manuals operation modes, battery maintenance and safety gear. Provide O&M manuals at least seven days prior to training.
 - Schedule training with Contracting Officer with at least seven days' advance notice.

END OF SECTION

Appendix C: Small Scale Wind Power RFP Template

Issued by:

[Sub Grantee Name] ("[SUB GRANTEE ACRONYM]")

For:

Wind Power Small Scale (Facility and Community)

Funded by:

[Funding Source (e.g., TEP)] ("[Funding Source Acronym]")

Due Date: [Day], [Date], at [Time]

I. INTRODUCTION

Proposals must address all the requirements in this RFP. Failure to do so may result in the rejection of proposals. The following general information is applicable to this RFP:

- A. Only qualified vendors meeting all proposal requirements will be selected.
- B. All installation work funded by the program must be completed and inspected by all required inspectors and the WAP sub-grantee by March 31, 2012.
- C. Vendors must submit proposals indicating unit price proposed per installation.
- D. Vendors must be able to complete installation of at least [quantity] residential wind turbines within [number days] calendar days upon obtaining appropriate approvals.
- E. To be considered, [quantity] copies of the written proposal must be received no later than [time], [Day], [Date] at [Address], Attn: [Personnel name].
- F. [SUBGRANTEE ACRONYM] reserves the right to request additional information or clarifications from vendors or to allow corrections of errors or omissions. At its discretion, [SUBGRANTEE ACRONYM] may request vendors submitting proposals to make oral presentations as part of the evaluation process.
- G. Submission of the proposal indicates acceptance by the vendors of all the terms, conditions, and requirements contained in this RFP.
- H. A Bidder's Conference will be held to explain the RFP and to answer any questions. *Attendance at the Bidder's Conference is [not] a requirement for submission of proposals*. The

Bidder's Conference will be held on [Day], [Date] at [Time] in the [SUB GRANTEE ACRONYM] [Room], located at [Address].

A copy of this RFP is also available online: [Enter Website].

See Sections II & III of this RFP for details and specific guidelines on preparing proposals.

Timeline

EVENT	DATE
Bidder's Conference	[Date 1]
Bid Submission Deadline	[Date 2]
Notification of Selection	[Date 3]
Execution of Contracts with Vendors	[Date 4]

II. NATURE OF SERVICES REQUIRED

A. Scope of Work

[SUB GRANTEE ACRONYM] is seeking services of qualified vendors to install a minimum of [quantity] residential wind turbines electrically interconnected to eligible homes throughout [State Name or County Name] from [Date] through [Date]. The total amount of funding available for residential wind turbines installation contract is estimated to be \$[Dollar Amount]. The funding available is only an estimate and may be subject to change. Vendors are not guaranteed any specified level of funding and related volume of installations.

B. Installation Standards

- 1. To meet the requirements of this RFP, the installation of residential wind turbines shall be performed in accordance with the standards and specifications established by NABCEP and/or a state wind certification for the respective state. As members of the NABCEP's "Contractor List," vendors should be familiar with NAPCEP Standards and Specification Requirements.
- 2. Residential wind turbines to be installed by vendors must be able to service a household of at least 10 members and supply at least 25% of the annual energy consumption per home, but not more than 50% for monthly net metered states and 100% for annual net-metered states.

- 3. Vendors are required to conduct pre-installation and post-installation site inspections prior to installation to ensure site is suitable for a wind system. Turbine should not be located in low-lying areas or near large obstructions. Turbines should be sited at least the total system height (from ground to highest point) from all non-participating property boundaries and inhabited structures.
- 4. No turbines should be installed in a site that is less than class II, according to the publicly available map at the Wind Powering America website: http://www.windpoweringamerica.gov/wind maps.asp
- 5. Vendors are required to educate the residential client on safety, use and maintenance of the wind turbine, including the schedule of annual inspections and warranty repairs to be provided by the contractor.

C. Installation Costs

Vendor must submit proposals indicating unit price proposed per installation. Cost proposals must be valid through March 31, 2012, and include, but not be limited to, the cost of the residential wind turbines installation costs including all local siting approvals and permits, electrical interconnection approvals, site construction, turbine mechanical completion and electrical interconnection, turbine commissioning, and all safety requirements. Proposed costs must be all inclusive, (i.e. materials, labor, permits, taxes, transportation, etc.). Additionally, the following must be addressed in preparing the cost proposals:

1. Material Cost Inclusions

[The following are two options for specifying the materials]

Option 1: Pre-Approved Design by [SUBGRANTEE ACRONYM]

This **approach is for standardizing** the design for a specific household type in a specific area. The list of materials shall come from a licensed professional and/or approved vendor and shall include, at the minimum, the following components:

- Major system component manufacturers and model numbers (turbine, tower, batteries (where applicable), inverter,)
- System specifications: (turbine size, tower height, inverter power rating)
- Design schematics and site layout (including sketch of property, setbacks, turbine location, turbine interconnection point)

Option 2: Performance base design following the requirements of Attachment 1

2. Product Success Agreement

a. All systems must include a product success agreement to inspect and service the turbine for five (5) years in accordance with manufacturer's specifications. This inclusion will

include, for five (5) years, an annual inspection of the wind system, labor and repairs as necessary for what is not covered under the 5 year parts and materials warranty.

3. Other Related Expenses

- a. Any additional labor and equipment necessary to comply with NABCEP or other state certification specifications will be the sole responsibility of the vendor.
- b. The bid proposal shall **exclude** any rebate(s) for products and/or services under this RFP that may be available to vendors and/or customers through third-party entities. [SUBGRANTEE ACRONYM] makes no representation as the availability and/or applicability of such rebate programs. Furthermore, [SUBGRANTEE ACRONYM] shall **not** be responsible for payment to any party of any applicable rebate(s) offered by third-party entities. [SUBGRANTEE ACRONYM] shall also **not** be responsible for covering any available rebates not redeemed by vendors and/or customers.
- c. Proposals must indicate unit price proposed per installation, specifying the cost of materials and the cost of labor.
- d. Any additional labor and equipment necessary to comply with specifications in Attachment 1 will be the sole responsibility of the vendor. [Only applicable to Option 2 above.]
- D. Installer or General Contractor Responsibility and Requirements
 - 1. Must be able to complete installation of one residential wind systems in a two to three day period upon obtaining appropriate approvals and work orders.
 - 2. Provide a certificate of contractor's liability insurance meeting State requirements and naming [SUB GRANTEE ACRONYM] and the State of [State Name], [State Office Name], and any related agencies as co-insured.
 - 3. Conduct installation of residential wind turbines by certified/licensed contractors, subcontractors and/or employees in compliance with all applicable laws.
 - 4. Install all residential wind turbines in accordance with manufacturer's specifications or NABCEP Standards and Specifications Requirements.
 - 5. Conduct site inspection prior to installation to ensure site is suitable for a wind system. Turbine should not be located in low-lying areas or near large obstructions. Turbines will be sited at least the total system height (from ground to highest point) from all non-participating property boundaries and inhabited structures.
 - 6. After the pre-installation site determination and required permitting, ordering of the turbine, receiving of turbine and installation should be completed within 60 days.

[Normal installation takes one to two days to install, but ordering can be longer.]

- 7. Vendor must demonstration of warranty for parts and all labor for five (5) years. All warranty labor and material repairs will be included for items not covered under the 5 year manufacturer's warranty. Vendor must also provide warranty to residents on-site of installation.
- 8. Guarantee of product and workmanship for 5 years, ensuring full product benefits and function.

DOE funds cannot pay for maintenance agreements (see http://www1.eere.energy.gov/wip/pdfs/serc_qa.pdf, Question 19). Also See Ouestion 31

- 9. Provide instruction and necessary on-site training to [SUB GRANTEE ACRONYM] staff and clients, including, but not limited to, the proper and safe operation and maintenance schedule of the installed wind turbine system.
- 10. Remove and dispose of existing debris related to the installation, in accordance with all applicable laws and regulations. Vendors must maintain, and when requested by [SUB GRANTEE ACRONYM], provide information and records on the safe and proper disposal of items.
- 11. Cooperate in the monitoring and verification of all work performed and examination of pertinent records by [SUB GRANTEE ACRONYM], auditors, reviewers, State and Federal funding entities.
- 12. Provide original invoices to [SUB GRANTEE ACRONYM] by March 31, 2012 upon successful and satisfactory completion of all installation work. Payments will be made for all such work, completed in accordance with all requirements, within 30 days upon receipt of original invoice and all required documentation. Invoices dated after March 31, 2012 will not be valid for payment under federal grant compliance rules.
- 13. Solicitations of products to clients are not allowed.

III. PROPOSAL REQUIREMENTS

- A. General Requirements
 - 1. All inquiries relating to this RFP should be directed to:

[Personnel Name]
[Their Position]
[Address 1]
[Address 2]

Phone: [phone number]

Email: [email]

2. Submission of Proposals

Proposal Submission Deadline: [Quantity] copies of the sealed proposal must be received no later than [Day], [Date] at [Time]. Proposals must be typed and can either be hand-delivered or mailed to:

[Selection Committee]

[Address 1]

[Address 2]

3. Proposal Organization

[Quantity] COPIES of the proposal must be submitted. Proposals should be organized as follows:

a. Title page

Title page should provide contact person and information showing the RFP's subject; the vendor's name, address, telephone number and email address of a contact person, and the date of the proposal.

- b. Table of contents
- c. Letter of Transmittal

A signed letter of transmittal stating the vendor's understanding of the work to be done in line with all the RFP requirements; the vendor's commitment to perform the work within the specified time period; the vendor's qualifications to perform the services under this RFP and statement of vendor's validity of proposal through [Date]. Vendors should also incorporate Section II.D from this RFP, Vendor Responsibility and Requirements in the Letter of Transmittal.

d. Detailed Proposal

The detailed proposal should address the vendor's ability to meet **ALL** the requirements as set forth in this RFP. The detailed proposal should also address Section III.B. Technical Proposal and Section III.C. Sealed Dollar Cost Bid.

B. Technical Proposal

1. General Requirements

The technical proposal should address the skills, qualifications, related experiences and capacity of the installer to perform the required work.

While additional information may be included, at a minimum, all the requirements of the Technical Proposal should be addressed. The proposal should be prepared simply and economically, providing a straightforward, concise description of the vendor's capabilities to satisfy the requirements of the RFP.

2. Independence

The vendor should also list and describe any previous or ongoing professional relationships with [SUB GRANTEE ACRONYM], along with a statement explaining why such relationships do not constitute a conflict of interest relative to performing the proposed installation.

3. License to Practice in [State]

An affirmative statement should be included indicating that the vendor and all assigned installation workers are properly licensed to perform the required work in [State]. The vendor's General Excise Number, Federal Employer Identification Number (EIN) Number DUNS Number, and Contractor's License Number should be included.

4. Vendor's Qualifications and Experience

The contractor shall present evidence of attending manufacturer's training or be a NABCEP certified installer. Installer must have experience installing ten successful residential turbines, or be directly supervised by an installer with ten successful residential wind turbines, and hold a valid State Contractor's Classification C-61 license or equivalent.

5. The proposal should state the size of the vendor's firm and the number of existing qualified workers who are able to perform the required work in compliance with this RFP.

6. Health and Safety Requirements

Contractor shall at a minimum comply at all times with all applicable health and safety requirements, including OSHA, EPA standards, and all health and safety requirements provided under applicable law.

7. Previous Experience in Wind Energy and References

Installers shall provide a list of previous experience in similar work performed. Vendors must also furnish a list of at least [three (3)] professional references for [three (3)] most recently completed installations of residential wind turbines. Details on work performed must include, but is not limited to, materials used, number of employees required to install the systems, timeframes for completion of work, trainings conducted, warranties provided and inspection/monitoring results, etc.

8. Equipment.

Installers shall provide a list of proposed equipment including any and all relevant certifications including, but not limited to IEEE 1547 and/or UL 1547 compliance. Wind turbine proposals must include a 3rd-party validated power curve developed in accordance with IEC 61400-12-1. Eligible wind energy systems must submit verifiable proof of test operation as a system within the manufacturer's specifications for a period of not less than 2 years in similar environmental conditions to those proposed.

9. Specific Work Plan and Approach

The proposal should set forth a work plan indicating specific activities including, but not limited to, inspection of the installation site/residence; procurement of necessary materials; installation of residential wind system; completion of final inspection; and meeting with homeowners or residents to provide information on operation, maintenance, service agreement and warranties. Work plan will address the following:

- a. Proposed installation process to ensure quality performance and timely completion in compliance with all the RFP requirements.
- b. Type and extent of technical procedures to be used. The vendor shall include safety procedures and practices applicable to installation of residential wind system.
- c. No turbines should be installed in a site that is less than class II, according to the publicly available map at the Wind Powering America website: http://www.windpoweringamerica.gov/wind_maps.asp
- d. A proposed process of pre- and post-installation inspection and monitoring.
- e. Plan for compliance with all applicable laws and regulations.

C. Sealed Dollar Cost Bid

- 1. Cost proposals must indicate unit price proposed per installation. See *Section II.C. Installation Costs* for details on cost proposal requirements and guidelines.
- 2. [SUB GRANTEE ACRONYM] is not liable for any costs incurred by vendors associated with proposal preparation and in responding to this RFP.
- 3. The sealed cost proposals must be signed by an authorized representative of the vendor.

IV. Evaluation Timeline

A. Administrative Review

Proposals submitted will be evaluated by the tribal selection committee. Contracts shall be awarded to qualified, responsible, responsive vendors based on the unit price proposed per installation.

B. Oral Presentations

During the evaluation process, [Tribe] may request any or all vendors to make oral presentations. Not all vendors may be asked to make such oral presentations.

C. Final Selection

[Tribe] will notify selected vendors in writing by [Date]. All selected vendors will be required to execute a written agreement with [Tribe] before commencement of any work.

D. Right to Reject Proposals

Submission of a proposal indicates acceptance of all the terms and conditions contained in this RFP. [Tribe] reserves the right without prejudice to reject any and all proposals.

V. Evaluation Criteria

The following qualitative merit criteria will be used to determine the technical value of the offer in meeting the objectives of the solicitation.

Technical Approach (40%) – The Offeror has demonstrated understanding of the Statement of Work requirements.

- The proposed process, laid out in detail, in response to each deliverable and task specified in the Statement of Work.
- The degree to which the proposal shows technical expertise.
- The degree to which the proposal demonstrates technical knowledge and ability.

Experience (40%) – The Offeror's demonstrated experience to fulfill the requirements of the Statement of Work.

- Successfully completed ten (10) projects in relevant technology, using process proposed above
- Experience with (10) installations is demonstrated (provide proof such as contracts, inspection reports).
- Breadth of knowledge and experience across the technology is demonstrated (experience in ten installations)
- Experience with low-income clients
- NABCEP certified or proof of manufacturer's training attendance.

Capability (20%) – The Offeror demonstrates resources to implement the proposed project. The Offeror should demonstrate the technical knowledge and expertise of staff performing the stated tasks, including staff availability to perform the tasks. The following elements are required to be included in the Offeror's proposal package:

- Company history
- Designate principal project point of contact
- Identify project manager who will coordinate with designated SERC grantee technical personnel.

- Dedicated key personnel, including resume reflecting relevant experience and expertise to complete the project.
- A detailed project plan, including schedule or timeline
- Capacity to complete installation of multiple units (10 to 100) in a timely fashion and by March 31, 2012. Include agreements with relevant subcontractors, including resumes

See below for evaluation table based on merit criteria (price is evaluated separately).

	Notes	Totals
Technical Approach - 40 % / 40 points possible		
 The proposed <i>process</i>, laid out in detail, in response to each deliverable and task <i>specified in the Statement of Work</i> (10 pts) 		
The degree to which the proposal demonstrates the <i>labor</i> installations are technologically accurate. (15 pts)		
The degree to which the proposal demonstrates the materials are appropriate, and manufactured with quality and warranty per the SOW. (15 pts)		
4. Demonstration of warranty for <u>parts and all labor</u> for five (5) years. All warranty labor and material repairs will be included for items not covered under the 5 year manufacturer's warranty.		
	Technical Approach Total	
Experience – 40% / 40 points possible		
 Successfully completed ten (10) projects of relevant size and technology in the recent past, using process proposed above. (10 pts) 		
2. Received references of (3) recently completed installations of wind technologies; or is NABCEP certified. (15 pts)		
Breadth of knowledge and experience across residential application of technologies. (10 pts)		
	Experience Total	
Capability – 20% / 20 points possible	,	
 Company history and qualifications of designated principal project point of contact (10 pts) Demonstrated company history(2 pts) 		
 Experience/Longevity – years in the business (2 pts) 		

 Leadership in the field (2 pts) Demonstrate ability to fulfill the 5 year warranty for parts and labor. Demonstrate company is financially sound (4 pts) 		
 Dedicated key personnel, including resume reflecting production manager's relevant experience and expertise to complete and inspect the installations. NABCEP certified? (5 pts) 		
 Project schedule/timeline and quantity is achievable based on information submitted (5 pts) 		
	Capability Total	
	Grand Total =100 max	·

Appendix D: Monitoring Checklists

Wind Technology Monitoring Checklist

	PROJECT INFORMATION					
Property Address						
System Brief Description		tion				
	Turbii	ne Mod	اما			
•		ter Mod				
Turbi (Lat/l	ne Locat					
	nce from connect		ie to			
Produ	ated Anuction (was ptions)		ergy			
	ne Instal olicable)		npany			
Local	Inspecto	or				
Inspe	ction Da	te				
	Speed 8 of inspec		ion at			
	turbine of inspec		at			
				Inspection Checklist		
Yes	No	N/A	Gener	al	Note	
			Install	ation is of industry standard and workmanlike quality.		
				ne is sited to achieve maximum production without romising neighborhood perception		
			Install	ation is consistent with manufacturers' instructions.		
			Syster	m is working when wind speed is above cut-in		

			Local inspection(if required) have been passed: Permit # Date	
Yes	No	N/A	Materials	Note
			Materials used outdoors are UV-resistant and listed for outdoor locations.	
			Materials are designed to withstand the temperatures to which they are exposed.	
			High quality fasteners are used.	
			Materials are suitable for use in the application.	
Yes	No	N/A	Equipment and Installation	Note
			All system components are new.	
			System has Small Wind Certification Council (SWCC) Certification	
			Wind turbine model is commercially available, has a positive industry experience and has been on the market for at least 2 years with documented cases of meeting expected annual production in similar wind conditions	
			Wind turbine tower design is chosen to facilitate long-term operations and maintenance	
			Wind system installation is consistent with submitted design and engineering plan	
			Penetrations to building shell are sealed and fire resistance maintained.	
Yes	No	N/A	Wind Turbine Installation	Note
			Foundation design documents are provided and confirmed foundation design is appropriate for local soil conditions	
			Wind turbine tower design documents are provided and meet local design/permitting requirements	
			Turbine has been assembled and installed per manufacturer's instructions	
			Electrical one-line drawings provided	
			Turbine electrical installation meets all applicable local and	

			national electrical codes	
			Utility inter-connection agreements provided	
			Inverter(if applicable) has been installed in an indoor location	
			Wind turbine controller(if applicable) has been installed in an indoor location	
Yes	No	N/A	Wind Turbine Siting	Note
			Tower height exceeds height of nearby obstructions while meeting local ordinances	
			Wind turbine is sited to minimize turbulence from up-wind obstructions while complying with set-back and other siting requirements, and while minimizing distance to inter-connection point	
			Turbine siting results in compliance with local noise ordinances	
Yes	No	N/A	Inverter	Note
			Inverter is approved for use with the wind turbine	
			Inverter is UL 1741 listed and/or IEEE 1547 compliant	
Yes	No	N/A	Controller	Note
			Wind turbine dump load (if applicable) is installed so as not to present a fire hazard	
			Thermostat is properly installed and located. Thermostat should be installed at minimum 4.5 to 5 feet away from the air intake and the diffuser.	
			Set point is properly set.	
Yes	No	N/A	System Documentation	Note
			All major system components (including electrical cables) are labeled per program specifications	
			Emergency and maintenance contact information.	
			Customer System Manual is provided and includes:	
			Operation & Maintenance Instructions	
		-	Contractor Warranty	

			As built electrical diagram	
			Data sheets for all major components	
			Manufacturers' Warranties	
			Permit(s)	
			Parts and Source List	
Yes	No	N/A	Owner Education	Note
Yes	No	N/A	Owner Education Owner understands basic system operation.	Note
Yes	No	N/A	Owner understands basic system operationOwner understands any required maintenance. Maintenance	Note
Yes	No	N/A	Owner understands basic system operation.	Note

Solar PV System Field-Inspection Checklist

			PROJECT INFORMATION	
Prope	rty Addr	ess		
Brief S	System D	escription		
	er of Mo	odules and Array ge		
Array	Orientat	ion		
Array	Tilt			
Invert	er capac	ity (W or kW)		
Estima Produ	•	tem Annual kWh _a	іс	
			Inspection Checklist	
Yes	No	N/A	Prior to the Field Inspection	Note
			Utility has given permission to interconnect the PV system	
			System installed by a qualified installer	
			City inspection(s) have been passed: Permit # Date	
			As-built electrical drawings received	
			Final electrical design has professional engineer's stamp	
			PV system plans and drawings received (showing array layout, balance-of-system (BOS) locations, components, disconnects, wiring, and conduit specifications)	
			Roof has 10 or more years useful life remaining (if roof-mounted).	
			*Please note, SERC funds may be used to address the impacted roof area directly under the array, but not to replace an entire roof.	
			PV module specifications	
			Inverter specifications	

			Combiner-box specifications	
			Solar resource is documented from location where array shading will be most significant	
			Total Solar Resource Fraction (TSRF) is 75% or greater at all points on the collector(s)	
Yes	No	N/A	Field Inspection - PV Modules and Array	Note
			PV modules are physically installed per plans (number and layout)	
			Array is optimized for performance without sacrificing aesthetics	
			Trees and plants will not grow tall enough to shade array	
			Array installation is neat and permanent	
			Roof penetrations are secure and weather tight	
			PV module model number matches plans	
			PV modules warranted (recommended 10 year 90%, 25 year 80% minimum)	
			PV panels are new, UL listed and California Energy Commission (CEC) approved	
			Array is spaced a minimum of 1.5 inches off the roof, or is properly flashed into the roof	
			String fuses or circuit breakers are DC-rated and no larger than module fuse rating	
			PV modules are in good condition (no broken glass or cells, no discoloration, frames not damaged)	
			Module connectors tight and secure	
			Module interconnection conductors sunlight resistant, wet rated, 75°C or 90°C rated	
			Wire and conduit sizes installed per plans	
			Wiring is installed with shortest distance from PV panels to inverter or where aesthetically suitable	
			Wiring is neat and secure	

			Wiring is not readily accessible	
			Conductors are not in contact with roof surface	
			Conduit supported properly	
			Electrical boxes are accessible and suitable for environment	
			No potential for wire damage (e.g., deburred metal and proper sheathing to protect wires)	
			Confirm metallic PV module frame grounding uses a dedicated grounding conductor or the rack/module system is UL listed for grounding	
			Proper grounding of all other metallic surfaces that might possibly become energized (conduit, combiner boxes, disconnect enclosures, etc.)	
			Dissimilar metals are electrically isolated to avoid galvanic corrosion	
			Aluminum is not placed in direct contact with concrete	
			Protective fencing installed and will not shade array (if required)	
Yes	No	N/A	Field Inspection – Inverter and Electrical	Note
Yes	No	N/A	Field Inspection – Inverter and Electrical Inverter is installed per work order	Note
Yes	No	N/A		Note
Yes	No	N/A	Inverter is installed per work order	Note
Yes	No	N/A	Inverter is installed per work order Confirm inverter model number matches plans	Note
Yes	No	N/A	Inverter is installed per work order Confirm inverter model number matches plans Inverter is warranted (recommended 10 years minimum)	Note
Yes	No	N/A	Inverter is installed per work order Confirm inverter model number matches plans Inverter is warranted (recommended 10 years minimum) Inverter(s) is new and CEC approved	Note
Yes	No	N/A	Inverter is installed per work order Confirm inverter model number matches plans Inverter is warranted (recommended 10 years minimum) Inverter(s) is new and CEC approved Wire and conduit sizes installed per plans	Note
Yes	No	N/A	Inverter is installed per work order Confirm inverter model number matches plans Inverter is warranted (recommended 10 years minimum) Inverter(s) is new and CEC approved Wire and conduit sizes installed per plans Installation is neat and permanent	Note
Yes	No	N/A	Inverter is installed per work order Confirm inverter model number matches plans Inverter is warranted (recommended 10 years minimum) Inverter(s) is new and CEC approved Wire and conduit sizes installed per plans Installation is neat and permanent Inverter is easily accessible DC disconnect is DC-rated and permanently installed and	Note

			Sum of PV breaker and panel main breaker less than 120% of panel rating	
			Utility power connected	
			Internet connection operational (if applicable)	
Yes	No	N/A	Field Inspection - System Labeling	Note
			All equipment and parts are labeled as required	
			Label identifies PV power source attributes at DC disconnect	
			Label identifies AC point of connection	
			Outdoor labels designed to withstand the elements	
			Emergency and maintenance contact information	
Yes	No	N/A	System Documentation	Note
			Customer Manual is provided and mounted in a preserved location near the unit controls.	
			Operation and maintenance instructions, including homeowner's responsibilities (if applicable)	
			Electrical design showing modules and meters	
			System & contractor warranty	
			Manufacturers' warranties	
			Permit(s)	
			Parts and source list	
			Emergency and maintenance contact information	
Yes	No	N/A	Owner Education	Note
			Basic system operation	
			Proper system disconnect sequence and safety procedures	
			Reading meters and inverter display	
			Required maintenance	
			Emergency contact	

Yes	No	N/A	Post Inspection - Performance Testing (performed by Installer or Independent Contractor)	Note
			Performance tests performed by:	
			Date and time:	
			Solar irradiance level:	
			Ambient temperature:	
			Array temperature:	
			Measure and record open-circuit voltage (Voc) and polarity of each string (verify all strings have the same number of modules)	
			Measure and record short-circuit current (Isc) of each string	
			Inverter startup sequence – follow manufacturer's instructions for initial startup	
			Confirm inverter shuts down if AC utility is disconnected and does not restart for at least five minutes after utility is reconnected (requirement of UL 1741)	
			Measure and record maximum power point current (Imp) for each string. (Current measurements for each string should be within a 0.1A range of each other, assuming consistent weather conditions, and all string having same tilt and azimuth angle. If a string is outside the range, check for shading or a ground fault.)	
			Confirm inverter's power reading using independent meters. (Afterward, inverter power readings may be used for subsequent reporting.)	
			Confirm the system power output under actual conditions meets expected output. Actual performance should be within about 5% of expected STC power. This procedure includes system nameplate rating (kW), solar irradiance measurement (W/m²) and module cell temperature (C). Procedure is best conducted during consistent weather conditions, where no array shading is present, and solar irradiance is not less than 400 W/m².	
			Owner should check system AC power output monthly near solar noon on a clear day	

References

- Field Inspection Guidelines for PV Systems. IREC V 1.1, June 2010. Brooks Engineering. irecusa.org/2010/07/irec-releases-2010-edition-of-its-field-inspection-guidelines-for-pv-systems/
- Procuring Solar Energy: A Guide for Federal Facility Decision Makers. DOE EERE, September 2010. www1.eere.energy.gov/solar/pdfs/47854.pdf
- PV System Commissioning. Blake Gleason. SolarPro. October/November 2009. solarprofessional.com/files/sample/sp2_6_pg34_gleason.pdf
- Photovoltaic Power Systems and the 2005 National Electrical Code: Suggested Practices. John Wiles. SWTDI – NMSU November 2008. www.nmsu.edu/~tdi/Photovoltaics/Codes-Stds/PVnecSugPract.html
- 2005/2008/2011 Photovoltaic Electrical Power Systems Inspector/Installer Checklist. John Wiles. SWTDI, NMSU. June 2011. http://www.nmsu.edu/~tdi/Photovoltaics/Codes-Stds/C-S-Resources.html?agree=agree
- National Electrical Code (Article 690 Solar PV Systems). NFPA 70.
 www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=70&cookie%5Ftest=1
- Best Installation Practices for Solar and O&M http://www.nrel.gov/docs/fy15osti/63234.pdf http://www.nrel.gov/docs/fy15osti/63235.pdf

Mock RFP Evaluation

Worksheet 1: Identify Key RFP Selection Criteria (5 minutes)

Identify values, risks, and other criteria that you think should be revealed in an EPC's RFP response.

<u>Value</u>		
Energy / REC Volume: Energy & Capacity Value (Avoided Cost)		
Risks		
Timing / Schedule Production / Capacity Plant Reliability Technology Risk Permitting / Zoning Risk Team Experience Project Plan Strength		
<u>Other</u>		
Contract Redlines History of Claims Bid / Project Securities		

Worksheet 2: Define and Prioritize Criteria

How can one of these selection of	criteria become a filter?	
Which items are the most useful	for comparing qualifying bids? How do they work toget	her?
Which items are typically second others? Is the request just a dist	lary or tie break? What if one tie breaker is more import raction?	ant than
Rank 5 selection criteria in terms of importance to you (1 least important – 5 most important); define how the criteria will be measured or evaluated.		
Value:	Measurement/Evaluation	Rank (1-5):
:		
Risks/ Other		

Exercise

Evaluate the following mock RFPs based on your identified selection criteria. Which of the RFPs is most appealing, which is least appealing?

RFP Response 1:

- Resource Timing (Start Construction/Completion):
 - o Phase 1: Start mid-2014, 15 MW completed late 2014
 - o Phase 2: Start late 2014, 15 MW completed mid-2015
- Local Employment and Job Creation: The firm is local and has presented a plan to use local labor and subcontractors
- Technology:

Module Type: Thin-film PVFixed/Tracking: Fixed, South

- Energy Value: The plant provides moderate energy value with an average capacity factor of 50% during the peak period. The peak capacity factor could be improved by facing the system 30 degrees west of south; however, the annual production would be reduced.
- Production/Capacity Plant Reliability: The PV and racking technology is proven and fairly reliable. However, the inverter is not one of the larger providers in US, and there might be some technology risk with the product which could significantly impact availability.
- Warranty/Defects Liability: The firm offers a 24 month defect liability period in which the plant shall remain free of defects caused by malfunctioning equipment or improper installation.
- Team Experience: Experienced project team with solar and fossil power projects. However, the firm is only 4 years old and has limited experience with solar.
- Subcontracting: The firm will procure subcontractors based on existing relationships, proven
 project outcomes, and cost. The Tribe can request specific contractors be used, but increased
 costs will be passed on to the Tribe
- Financing: The project team discusses their previous experience financing projects, but they do not provide significant details about the financing plan.
- Proposed Contract Price: \$27,500,000
- Project Plan Strength: The proposal team presented a clear project plan; however, there are some schedule risks in the permitting and zoning. If permitting and zoning is managed properly, the schedule risk should be minimal.

RFP Response 2:

- Resource Timing (Start Construction/Completion): January 2014 construction start, test energy start March 2014 (approximately 35% of capacity), COD May 2014
- Local Employment and Job Creation: The firm is not from the region. There will likely be some local employment; however, none is discussed in the proposal.
- Technology:
 - o Module Type: Crystalline PV from tier one provider
 - Fixed/Tracking: 1 axis tracking
- Energy Value: The plant provides high energy value with an average capacity factor of 70% during the peak period.
- Production/Capacity Plant Reliability: The PV technology is proven and reliable. The specific tracker and inverter are not discussed in the proposal.
- Warranty/Defects Liability: The firm offers a 12 month defect liability period in which the plant shall remain free of defects caused by malfunctioning equipment or improper installation.
- Team Experience: Experienced project team with fossil power projects as well as project development and construction. However, the firm has limited solar experience with projects of this size.
- Subcontracting: The firm will procure subcontractors based on existing relationships, proven
 project outcomes, and cost. The tribe has no step-in or approval rights in regards to hiring of
 subcontractors
- Financing: The project is proposed by a financially strong firm. However, their past project approach has been to use outside financing through a project specific LLC
- Proposed Contract Price: \$32,100,000
- Project Plan Strength: The proposal did not have a significant amount of detail on the project execution plan. However the firm has completed many successful projects in the region.

RFP Response 3:

- Resource Timing (Start Construction/Completion): Mid-2014 construction start, COD late 2014
- Local Employment and Job Creation: The firm is not local, but works within the region, and intends to use its own employees
- Technology:
 - o Module Type: Crystalline PV from tier one provider
 - o Fixed/Tracking: Fixed, South
- Energy Value: The plant provides high energy value with an average capacity factor of 65% during the peak period
- Production/Capacity Plant Reliability: The PV technology is proven and reliable. The specific racking and inverter are discussed in the proposal.
- Warranty/Defects Liability: The firm offers a 12 month defect liability period in which the plant shall remain free of defects caused by malfunctioning equipment or improper installation.
- Team Experience: The firm has significant solar project experience in other regions of the US.
 They have also presented several team members with excellent solar backgrounds. However,
 they do not have significant local experience. They state they will use local consultants to
 strengthen their local team. Specific consulting firms are not mentioned.
- Subcontracting: The firm intends to use its preferred contractors as much as possible.
- Financing: The proposer has strong project finance history and they outline capabilities in detail. However, they do not discuss the plan for this project.
- Proposed Contract Price: \$30,000,000
- Project Plan Strength: The proposal team did not present a detailed plan including permitting and zoning.

Exercise – Answer Key

Evaluate the following mock RFPs based on your identified selection criteria. Which of the RFPs is most appealing, which is least appealing? This answer key ranks each criteria of each RFP against the same criteria in the other two RFP's. The ranking is on a scale of 1 to 3, where 1 is the worst and 3 is the best. For Example, Energy Value for each of the 3 RFP responses has been ranked from 1 to 3; RFP response 1 has an energy value ranking of 1 because it is the worst of the 3; RFP response 3 has an Energy Value ranking of 3 because it is the best. These rankings are purely for learning purposes to practice comparing RFP responses and would likely change based on the priorities of project constituents. Some items have not been ranked (N/A) because their ranking is significantly more subjective.

RFP Response 1:

N/A		Resource Timing (Start Construction/Completion): Phase 1: Start mid-2014, 15 MW completed late 2014 Phase 2: Start late 2014, 15 MW completed mid-2015
3		Local Employment and Job Creation: The firm is local and has presented a plan to use local labor and subcontractors
N/A		Technology: Module Type: Thin-film PV Fixed/Tracking: Fixed, South
1	f f	Energy Value: The plant provides moderate energy value with an average capacity factor of 50% during the peak period. The peak capacity factor could be improved by facing the system 30 degrees west of south; however, the annual production would be reduced.
1	f r	Production/Capacity Plant Reliability: The PV and racking technology is proven and fairly reliable. However, the inverter is not one of the larger providers in US, and there might be some technology risk with the product which could significantly impact availability.
3	t	Warranty/Defects Liability: The firm offers a 24 month defect liability period in which the plant shall remain free of defects caused by malfunctioning equipment or improper installation.
1		Team Experience: Experienced project team with solar and fossil power projects. However, the firm is only 4 years old and has limited experience with solar.
2	ļ r	Subcontracting: The firm will procure subcontractors based on existing relationships, proven project outcomes, and cost. The Tribe can request specific contractors be used, but increased costs will be passed on to the Tribe
2		Financing: The project team discusses their previous experience financing projects, but they do not provide significant details about the financing plan.
3	• [Proposed Contract Price: \$27,500,000
3	t	Project Plan Strength: The proposal team presented a clear project plan; however, there are some schedule risks in the permitting and zoning. If permitting and zoning is managed properly, the schedule risk should be minimal.

RFP Response 2:

RANK	
N/A	 Resource Timing (Start Construction/Completion): January 2014 construction start, test energy start March 2014 (approximately 35% of capacity), COD May 2014
2	• Local Employment and Job Creation: The firm is not from the region. There will likely be some local employment; however, none is discussed in the proposal.
N/A	 Technology: Module Type: Crystalline PV from tier one provider Fixed/Tracking: 1 axis tracking
3	 Energy Value: The plant provides high energy value with an average capacity factor of 70% during the peak period.
2	 Production/Capacity Plant Reliability: The PV technology is proven and reliable. The specific tracker and inverter are not discussed in the proposal.
2	• Warranty/Defects Liability: The firm offers a 12 month defect liability period in which the plant shall remain free of defects caused by malfunctioning equipment or improper installation.
2	• Team Experience: Experienced project team with fossil power projects as well as project development and construction. However, the firm has limited solar experience with projects of this size.
1	 Subcontracting: The firm will procure subcontractors based on existing relationships, proven project outcomes, and cost. The tribe has no step-in or approval rights in regards to hiring of subcontractors
3	 Financing: The project is proposed by a financially strong firm. However, their past project approach has been to use outside financing through a project specific LLC
1	Proposed Contract Price: \$32,100,000
2	 Project Plan Strength: The proposal did not have a significant amount of detail on the project execution plan. However the firm has completed many successful projects in the region.

RFP Response 3:

RANK]	
N/A	•	Resource Timing (Start Construction/Completion): Mid-2014 construction start, COD late 2014
1	•	Local Employment and Job Creation: The firm is not local, but works within the region, and intends to use its own employees
N/A	•	Technology: O Module Type: Crystalline PV from tier one provider O Fixed/Tracking: Fixed, South
2	•	Energy Value: The plant provides high energy value with an average capacity factor of 65% during the peak period
3	•	Production/Capacity Plant Reliability: The PV technology is proven and reliable. The specific racking and inverter are discussed in the proposal.
2	•	Warranty/Defects Liability: The firm offers a 12 month defect liability period in which the plant shall remain free of defects caused by malfunctioning equipment or improper installation.
3	•	Team Experience: The firm has significant solar project experience in other regions of the US. They have also presented several team members with excellent solar backgrounds. However, they do not have significant local experience. They state they will use local consultants to strengthen their local team. Specific consulting firms are not mentioned.
1	•	Subcontracting: The firm intends to use its preferred contractors as much as possible.
2	•	Financing: The proposer has strong project finance history and they outline capabilities in detail. However, they do not discuss the plan for this project.
2	•	Proposed Contract Price: \$30,000,000
1	•	Project Plan Strength: The proposal team did not present a detailed plan including permitting and zoning.

A detailed example of an EPC contract can be found on the PacifiCorp website: http://www.pacificorp.com/content/dam/pacificorp/doc/Suppliers/RFPs/RFPAS2016/Attachment%204.pdf