

# Solar Procurement Templates & Tools for Higher Education



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Green Power Partnership

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# Agenda

- Overview of Templates & Tools
- Procurement Process Outline
- System Specifications
- Vendor Proposal Checklist
- Pricing Template
- Evaluation Criteria
- LCOE Calculator
- Getting Started



# Overview of Templates & Tools

## Templates & Tools

- Solar Procurement Process Outline (PV100)
- RFP Issuance Checklist (PV105)
- System Specifications\* (PV102/SHW102)
- Vendor Proposal Checklist (PV101)
- Pricing Worksheet\* (PV103/SWH103)
- Evaluation Criteria (PV104)
- LCOE Calculator

## Purpose

- “How-to Guide” on procurement for solar projects
- Ensure all necessary information is gathered
- Standardize proposals and ensure best practices
- Gather all relevant documents for decision-making
- Transparent and comparable vendor pricing
- Review all major dimensions of proposals
- Evaluate informal/unsolicited bid pricing

*\*Different version for Solar Hot Water*

# Forms Available in Native Formats

Form: PV100

### Solar Request-for-Proposals Process Guide for Higher Education

This step-by-step outline is intended to guide Higher Education institutions through the process of pursuing viable options for solar power on their facilities and effectively evaluating vendor proposals.

**Gather Project Data**

Collect all relevant facility and utility information and pre-screen sites to enable vendors to more accurately estimate costs and identify systems to best practice standards.

- Create initial inventory of facilities and review potential for solar power (office & campus)
- Gather facility electrical usage data - minimum 12 months (36 months recommended)
- Gather facility site plans & drawings - roof layout, structural, electrical
- Define assumptions for financial analysis including utility rates and escalation
- Consolidate all data from viable sites into electronic package for RFP


**Create Request-for-Proposals Package**

Utilize a standardized approach and common specifications for requesting proposals to enable comparative analysis from various vendors, systems and financing options.

- Review & update specification template (PV100) with any additional requirements
- Review & update response checklist as needed (PV101)
- Review & update pricing proposal template (PV108)
- Utilize existing institutional best-practice language, and tailor as appropriate
- Create RFP package of documents and templates for issuance (PV105)

**Issue RFP and Evaluate Proposals**

Create interest and awareness by connecting to industry groups, and invite a...



Form: PV105 Internal Use Only

### Solar RFP Issuance Checklist for Facilities Managers

**Request for Proposal Document Including:**

- ☐ Overview and Background of Project
- ☐ Scope and Deliverables
- ☐ Specific Requirements
- ☐ RFP Submission Process and Key Dates
- ☐ Questions, Addenda, Site Walk
- ☐ Selection Criteria and Process
- ☐ Required Bidder Submission Documents


**Informational Attachments:**

- ☐ Site Summary Spreadsheet
- ☐ Site Technical Overview Document
- ☐ Site Historical Electrical Usage
- ☐ Solar PV Specifications and Requirements
- ☐ Insurance Requirements
- ☐ Required Contract Terms and Unique Requirements
- ☐ System production forecasting and calculation assumptions

☐ Standard bid submission form or cover letter template

☐ Pricing Submission Form


☐ Execution and Deal Projects Form



Form: PV108

### Solar RFP Proposal Evaluation Matrix

| Criteria                                       | Points    | Vendor A | Vendor B | Vendor C | Vendor D |
|--|-----------|----------|----------|----------|----------|
| 1. Completeness of Response to RFP (Pass/Fail) | Pass/Fail |          |          |          |          |
| 2. Financial Qualifications & Experience       | 20 Points |          |          |          |          |
| 3. Technical Proposal                          | 20 Points |          |          |          |          |
| 4. Pricing                                     | 40 Points |          |          |          |          |



Form: PV102

### PRICE PROPOSAL FORM TEMPLATE


| Initial Cash Payment   | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 |
|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| \$0.00                 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Annual Escalation Rate | 0.00%  | 0.00%  | 0.00%  | 0.00%  | 0.00%  | 0.00%  | 0.00%  | 0.00%  | 0.00%  |

**Direct Purchase Price**

**Operations & Maintenance Cost Estimate**

| Full System Price | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 |
|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| \$0.00            | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |

**PRODUCTION DATA (kWh) - Include Year 1 Production Modeling Output**



Form: PV102

### SOLAR PV SYSTEM SPECIFICATIONS AND REQUIREMENTS

**General**


- All power generation and transmission equipment must be UL listed for its designed use
- Construction must comply with current adopted State Building Code, which encompasses:
  - o 2012 International Building Code
  - o 2011 National Electric Code (NEC)
  - o State Fire Marshall
- Minimum 10-year warranty for all materials and workmanship
- System integrator is responsible for conducting all required building, utility, and rebate inspections, and must complete all construction and documentation in a manner necessary to pass such inspections, and in accordance with industry standard best practices
- System integrator must possess current state electric and solar contractor licenses from State's Contractors Licensing Board to perform work being proposed

**Modules**

- System modules shall be UL1703 listed, and CSC listed
- 10-year warranty on minimum of 90% non-irradiance energy production and 25-year warranty on minimum of 80% non-irradiance energy production
- All warranties must be documented, in advance and be fully transferable to Client

**Inverters**

- Inverters shall be UL1741 listed and must be CSC listed with an efficiency of 94% or higher
- Inverters must carry minimum 10-year warranty (direct purchase price must include 20-year warranty)
- All warranties must be documented, in advance and be fully transferable to Client




Form: PV108

### Solar PV Project Cost Calculator

Levelized Cost of Energy (LCOE) Model

| System Hours | Annual Production (kWh) | Year | Production (kWh) |
|--------------|-------------------------|------|------------------|
| 1            | 100,000                 | 1    | 100,000          |
| 2            | 100,000                 | 2    | 100,000          |
| 3            | 100,000                 | 3    | 100,000          |
| 4            | 100,000                 | 4    | 100,000          |
| 5            | 100,000                 | 5    | 100,000          |
| 6            | 100,000                 | 6    | 100,000          |
| 7            | 100,000                 | 7    | 100,000          |
| 8            | 100,000                 | 8    | 100,000          |
| 9            | 100,000                 | 9    | 100,000          |
| 10           | 100,000                 | 10   | 100,000          |

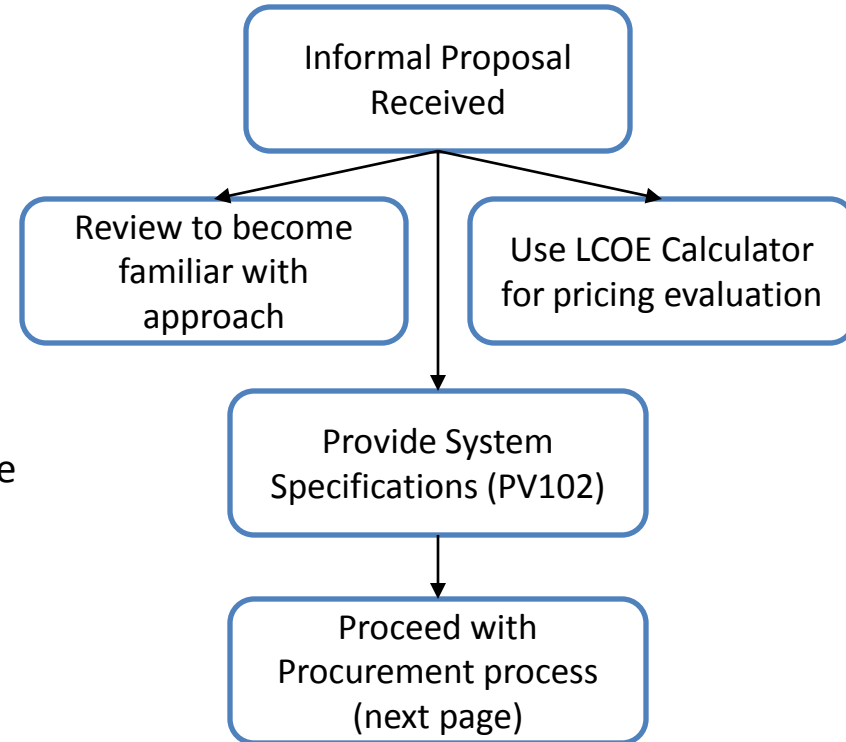



# Managing Unsolicited Proposals

## Potential Risks

- Due diligence not performed by proposer
- Internal stakeholders not involved
- Pricing not realistic or not competitive
- System specifications not market best practice
- Contract terms not competitive
- Procurement process not administratively acceptable

## Suggested Handling



# Procurement Process Outline

## Gather Project Data

- Include 12+ months of utility data, technical details and requirements, financing preferences using checklist PV105

## Create RFP Package

- Use standardized procurement documents with templates PV101, PV102, PV103, PV105 and customize as needed

## Issue RFP & Evaluate Proposals

- Manage procurement process and perform a detailed review of proposals using evaluation matrix PV104

## Contract Negotiation & Construction Planning

- Ensure continuity between proposed systems and pricing through the contracting process and develop realistic timeline for installations

LCOE  
Calculator

# Solar System Specifications (Form PV102, SHW102)

- Includes component-level specifications
  - Modules, inverters, monitoring
- System construction best practices
- Warranty requirements
- Post construction hand-off process

*Utilize to ensure that pricing and system designs are based on latest national best practices, and to standardize proposal assumptions along with final contract terms.*

# Vendor Proposal Checklist (PV101)

- Outlines all proposal requirements
- Provided to facilitate vendor responses
- Can be adapted to incorporate unique needs
- Includes insurance and state-level requirements
- Describes use of pricing template
- Includes vendor attestation of proposal accuracy

*Provides guidance to vendors to ensure that all relevant information needed to evaluated proposals is received*



# Pricing Worksheet Template (PV103, SHW103)

- Provides major input assumptions
- Standardizes pricing and performance comparisons
- Uses Levelized Cost of Energy model (LCOE)
- Analyzes both direct/capital purchase and Power Purchase Agreement (PPA)
- Can be expanded to include and compare multiple sites

*Utilize to ensure that proposal pricing is captured in a consistent format for easy analysis and transparency to vendors*

## Evaluation Criteria (PV104)

- Evaluates 5 major categories
- Proposer Qualifications
- Technical Proposal
- Project Costs
- Implementation Plan and Schedule
- Contract Terms and Conditions
- Plus key pricing statistics

*Use to determine ranking for vendor proposals, can be tailored and re-weighted for specific buyer an facility needs*

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# Solar PV LCOE Calculator

- Use to evaluate pricing only from informal or unsolicited bids
- Not directly comparable between vendors without requiring minimum specifications and standard contract terms
- Captures all costing and performance inputs
- Calculates LCOE for comparison to current energy pricing
- Includes both direct/capital purchase and PPA
- Some edits may be required for certain situations

# Solar Hot Water Evaluation

- Can combine Solar PV and Hot Water in procurement effort
- Capture and provide additional data on hot water usage
- Use form SHW102 for Solar Hot Water technical specifications
- Use form SHW103 for pricing submittal
- Can use form PV104 for evaluating proposals

# Getting Started

- Review solar procurement “how-to” guide
- Collect information from your potential solar host sites
- Convene a working group to review and customize RFP



Questions?

# About Optony

Optony develops and deploys solar best practices across the entire project lifecycle for government agencies, schools and commercial organizations.

Working with clients across all phases of solar projects creates deep insight into true performance drivers which is used to reduce costs and improve performance at any stage in the process.

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