Module 4: Project Implementation - RFP to Closeout

Gabe Boeckman:

Slide 1: Title Slide

- Hello, my name is Gabe Boeckman, and I will introduce this session.
- Our speaker today is Blaise Stoltenberg of the National Renewable Energy Laboratory. Blaise is a senior engineer at the National Renewable Energy Laboratory – or NREL – where he is part of the Deployment and Market Transformation team's Solar and Buildings Technology Group. Blaise primarily gives technical assistance to Federal agencies at home and abroad surrounding solar projects and solar market transformation. As part of his technical assistance, he co-wrote a step-by-step manual on how to conduct solar projects called "Procuring Solar Energy: A Guide for Federal Facility Decision Makers."

Slide 2: Course Overview

- This course is part of the FEMP renewable energy presentation series, and the second dealing with the project process. All past renewable energy presentations are available on the FEMP Web site at the URL displayed at the top of the screen:
- This course reinforces the 9 steps in Federal renewable energy projects with a primary focus on establishing an RFP through the closeout phases of the project.
- Site-level energy managers attending the course:
    - Will be guided through the 9 steps of Federal renewable energy projects.
    - Will be given information on financing mechanisms available for Federal renewable energy projects. While not the primary focus of today's course, we will discuss on various financing options throughout the presentation.
    - Will be shown technical resources available through FEMP, including information that can be used to inform agency staff members and contractors on Federal renewable energy projects.

Slide 3: The FEMP Mission

- Before we get too far, let's review a little background information about FEMP.
- The U.S. Department of Energy Federal Energy Management Program ***facilitates the Federal Government's implementation of sound, cost-effective energy management and investment practices to enhance the nation's energy security and environmental stewardship***

Slide 4: Acronyms

- This presentation uses several common acronyms, which are defined on this slide. The acronyms are broken down into general and financial acronyms. We won't go through each, but please take a minute to review.

Slide 5: The 9 Steps Intro Slide

- Let's now move into the 9 steps for planning and implementing Federal renewable energy projects.

Slide 6: The 9 Steps

- This presentation reviews the 9 steps to Federal renewable energy project planning and implementation. Please note that these are approximate steps. We say approximate because some steps may be sub-parsed or combined. Depending on which financing mechanism is used, for example, projects may have additional intermediate steps. However, most projects typically include these 9 steps.
- These steps cover two phases and are broken down as follows:
    - The planning phase includes:
        1. Determine site facility and energy characteristics
        2. Conduct renewable energy studies
    - The implementation phase covers:
        3. Request and evaluate renewable energy project proposals
        4. Award contracts
        5. Design
        6. Build it!
        7. Undergo acceptance testing and commissioning
        8. Performance period: O&M and M&V
        9. Closeout
- An earlier presentation focused on the planning phase – or steps 1 and 2 – which is available on the FEMP Web site. This presentation focuses on the implementation phase – or steps 3 through 9.
- In this presentation we'll review the 9 step process to complete a Federal renewable energy project

Slide 7: Planning Phase

- After completing the planning phase, an agency should know its site characteristics and the renewable energy potential at its site. An agency should also now be ready to move forward with implementing an on-site renewable energy project.

Slide 8: Implementation phase:

- The last seven steps of the Federal renewable energy project process relate to implementation. These steps are the focus of today's course. To review, the implementation phase includes steps 3 through 9; or:
    3. Request and evaluate renewable energy project proposals
    4. Award contracts
    5. Design
    6. Build it!
    7. Undergo acceptance testing and commissioning
    8. Performance period: O&M and M&V
    9. Closeout
- We'll begin with step 3; Request and evaluate renewable energy project proposals.

Slide 9: Step 3 Requesting and Evaluating Project Proposals

- At this point, I'd like to hand the presentation over to Blaise Stoltenberg.

Blaise Stoltenberg:

(Same Slide) Slide 9: Step 3 Requesting and Evaluating Project Proposals

- Thank you for the introduction to today's presentation. As mentioned, we'll be focusing today on the implementation steps of Federal renewable energy projects.

- I'd like to begin with Step 3, requesting and evaluating project proposals.

Slide 10: Step 3

- Step 3 includes requesting and evaluating renewable energy project proposals. This is perhaps the most complex of the implementation steps, but it is also one of the most important because a good project requires a strong RFP.
- To complete this step, the site will need to:
    - Assemble a team
    - Consider and determine financing mechanisms
    - Develop a scope of work
    - Specify performance criteria
    - Address issues and ensure compliance
    - Develop a request for proposals (RFP) for contractors to use for bid submission
- Considering financing options is an important step. This course will consider it briefly, but FEMP also offers additional courses that provide additional information on the topic. FEMP also offers a webinar focused on options for procuring solar energy in particular, which was created in partnership with DOE's Solar Energy Technologies Program.

Slide 11: Assembling a Team

- Assembling a team is critical to the success of any project. Renewable energy projects are no different. Various team members are needed depending on the implementation step.
- Recommended step 3 team members include a project manager, contracting officer, attorney or general counsel, real estate officer, site energy manager, and other personnel important for making a project happen. Soliciting recommendations from peers may be one way to determine who has the interest and drive for being involved in such a project. Communicating to staff that a renewable energy project team is being established will also build support for the project.
- Team roles are a driving factor for assembling a team. However, each team should include the following three characteristics to ensure success:
    1. Be sure to designate a project champion who can get the project over barriers through sheer excitement, determination, or authority. It's best to have all three.
    2. We recommend, if possible, that agencies confirm that each potential team member is aligned with project goals before inviting them to join the team.
    3. If financing the project, many ambiguities exist throughout the procurement process. The contracting officer and attorney will need to lead the project through these ambiguities or it may become bogged down and fail.

Slide 12: Determine Funding Mechanism

- At this point, an agency should determine which financing mechanism is most appropriate to fund the project.
- Unless an agency has the appropriations to fund a renewable energy project directly, the agency will have to seek an alternative finance mechanism. Deciding which alternative financing mechanism to select is a complex decision. It is recommended that agencies use a neutral third party to help navigate this process.

Slide 13: Determining Funding Mechanism

- Several financing options are available to Federal agencies, including:
    - Agency Funding: An agency purchases the system directly and then owns, operates, and maintains the system. The U.S. General Services Administration offers several services on its Multiple Awards Schedules and Federal Supply Schedules that establish long-term government-wide contracts with commercial firms. GSA Schedules are often

effective for agencies as they provide a pre-vetted list of more than 11 million commercial products and services at volume discount pricing, which often saves agencies time and flexibility. The Schedules can be found on the GSA Web site at www.gsa.gov.

- Power Purchase Agreements: A PPA is when a private entity installs, owns, operates, and maintains customer-sited renewable energy projects. The site purchases energy through a long-term contract with specified energy prices. As you may know, many types of renewable energy projects have high up front or initial costs but very low operating costs. These types of projects require longer contract periods to keep annual costs or the cost of energy in an acceptable range. This is just like a 30-year home mortgage will have a lower monthly payment than a 15-year mortgage for the same amount of principal. If the project will be financed or owned by a third party and requires a long contract period to keep annual or energy costs in the acceptable range, there are limitations on an agency's authority to enter into long-term contracts. The important thing to remember is that there are options to deal with these issues and your agency's ability to use them is part of the financing/contracting decision
- Energy Savings Performance Contract: An agency partners with an energy service company (ESCO) to design and construct a project that meets the agency's needs. The ESCO arranges financing and guarantees cost savings sufficient to pay for the project over the term of the contract.
- Utility Energy Service Contract: An agency partners with its serving utility to implement projects. The agency may fund the project with appropriations or the utility may finance the project, which is repaid from cost savings generated by the project.
- Enhanced Use Lease: An agency enters an agreement using underutilized land. The lease is completed with payment in the form of cash and/or in-kind services.

Slide 14: Determining Funding Mechanism

- FEMP offers extensive training on alternative finance mechanisms through its training database at www.femp.energy.gov/training. Users can organize training by topic by selecting "Financing" and can further refine by selecting "Live" or "On demand" in the field offered on the screen.
- Additional support is available through the EERE Information Center by calling 877-337-3463.

Slide 15: Develop a Scope of Work

- One of the team's initial tasks is to develop a scope of work.
- The scope of work defines what an agency wants out of the project, and becomes the heart of the request for proposal.
- The primary components of the scope of work include:
  - Type of renewable energy system considered
  - Location of the system on site
  - Specific site requirements
  - System performance specifications
  - Type of financing used
    - The RFP establishes the type of construction contract. Two basic construction contract types exist – Design-Bid-Build and Design-Build. In a Design-Bid-Build contracting arrangement, the system is designed by an engineering firm before construction companies bid on the installation. In a Design-Build contract, the same firm designs and installs the system.
    - Design-Bid-Build contracts are typically chosen to allow design control. Design-Build contracts are selected when an agency is more concerned with performance. Design-Build contracts with a performance specification are recommended since it allows the renewable energy developers to use their unique competitive advantages to design the best value system that meets a site's performance needs.

- What is included in the performance specification depends on the financing mechanism selected.

Slide 16: Performance Specification

- The performance specification is important to a renewable energy project. While the focus of the specification may shift slightly depending on the selected financing mechanism and ownership, the major consideration points are similar in most situations. Considerations include the type of equipment installed and the system design, annual energy production, system efficiency, warranties, interconnection with the grid and existing site infrastructure, any site preparations that might be required to comply with health and safety or building codes, and maximum acceptable energy price in the case of third-party ownership.
- Third-party ownership, such as with Power Purchase Agreements – or PPAs – may have some of the same performance considerations, but the specification will be focused more heavily on minimum acceptable annual energy production and maximum acceptable energy price.
- Maximum annual energy production is typically not stated or an issue since annual site energy use is usually much higher than most contemplated systems will produce. However, if a proposed system's annual energy production could exceed the site's annual load, you may want to state the maximum energy the system can produce or that the site can absorb. The exception to this is if an agreement can be made with the serving utility to sell the excess energy or credit it to another meter that is paid by the agency.

Slide 17: Address Issues and Ensure Compliance

- During this stage in the process, agencies must address several common issues and ensure necessary compliance for Federal renewable energy projects. These issues are outlined on the slide shown.
- These issues can have adverse effects on a project. It is best to know what these issues are before expending too many resources.
- Of course, more time is spent on these issues for utility-scale projects than site-level projects.
- If the agency is funding the project directly, that funding should be secured at this stage of the process.
- The agency also needs to decide if the proposal will be sole sourced or competitively bid. If the contract is sole sourced, use the SOW to start negotiations with the selected contractor. If the contract is competitive, develop an RFP.
- NEPA and the Historic Preservation Act are two important Federal regulations to keep in mind during this stage of the process. However, agencies must also consider other Federal laws, regulations, and executive orders as they pertain to their project.

Slide 18: Develop a Request for Proposal

- If the process is competitively bid, a request for proposal – or RFP – should be created.
- Within the RFP, it's useful to request that the vendor convey how they will meet requirements outlined within the scope of work and include or reference site information, such as energy use, drawings, maps, and address of the installation. Other elements to consider while developing an RFP include infrastructure requirements, such as roads, fences, electrical system upgrades, tree removal; and who is responsible for each. Due diligence should also be included, determining what is a reasonable amount of time and effort needed for the vendor to understand the project. This is an important contractual issue. If the "reasonable threshold" is low, then the contractor can come back with change orders for increased project costs that may have been accounted for if there was a higher threshold of due diligence. For example, if a project requires the drilling of holes in the ground on site, is it reasonable for the vendor to test the site to understand soil conditions to account for subterranean rocks that might add to construction costs?

Slide 19: Requesting RE Project Proposals

- Several RFP considerations depend on the financing mechanisms chosen for the project. For example, if the agency is financing the project directly, elements of the RFP are similar to other construction projects, including:
    - Who is responsible for permits?
    - Who develops the commissioning plan?
    - What is required for pricing options (e.g., warranties, maintenance agreements, etc.)?
- If alternative financing is being used, a number of issues exist that need special consideration.
    - Who owns the renewable energy credits (RECs)?
        - If the agency needs the RECs to meet Energy Policy Act goals, it may want to retain ownership. In some cases, such as solar, the solar RECs are more valuable than other types of RECs produced elsewhere. In this case, it makes the project more economical to sell the high-value RECs and purchase lower-cost replacement RECs for EPAct goals. However, the agency may not be able to sell the RECs as they'd have to go through a government property disposal process. In this case, a third-party-owned system in which the third party retains REC ownership would reduce the price of energy to the agency, allowing both parties to benefit from the agreement. The agency would then purchase cheaper replacement RECs for EPAct requirements.
    - What are the options after the contract ends?
        - This question will be covered today in step 9: Project Closeout.
    - What land use agreements are needed?
        - The vendor will need some legally explicit right to access the on-site system. Typical agreements are leases, easements, and licenses.
    - Is a power purchase agreement included?
        - If so, it is recommended that a PPA be included with the RFP to give a common starting point for all proposers to work with. Otherwise, it will be hard to evaluate and compare proposals since there will be variations in proposed PPA language between proposals.
    - Who handles liquidated damages?
        - The RFP should spell out methods to calculate damage payments for the failure to perform contractual obligations. Typical examples are not meeting stage-gate requirements like design submissions, permitting, equipment procurement, commissioning, or project completion.

Slide 20: Requesting and Evaluating Proposals

- Once the RFP is completed, several best practices are needed to complete Step 3.
- First, be sure to issue the RFP, which should be handled by a dedicated team member. Make it publicly available through:
    - Federal Business Opportunities (www.fbo.gov)
    - Green Power Network (apps3.eere.energy.gov/greenpower/financial)
    - Vendors on the GSA Schedule (select at least three)
- When vendors get the RFP in hand, they'll want additional information to prepare the best, most appropriate proposal possible. This is to the agency's advantage as well, so you'll want to:
    - Schedule site visits
    - Hold pre-bid meetings
    - Manage questions and answers
- When evaluating RFPs, the first step is to establish an evaluation team. It's recommended that at least three members be a part of this team, which could easily be larger. Be sure to include folks from the selecting a team slides we discussed earlier.

- Be sure to follow the evaluation process and selection criteria outlined in the RFP. There are three typical methods used to evaluated proposals. Best Value, Low Price/Technically Acceptable, and Low Price.
    - The low price criterion is almost never used.
    - Low price/technically acceptable has been used with varying success as agencies sometimes are not comparing apples and apples. Proposals are typically different; one proposal may offer superior value but may cost more than a competing proposal that meets the technically acceptable threshold.
    - Best value can be the most time consuming and controversial method of evaluating proposals, but it also gives latitude for team discussion and evaluation adjustment based on new data presented in proposals.
- Another important point in evaluating proposals is to evaluate assumptions and exclusions. Are the assumptions and exclusions reasonable based on the information available on the project? Do they demonstrate good judgment? This comes back to the issue of due diligence and costly change orders. A low cost bid based on unreasonable assumptions can be more costly in the end.

Slide 21: Step 4: Award Contracts

- Step 3 is the most complex of the implementation phase steps. The remaining steps should be more straightforward. Step 4 relates to awarding the contract.

Slide 22: Award Contracts

- With proposals evaluated, multiple processes exist to move towards awarding a contract. Agencies can award through RFP or to a pre-approved vendor through existing or sole source contracts. This contract establishes the cost, scope, and schedule of the project.
- After evaluating the proposals, several processes exist for awarding the contract.
    - Award Based on Proposal: Merits of the proposal are good and no clarification is needed.
    - Award with Discussion: Merits of the proposal need to be clarified before an award can be determined. This happens when issues arise with the RFP that need to be addressed during later stages of the process.
    - Award with Discussion and Negotiation: Merits of proposal need clarified as well as unanticipated ambiguities within the RFP.
    - Award with Best Proposal: Short list of proposals created, and each is asked for best and final offer.

Slide 23: Step 5: Design

- Step 5 of the implementation phase for renewable energy projects is to design the system itself.

Slide 24: Step 5: Design

- The design phase is the most critical for an agency that is buying the project since the system performance over time will depend largely on a good design. However, if the project will be owned by a third party, an agency still has a large interest in design, especially how the system will interact and interconnect with the site. The agency will also want to ensure the system complies with all safety codes.
- During design review, the agency should confirm all parameters to be used in the system design. This includes:
    - Parameters listed in RFP
    - Parameters clarified in Q&A process
    - Parameters created during developer due diligence
    - Parameters identified during discussions and negotiations

- A renewable energy expert should review the system design throughout the project implementation process, providing assurance and feedback whenever necessary. If an expert isn't available on-staff, the agency should contract with a third-party expert.
- The Federal Solar Guide's PV Project Design Evaluation Checklist is a good tool and available online at the URL shown on the slide.

Slide 25: Step 6: Build It!

- Step 6 is to build the system.

Slide 26: Build It!

- In step six, the hard work up to this point begins to take shape. The project developer orders the equipment and begins construction or installation of the renewable energy system.
- A single point of contact helps the vendor and agency alike. This contact is often a construction manager that can ensure that the various disciplines (e.g., roofers, plumbers, and electricians) are coordinated so that the different components work together as a system.
- Close coordination is especially important to minimize issues that could affect the facility's mission.
- Contract administration is also required to enforce the terms of the contract. Be sure to review critical deadlines against project progress, especially if incentives are part of the compensation process.
- Much of this is accomplished through frequent meetings between the construction manager and facility management and occupants.
- Other issues may arise, but these have been highlighted here to allow agencies to expect specific issues or challenges during construction of the renewable energy system.

Slide 27: Step 7: Undergo Acceptance Testing and Commissioning

- Step 7 covers acceptance testing and commissioning of the project once it's installed completely and operational.

Slide 28: Step 7: Acceptance Testing and Commissioning

- Acceptance testing and commissioning is critical to agency-owned renewable energy systems. It confirms that the effort spent during design was executed well, and that the intent of the design was realized. Nevertheless, almost all large renewable energy systems have at least some level of deficiencies that need to be corrected.
- If the system is agency funded:
    - Third-party expert should inspect and commission the system.
    - Follow the commissioning plan outlined in the RFP.
    - Confirm the system performs as expected.
    - Confirm that no safety issues exist (e.g., exposed/damaged wires or high-voltage connections).
    - The FEMP commissioning Web site is a good resource, which is available online at the URL shown in the middle of the slide.
- Third-party-owned and operated systems aren't completely off the hook. Even if commissioning and acceptance testing is handled by the operator, it's important to realize that the system is still located on Federal property and that the agency must be concerned with the project's interaction with site infrastructure and safety issues.

Slide 29: Step 8: Performance Period

- Step 8 involves the performance period of a renewable energy system. This is the period of time that the renewable energy system is operating.

Slide 30: Performance Period

- It is important to take charge of the renewable energy system through regular operations and maintenance and to confirm that it is working according to specification and warranties through measurement and verification. This process will vary depending on whether it is agency-owned or third-party-owned.
- If the system is agency-owned, operations and maintenance will include:
    - Understanding the technology.
    - Understanding how the system should be operating.
    - Knowing how to detect problems.
    - Knowing who is responsible for maintenance.
- The FEMP Web site shown here can help agencies understand different systems, how they should be operated and maintained, and how to measure and verify the system performance.
- If an agency owns the project, measurement and verification will involve confirming the system is performing to specification and ensuring specific guidelines are being followed to guarantee operation. Every system should include at least some operational indicators to that the staff can easily see if the system is working properly.
- If the agency owns the system, it is responsible for managing the RECs produced. That includes retiring or selling high-value RECs and purchasing lower-cost replacements.

Slide 31: Performance Period (continued)

- If a third-party owns the system, agencies have limited responsibilities as the owner/operator is responsible for system performance. If that's the case, it's important that every system include at least some operational indicators so that staff can easily see if the system is working properly.
- The agency will also have to track energy production for payment calculations and verification. A vendor-provided Web site that displays production information is recommended.
- Even in a third-party-owned system, the agency must take responsibility for the RECs produced. If it owns the RECs, it must retire or sell high-value RECs and purchase lower-cost replacements. If it doesn't own the RECs, it must purchase replacements to meet EPAct requirements. RECs may need to be retained to meet GHG accounting.

Slide 32: Step 9: Project Closeout

- The final step in the implementation phase is project closeout

Slide 33: Step 9: Project Closeout

- Project closeout deals with the renewable energy system when it reaches the end of its life, or when the third-party contract expires.
- If the agency owns the system, and it is determined that the system is at the end of its useful life, project closeout is mostly a question of how to salvage and/or dispose of the system. After that, the site can be prepared for its next use.
    - Information on the materials that make up the system will be required by the recycler or the landfill operator. It is recommended that this information be obtained during system design in case companies are no longer in business when the system is being disposed of or salvaged. This information can be a manufacture's estimated content of materials considered hazardous under the Resource Conservation and Recovery Act or results from a toxic characteristic leaching procedure. It is also helpful to get information on any bonded recycling programs if available.

- If the system is owned by a third party, there may be several options depending on the original contract. Negotiating and extending the contract may be a good option if the site is not needed for another purpose and the cost of energy produced by the system is still viable.
- Another option is purchasing the system at fair market value. The formulation of how fair market value is derived has been subject of debate and is considered a risk. Some contracts include a formulation for how fair market value will be determined when the contract expires to reduce this risk. If purchased, the agency will take on operating and maintaining the system.
- It is not recommended that system removal be written into the original contract unless it is a certainty that the system will need to be removed at the end of the contract. The reason for this is that the third-party owner will typically add the estimated removal cost into the cost of energy provided and possibly making the project unviable.

Slide 34: RE Project Implementation Phase Steps 3-9

- This concludes our overview of the implementation phase of the 9 steps for Federal renewable energy projects. With that, I'd like to hand the presentation back over to Gabe.

Gabe Boeckman:

(Same Slide) Slide 34: RE Project Implementation Phase Steps 3-9

- Thank you, Blaise, for your presentation today. Before concluding, I'd like to reiterate that steps 3 through 9 covered within this presentation encompass the implementation phase of the renewable energy project process

Slide 35: Reviewing the 9 Steps

- The first two steps of a Federal renewable energy project are within the planning phase. These steps were covered in an earlier course that covers facility and energy characteristics and renewable energy studies.
- The implementation phase, covered in this presentation, includes the remaining seven steps, which include:
    - Request and evaluate renewable energy project proposals
    - Award contracts
    - Design
    - Build it!
    - Undergo acceptance testing and commissioning
    - Performance period: O&M and M&V
    - Closeout
- Again, some steps may be sub-parsed or combined. Depending on which financing mechanism is used, for example, projects may have additional intermediate steps. However, most projects typically include these 9 steps.

Slide 36: In Conclusion

- The take-home messages from this presentation are that funding mechanisms exist to enable agencies to implement renewable energy projects. As an on-site expert and champion, you can make these projects happen.
- This is especially true if you capitalize on FEMP's excellent training and resources available to the Federal sector. FEMP offers assistance with renewable energy screenings, alternative financing evaluations, and project deployment. Calls for projects and other assistance opportunities are also occasionally issued on the FEMP Web site. Visit www.femp.energy.gov for more information, resources, and training.
- I also wanted to mention that networking among agencies can be beneficial. The Renewable Energy Working Group, Federal Utility Partnership Working Group – or FUPWG, and ESPC

Roundtables are all groups that provide a venue for sharing experiences in Federal renewable energy projects and contracting.

- The FEMP training calendar is useful for finding upcoming events, including relevant training on alternative financing, FUPWG meetings, working group meetings, as well as trainings on renewable energy.

Slide 37: Additional Resources

- The last few slides of this presentation are provided for additional resources available to federal agencies interested in assistance for renewable energy projects.

Slide 38: Procuring Solar Energy Guide

- Solar energy projects are now easier to implement with FEMP's new guide for procuring solar energy. It is designed for decision makers, guiding agencies through the planning and implementation phases of solar projects at Federal sites. The guide is available at the link shown here. The guide follows the same process described today, but in greater detail and focused solely on solar projects.

Slide 39: Additional Resources

- Additional resources can be found on the FEMP Web site at the links posted on the slide shown. General information is available on the homepage, and more detailed information relating to renewable energy, contacts, customer service representatives, training, operations and maintenance, and more are shown here for future reference.

Slide 40: Contacts

- Any questions that we don't address today can be directed to the contacts shown on this slide.
- Thank you for participating in today's webinar. We appreciate your interest in renewable energy projects on Federal sites and know that these projects couldn't happen without your support and hard work.