Deciding on a Financing Approach and Beginning PV Procurement

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City and County Solar PV Training Program
Module 5

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PV Project Implementation Process

Module 1: Develop your goals and team
Module 2: Identify Sites and Screen
Module 3: Complete Detailed Site Evaluation
Module 4: Understand Project Financing, Policies, and Incentives
Module 5: Decide on a Financing Approach and Begin Procurement
Learning Objectives

• Be able to decide whether direct ownership, third-party ownership, or an energy performance contract is the best option for your city or county

• Understand next steps in the PV procurement process, depending on which method you select
PV Finance and Procurement

Direct Ownership

Power Purchase Agreement (PPA)

Energy Savings Performance Contract (ESPC)

Other Options

Procurement Lessons

Resources
How do Local Governments Finance PV?

- GTM research shows that about 70% of the *public sector* solar used third-party ownership model in 2017.
- Public sector entities, who are tax-exempt, rely on third-party ownership to capture the investment tax credit (ITC).
- GTM expects a slight decline in third-party owned systems in 2023 when the ITC declines to 10% and tax-exempt customers or customers without sufficient tax appetite turn to direct ownership.

Direct Ownership
Direct Ownership Overview

- Implement a PV project that is government-owned
- Hire engineering, procurement and construction (EPC) contractor to construct project and possibly also a separate O&M contract
- Cities may not have the cash to purchase a system outright. Cities can fund their PV system via internal or external funding sources. For external funding sources, cities must have available borrowing capacity.

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<tr>
<th>Internal Funding Sources</th>
<th>External Funding Sources</th>
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<tbody>
<tr>
<td>• Revenue generated by tax collection and/or user fees</td>
<td>• Bonds</td>
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<tr>
<td>• Other available cash</td>
<td>• Loans</td>
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Direct Ownership Example

- The Peralta Community College District, in California, used a general obligation bond (G.O. Bond) for their solar power installation at Laney College.
- Their G.O. Bond monies could be used for capital improvement project, e.g. new construction and renovations.
- Savings from the solar will go back into the general fund, and can support non-capital expenditures.
- 231 kW installed on a baseball field house and parking lot.

Direct Ownership
City Example

• Some cities may choose to own the PV system when grant funds can cover some or most of the purchase.
• Hutchinson, Minnesota received grant funds from their utility, Xcel Energy, that covered ¾ of the cost; the city covered the remaining amount.
• The city installed a 400 kW system on a closed landfill.
• The PV system will be directly connected to the city’s wastewater treatment plant.

Source: https://www.ci.hutchinson.mn.us/december-2-grand-opening-ceremony-landfill-mounted-solar-pv-system/
Direct Ownership Procurement Pathway

1. Issue an RFP for an EPC contractor
2. Consider hiring an O&M contractor
3. Evaluate responses
4. Sign contracts
5. Commence construction
6. Engage in O&M, if you didn’t hire an O&M contractor
Municipal Lease

• Municipal leases are also termed “tax exempt leases” or “tax-exempt lease purchase (TELP)”
• Customer owns the system at the end of the lease term
• Municipal leasing is an alternative to traditional debt financing
• Lower interest rates because the interest is tax-exempt
  – Carefully review an O&M agreement, if you plan to sign one, to ensure that it does not prevent the interest from being tax-exempt
• Faster process than issuing debt
• Typically are not considered debt, for state purposes
• May require minimum system size, comparable to PPA preferred system sizes, generally >500 kW
PPAs
• Typically the best option for large PV systems (generally >500 kW), as long as there are no legal barriers such as lack of authority
• Long term contract typically required (20 years)

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<th>Third Party Solar Developer</th>
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<td>- Purchases, installs, owns, operates &amp; maintains PV project</td>
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<td>- Developer can likely take advantage of federal and other tax incentives</td>
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<td>- Developer could sell the project’s solar renewable energy certificates (SRECs), if they are valuable</td>
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<tr>
<td>- Hosts the on-site PV project</td>
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<tr>
<td>- Purchases the energy from the PV project for life of the contract</td>
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PPA Overview
PPA Example

- Washington, D.C.’s Department of General Services (DGS) implemented approximately 11 MW of solar for 40 properties, through a 20-year PPA with WGL Energy.
- The properties include schools, hospitals, recreation centers and the Police Training Academy.
- High SREC prices in the D.C. market make solar PPAs favorable.
- D.C. DGS expects to save $25 million in electricity costs over the PPA.
- Separate rates for rooftop and carport solar projects.
- Project design and construction, managed by Sol Systems, took approximately 18 months.

PPA
Procurement Pathway

Issue an RFP for developer offering a PPA option

Evaluate responses

Sign contract

Commence construction
Knowledge Check #1

If your city or county has no or little upfront capital to invest in PV, which financing options should you use?

- Direct Ownership
- Power Purchase Agreement

[Answer: Power Purchase Agreement]
Energy Savings Performance Contract (ESPC)
ESPC Overview

• Also known by other names such as Performance Contracting, Energy Solutions Performance Contracting, energy service company (ESCO) project, etc.

• Public-private partnership with an ESCO to implement energy measures
  – Typically ESCOs implement energy efficiency (EE) and energy management measures, but PV can also be included

• Guaranteed savings requirement with annual measurement and verification (M&V)
  – This is what distinguishes an ESPC from direct ownership
Common ESPC Structures & Project Cash Flow

- If including PV in an ESPC, the PV can be either government or third-party owned, if third-party ownership is allowable under the applicable state law.
- ESCOs typically want minimum project sizes of $1.0-$1.5 million.
The ability for a city to enter into an ESPC is governed by state law
- May be refined by local laws/regulations

Review your ESPC state law and other applicable regulations carefully. Considerations include:
- What is the maximum allowable term?
- What types of energy efficiency, solar, or other measures are eligible?
- Can longer payback items be bundled with shorter payback items?
- What are the allowable financing options?
- Savings requirement details
- What budget categories can be used to make financing payments?
- Are there requirements or guidelines regarding how the procurement must be conducted?

Consult city attorney for law/regulation interpretation (may vary)
Financing an ESPC

- ESPCs require some financing source, either internal or external
- The preferable option depends upon factors such as what is allowable under the ESPC and other applicable regulations; and local market conditions
- Consult appropriate finance and budget department staff
- ESCO may assist with financing
  - May provide financing in limited cases
ESPC Procurement Approach

1. Determine if your ESPC will be PV-only or PV + efficiency; who will own PV
2. Issue an RFP for an ESCO
3. Evaluate responses
4. Select an ESCO
5. ESCO conducts an energy audit and develops an implementation proposal
6. Arrange for project financing
7. Sign contract with ESCO
8. ESCO develops projects (PV only or PV+efficiency)
9. Guaranteed energy savings are measured and verified
The city of Lowell, Massachusetts signed an ESPC with Ameresco for energy efficiency, energy management, and PV. The agreement totals $21.1 million, with $1.5 million in annual energy savings. The total PV project size is 1.8 MW.

Ameresco designed, installed, owns and operates 342 kW of PV at 3 schools; City pays Ameresco a discounted electricity rate for the PV production.

The City signed an additional PPA with Ameresco for 1.5 MW of PV on a landfill.

**Procurement Quick-Reference**

**Direct Ownership**
- Do you have access to cash, low-interest debt, and/or grant dollars?

**PPA**
- Do you have no or little upfront capital?
- Is the planned PV project larger than 500 kW (alone or through aggregating smaller sites)?

**ESPC**
- Are you planning to upgrade facilities to make them more energy efficient?
- Is your planned PV project small?
What should your city or county do before pursuing an ESPC? Check all that apply.

- A: Check all applicable laws and regulations
- B: Consult your city or county attorney
- C: Contact your state’s energy office for resources
- D: Issue an RFP for a solar developer

[Answer: A, B, and C]
Other Financing Options
Other Options

• Hybrid approaches: In many cases, particularly for direct ownership, a combination of financing sources are used. For example, grants, bonds, and other sources. Grant funding can also be used to buy down the cost of a PPA.

• Utility partnerships: For cities with municipal utilities, consider unique contracting arrangements. Partnerships with investor-owned utilities may also be possible, but would likely require regulatory approval.

• Community Solar: Some utilities have a Community Solar program that allows more than one customer to purchase a share of a PV project. If so, a city may want to host and/or buy shares in a community solar project.
  – Be sure to consider the SREC treatment and program structure if pursuing this option.
Procurement Lessons
Elements of Success

- Research financing options in your area and determine what is allowable
- Involve key city staff such as attorney, finance and budget; understand and meet applicable regulations
- Take advantage of state energy office and/or other resources
- Utilize available standardized and approved templates, guidance and protocols; pre-qualified contractors
Regulatory and Contract Issues

• Appropriations Concerns for Long-Term Contracts
  – PPA and lease payments typically require appropriated funds; if the funds are not appropriated, then the local government cannot make the payments.
  – Solutions include clauses that:
    • Acknowledge the risk
    • Provide steps that both the city and the solar developer will take to minimize risk
    • Provide remedies to the developer if the city is not able to make PPA payments

• Voter Approval
  – If issuing bonds, voter approval, or previous bonding authority, will be needed.

• Maximum Contract Terms
  – Local governments may have restrictions on the length of contract they can sign for various types of services, including PV.
  – Discuss the contract length early on in the procurement process.

Source: SolSmart Guidebook, forthcoming
Knowledge Check #3

What clauses might a city or county PPA need to include?

- Acknowledge the risk of the city or county not appropriating funding for the PPA
- Provide steps that both the city and the solar developer will take to minimize risk
- Provide remedies to the developer if the city is not able to make PPA payments
- All of the above

[Answer: All of the above ]
• Our solar RFP template will be available in June for you to use.

• Key components of a successful solar RFP include:
  – Requiring respondents to provide responses in standard metrics
  – Provide sufficient site information
  – Be precise where necessary
Evaluation Criteria

• Your city or county may have its own criteria or weighting priorities

• Example criteria and weighting:
  – Cost-effectiveness of the proposal 35 points
  – Technical approach and schedule 30 points
  – Company qualifications and experience 20 points
  – Project team experience and approach 15 points

Resources
NREL’s PPA Widget Tool


- The widget provides contract language along with explanations in plain English of the key terms. For example, there is a section on appropriations concerns.

Explaination of Certain Key Terms in the PPA (Draft)

1. **Appropriation.**
   i. This Agreement shall be deemed executory only to the extent of the monies appropriated for the purpose of this Agreement, and no liability on account therefor shall be incurred by Purchaser. All payments made by Purchaser under this Agreement shall be expenditures and shall not constitute or give rise to a general obligation of Purchaser, or any expenditures and shall not constitute or give rise to a general obligation of Purchaser, or any financial obligation whatsoever constituting a constitutional or statutory provisions or limitation. It is understood that any representation by any public employee or officer creates any legal or moral obligation to make available monies for the purpose of the Agreement.
   ii. If an appropriation for all or any portion of the monies owed or owing under this Agreement is not or cannot be obtained under the final budget approved by the applicable budgetary entity for any fiscal year (despite Purchaser’s request therefor or otherwise) whether or not a Non-Apropriation Event occurs (the "NAE Notice"), Purchaser shall promptly give Seller notice of a Non-Apropriation Event and the NAE Notice; provided, however, that a delay by the applicable budgetary entity shall not constitute a Non-Apropriation Event except to the extent that Purchaser’s acts or omissions. The occurrence of a Non-Apropriation Event, Majeure under this Agreement.
Resources

• PPAs:
  – SEIA’s PPA Template, https://www.seia.org/research-resources/model-leases-and-ppas

• ESPC/ESCOs:
    • State ESPC authority info: Click on “Considering ESPC” and then “Legislative Library”
    • See also “Implementing ESPC Projects”
  – Energy Service Coalition
    • Model ESPC documents: http://www.energyservicescoalition.org/resources/model-documents
  – State Energy Office Resources: http://mojo.naseo.org/members-states
    • Colorado Energy Office has many resources on ESPCs: Pre-qualified ESCOs, templates, specified audit costs (does not include solar analysis) based on certain criteria such as distance from CO energy office
  – Other websites
Resources

• RFP process:
  – Key Elements of Solar Requests for Proposal, webinar, slide deck and recording: https://www.nrel.gov/technical-assistance/webinars-2013.html#solar_rfp

• Solar operations and maintenance (O&M) best practices:

• Other resources