Local Jurisdictions Going Solar with Leases and Power Purchase Agreements

SOLAR POWERING IOWA CONFERENCE 2016

MARCH 24, 2016

THE POWER BUREAU

Overview

Introductions

Public Sector Considerations

Financing Structures
- Owner Financing
- Third Party Financing

Procurement with a Power Purchase Agreement

Key Questions

Discussion

Introductions

Mark Pruitt

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- Currently
  - Principal, **The Power Bureau** – Energy Planning and Procurement
  - Principal, **Illinois Community Choice Aggregation Network** – Municipal aggregation planning, procurement

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- Currently
  - Principal, **The Power Bureau** – Energy Planning and Procurement
  - Principal, **Illinois Community Choice Aggregation Network** – Municipal aggregation planning, procurement
- Formerly
  - Director, **Illinois Power Agency** – Wholesale Electricity Procurement for Ameren and ComEd. Managed the Illinois Renewable Portfolio Standard
  - Program Director, **Energy Resources Center** – Retail Electricity and Natural Gas purchasing manager for 32 state agencies and local municipalities
  - Project Developer, **Nicor Energy Solutions** – Cogeneration and efficiency project development for federal facilities

Public Sector Considerations

BENEFITS

CHALLENGES

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- Project specifications
- Provider qualifications
- Selection criteria (price, value, etc.)
- Final approval from Board

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Contract Terms

- Non-appropriation clause

Financing Structures: Overview

Need for Financing with Solar PV Projects

- Secure capital to support development of projects
- Designed with specific project and owner characteristics in mind

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Revenue Streams that Support Solar PV Project Finance

- Avoided Costs – Electricity supply/capacity/transmission/distribution/taxes
- New Revenue – SREC sales, Tax Credits, Depreciation, Grants

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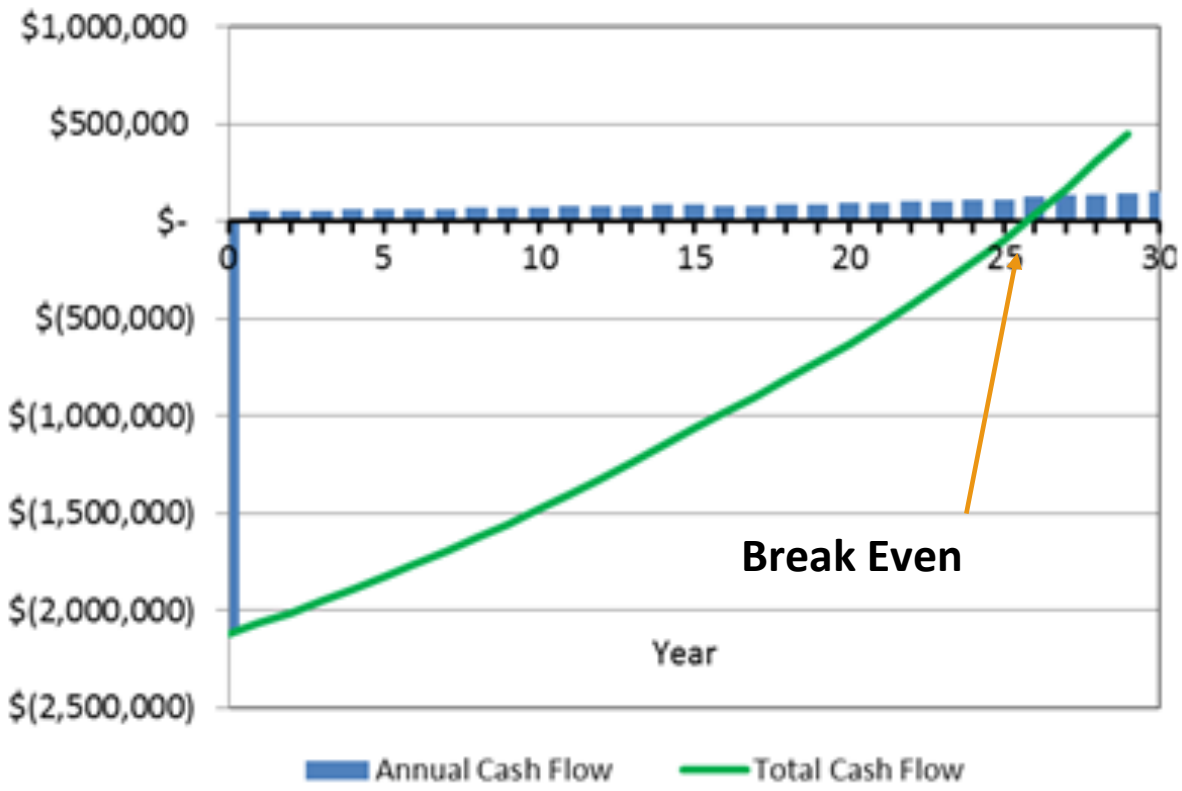
General Financing Structures

- Owner Financed – Cash, Debt
- Third Party Financed – Leases, Power Purchase Agreements

Financing Structures: Public Sector

Public sector project

- 500kW, $2 million capital cost
- Offsetting $0.09/kWh grid supply
- Funded with cash reserves, no grants, no tax or SREC benefits
- All savings retained by host



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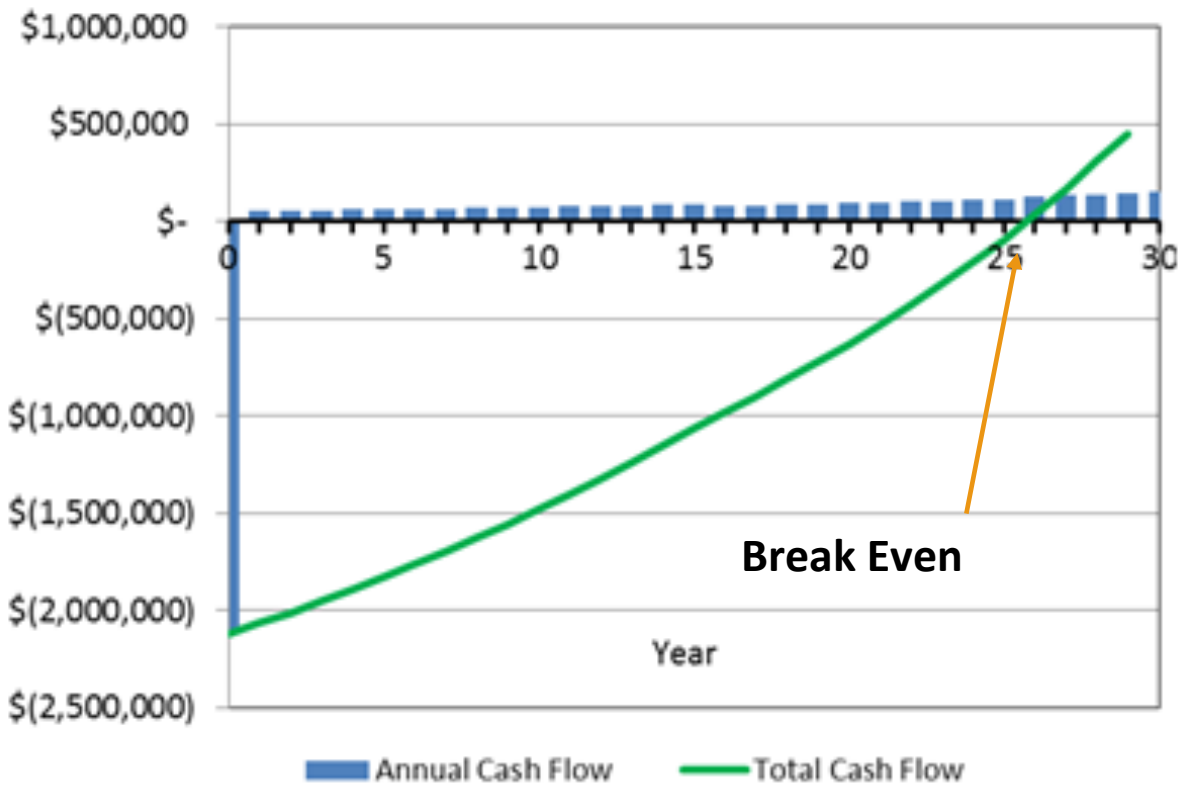
- Most transparent



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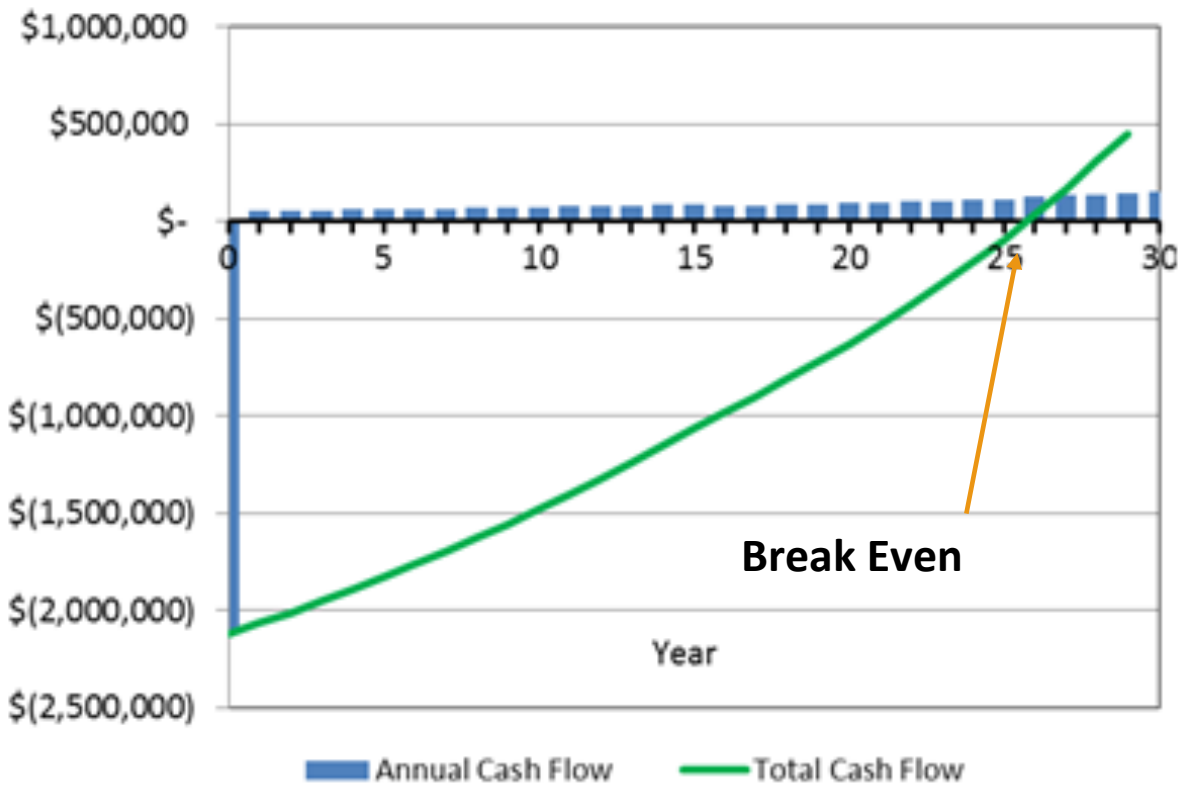
Disadvantages

- Long term payback
- Tend to be driven by grants



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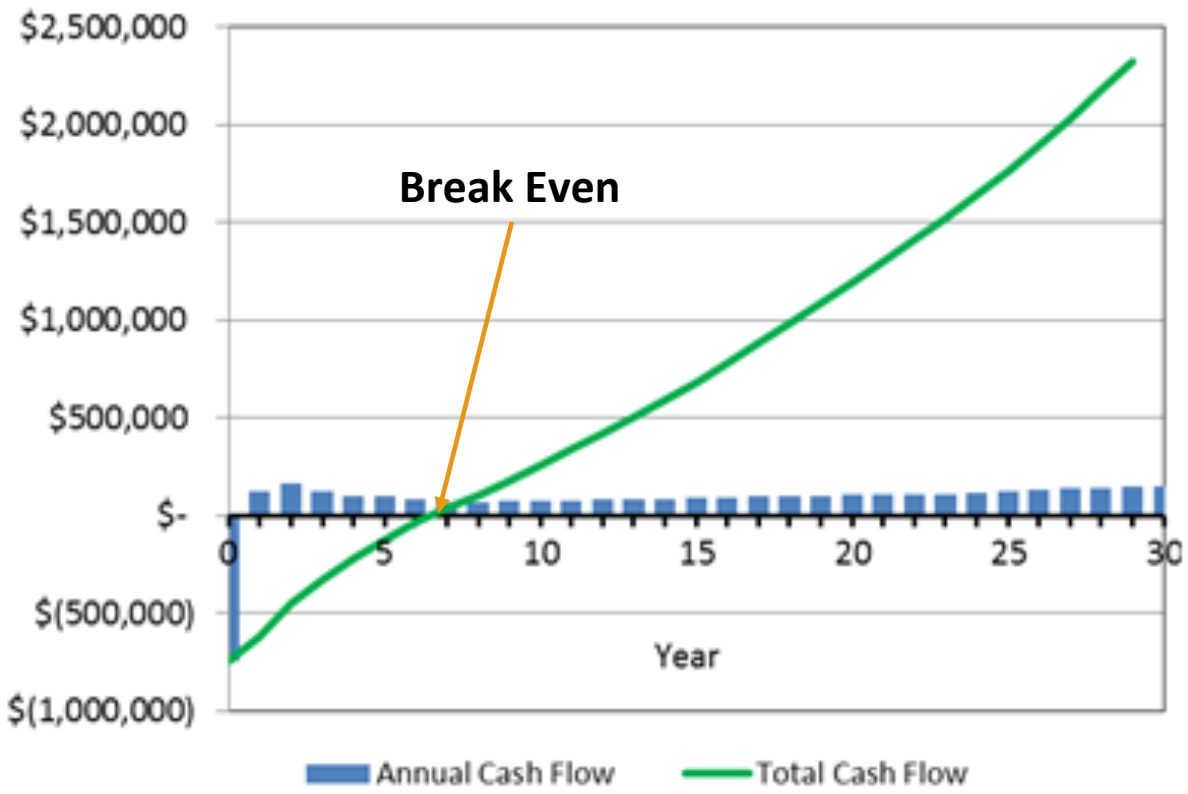

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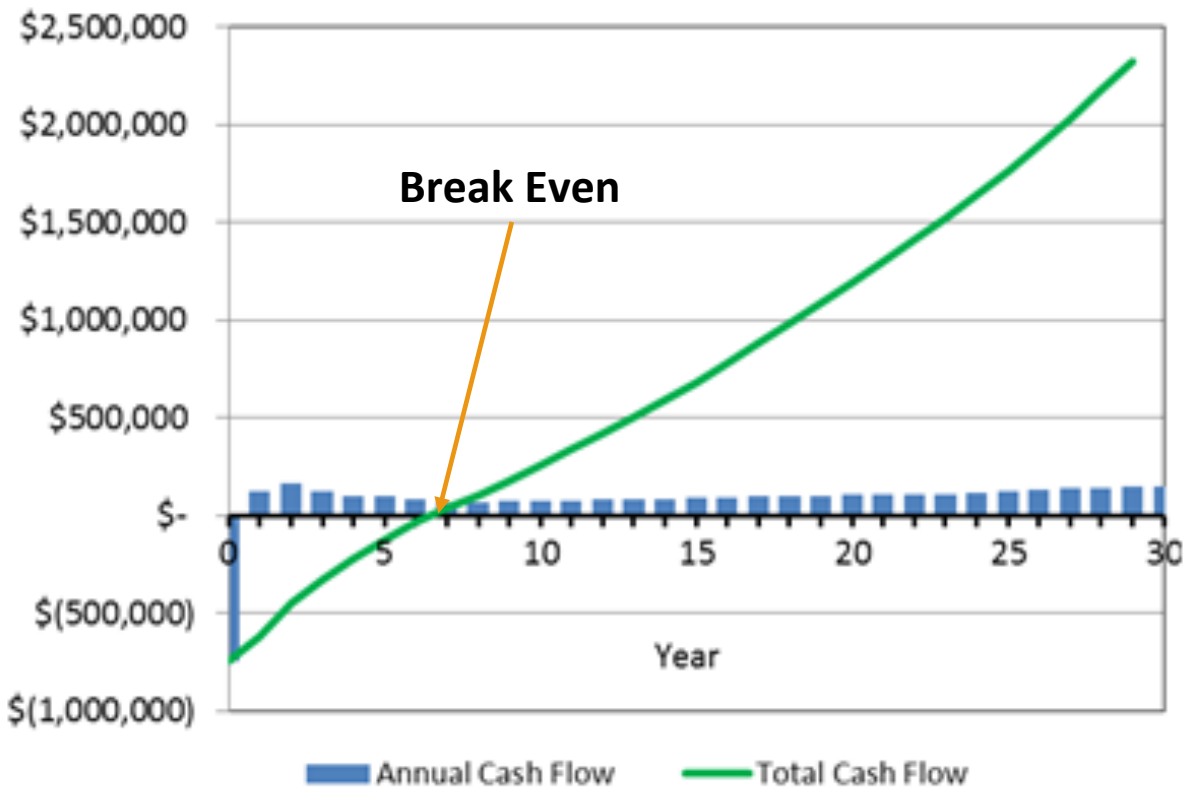
- Substantial tax benefits
- Near-Term payback



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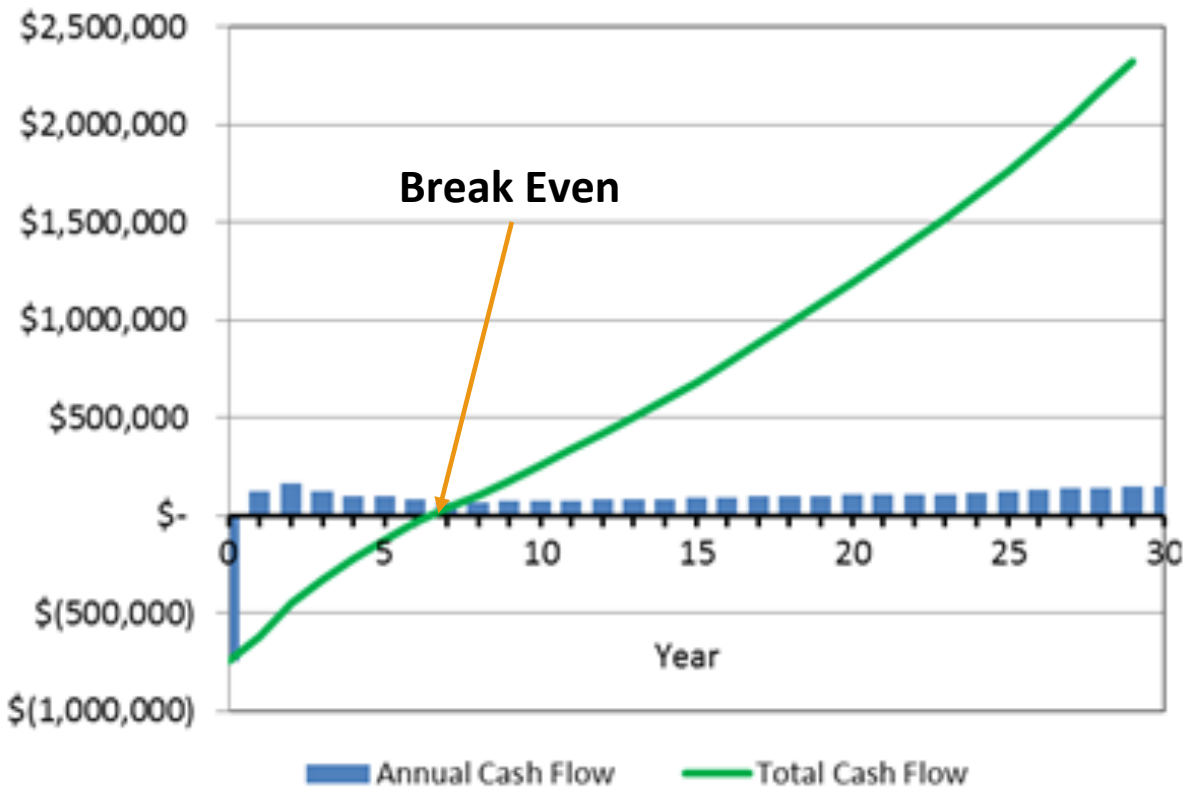
Disadvantages

- Must compete with other investment options



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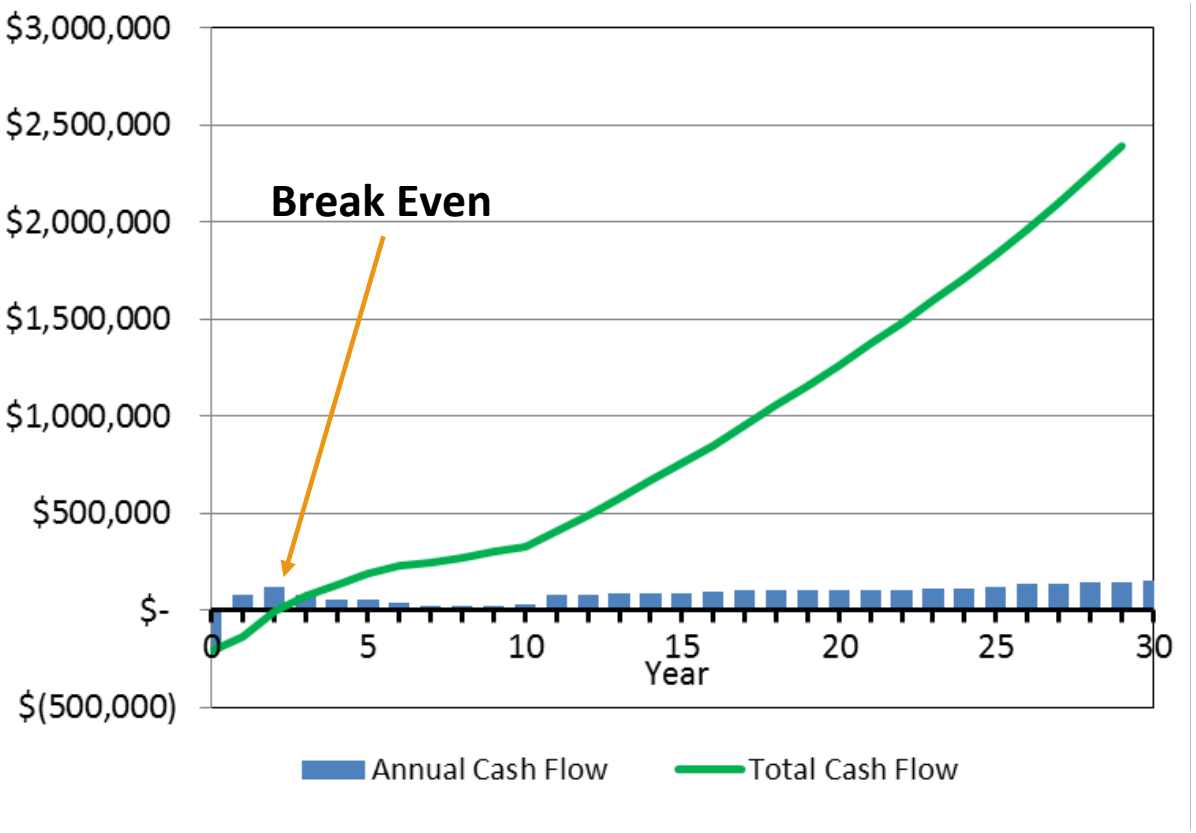
- Supported by payments from host through a lease or Power Purchase Agreement



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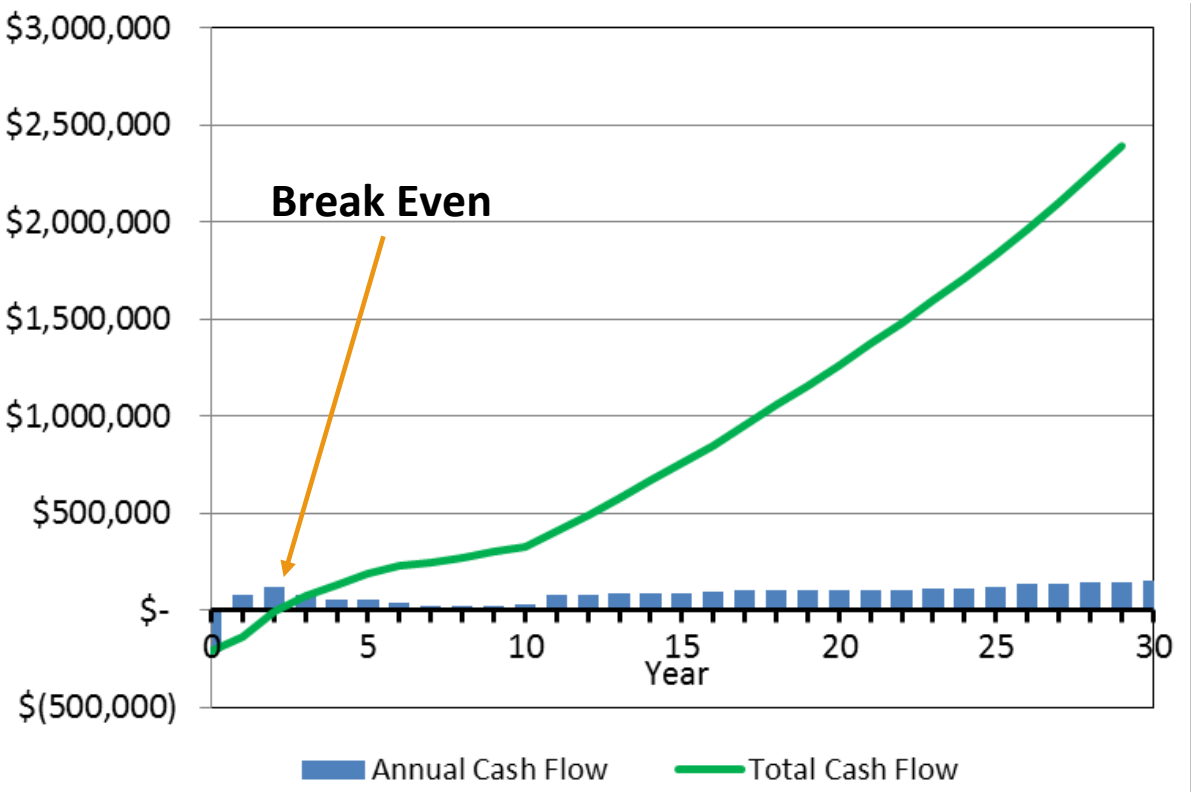

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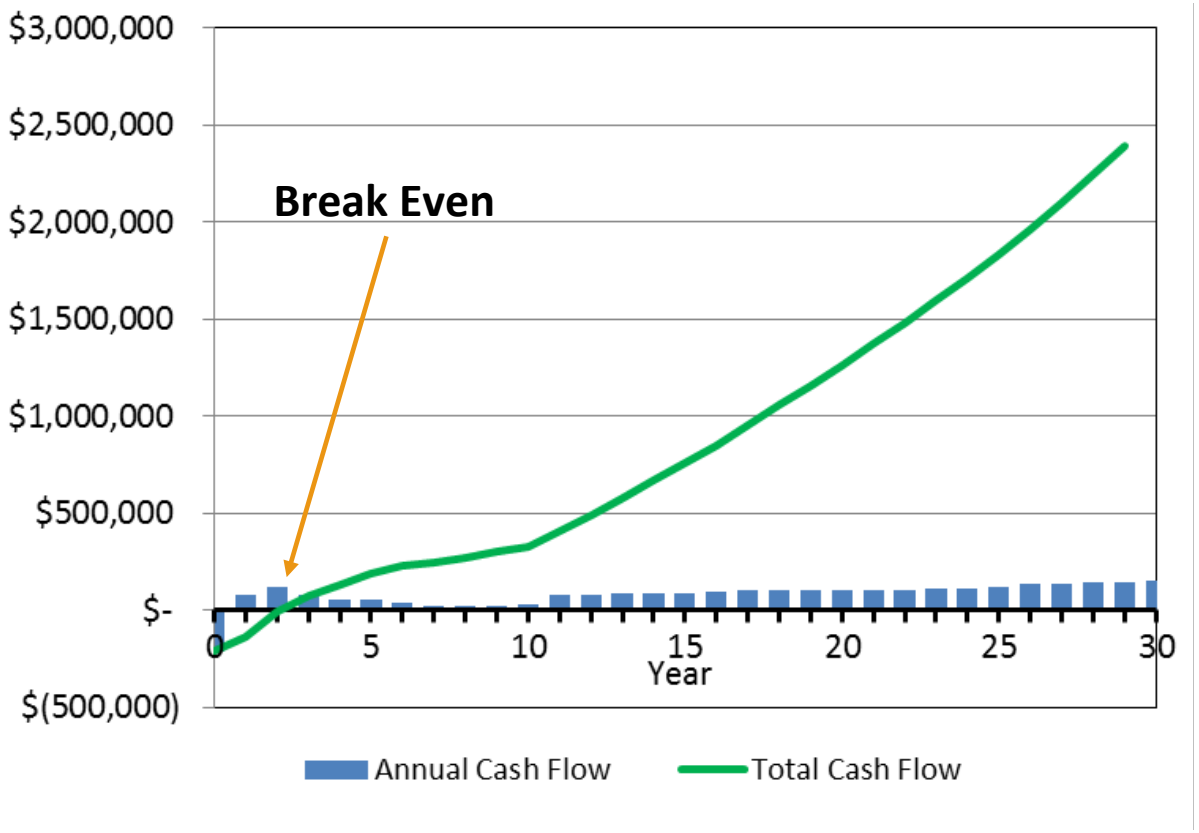
Disadvantages

- Complexity
- Long term relationship between host and developer



Financing Structure: Third Party Options

Operating Lease

- Host pays fixed periodic fee, equivalent to expected energy production
- Host carries "technology risk"
- Lessor takes all tax credits
- Lessor responsible for O&M cost
- End-of-term cost is "fair market value"

Capital Lease

- Host pays fixed periodic fee, equivalent to expected energy production
- Host carries "technology risk"
- Lessor takes no tax credits
- O&M may be Host's responsibility
- End-of-term cost is nominal

Power-Purchase Agreement

- Host pays only for energy produced
- Eliminates "technology risk"
- Hedges against fluctuating utility and energy market costs
- PPA provider responsible for O&M cost
- More complicated agreement, difficult to work for smaller projects

Financing Structure: PPA Structure

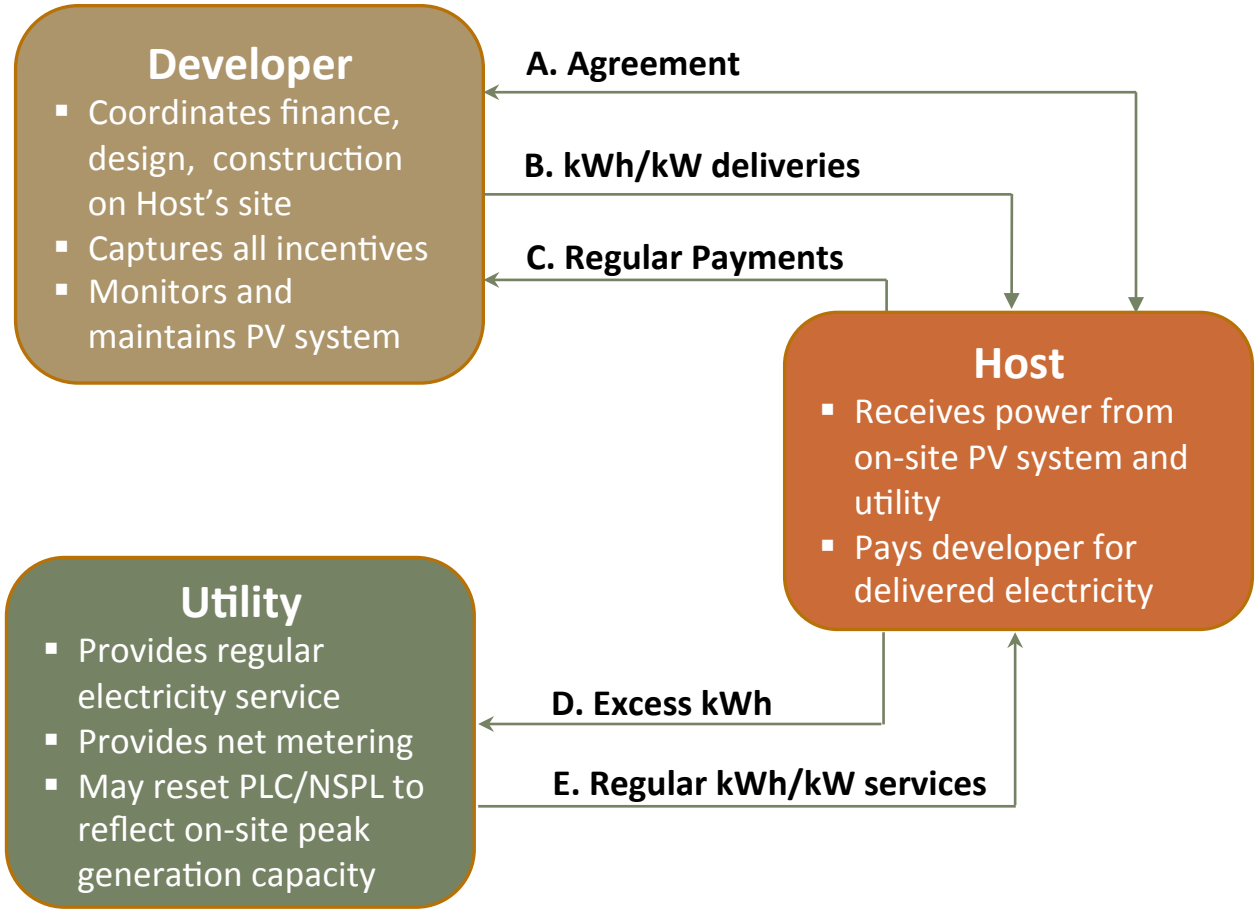
A. Negotiated Agreement
- Duration, prices, deliverables, etc.

B. Energy Deliveries
- As metered

C. Regular Payments
- Purchase the energy generated
- Negotiated price and schedule

D. Export Excess Energy to Grid
- Through local utility

E. Receive regular Utility Services
- Continued relationship



Procurement Process: Stages

Purpose

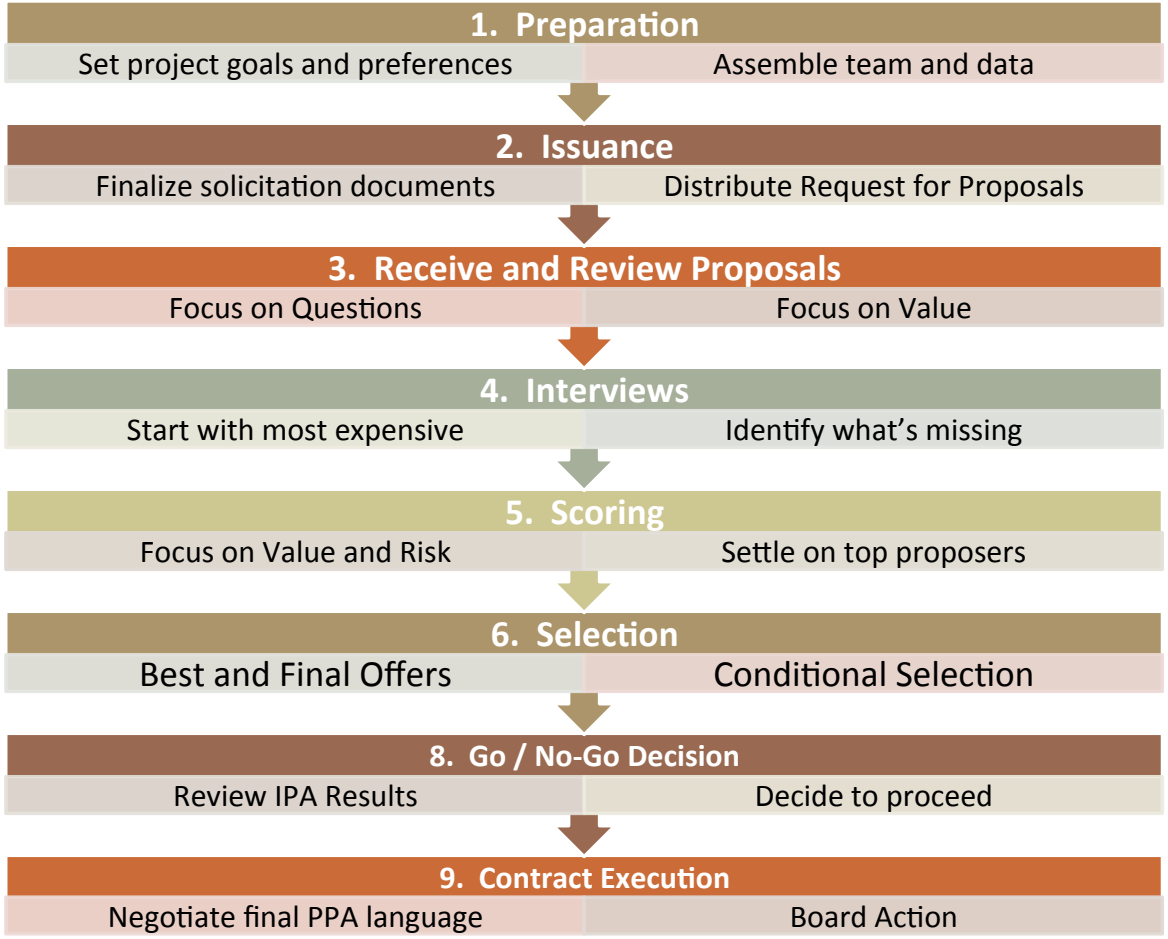
- Allows public sector buyer to better control the procurement process

Benefits

- Focuses expediting RFP process
- Sets appropriate internal expectation

Requirements

- Internal staff resources
- External Engineering Review
- Board coordination



Procurement Process: Tools

Site Assessment Tools

- MS Excel workbook to compare direct purchase, lease, and PPA costs

Model Solicitation

- Focuses on Power Purchase Agreements
- Checklist for internally-generated materials
- Core solicitation documents and respondent forms

Model Agreements

- Can be amended to meet internal requirements

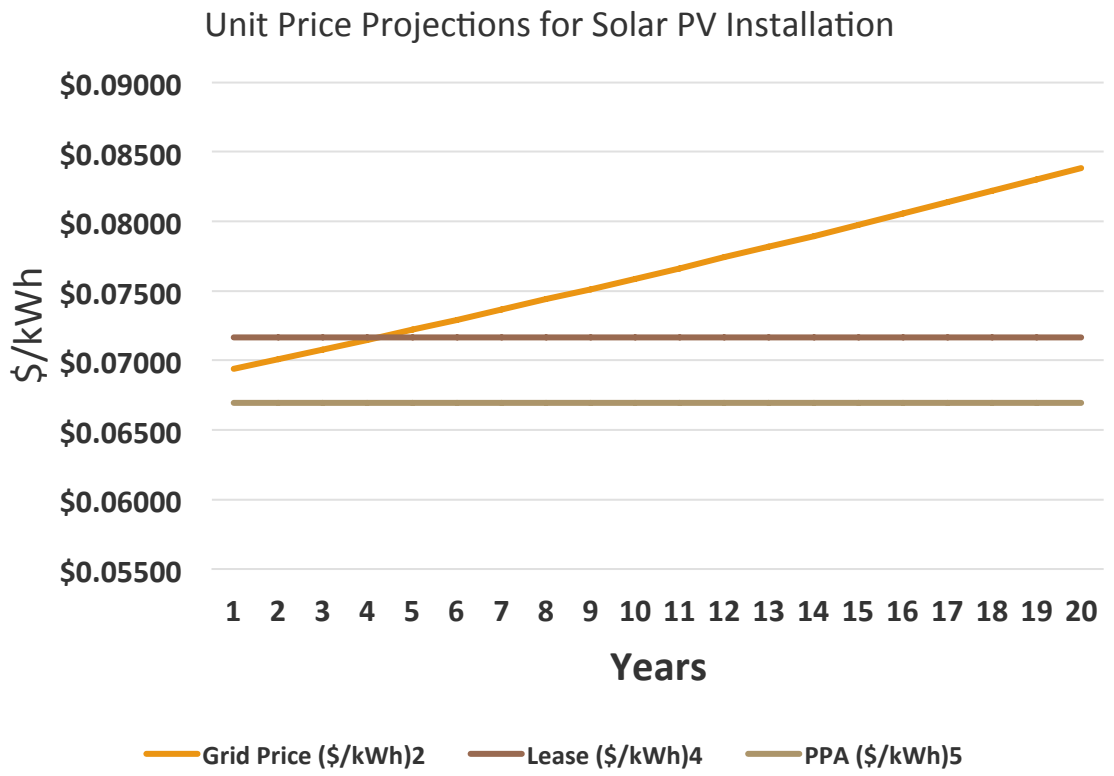
Case Study: Illinois Sanitary District

Initial Project

- Initially identified 10 potential sites
- Ground- and roof-mounted systems

Economic Evaluations

- Using very conservative assumptions
  - **2 vacant sites eliminated**
  - **6 remaining sites showed potential**
  - **3 ground sites had the best potential (assuming a 1% per year increase in grid electricity supply)**
- Current site electricity costs: $0.069/kWh
  - **Electricity supply (volume related elements only)**
  - **Distribution (volume-related elements only**
  - **Taxes (volume-related elements only)**



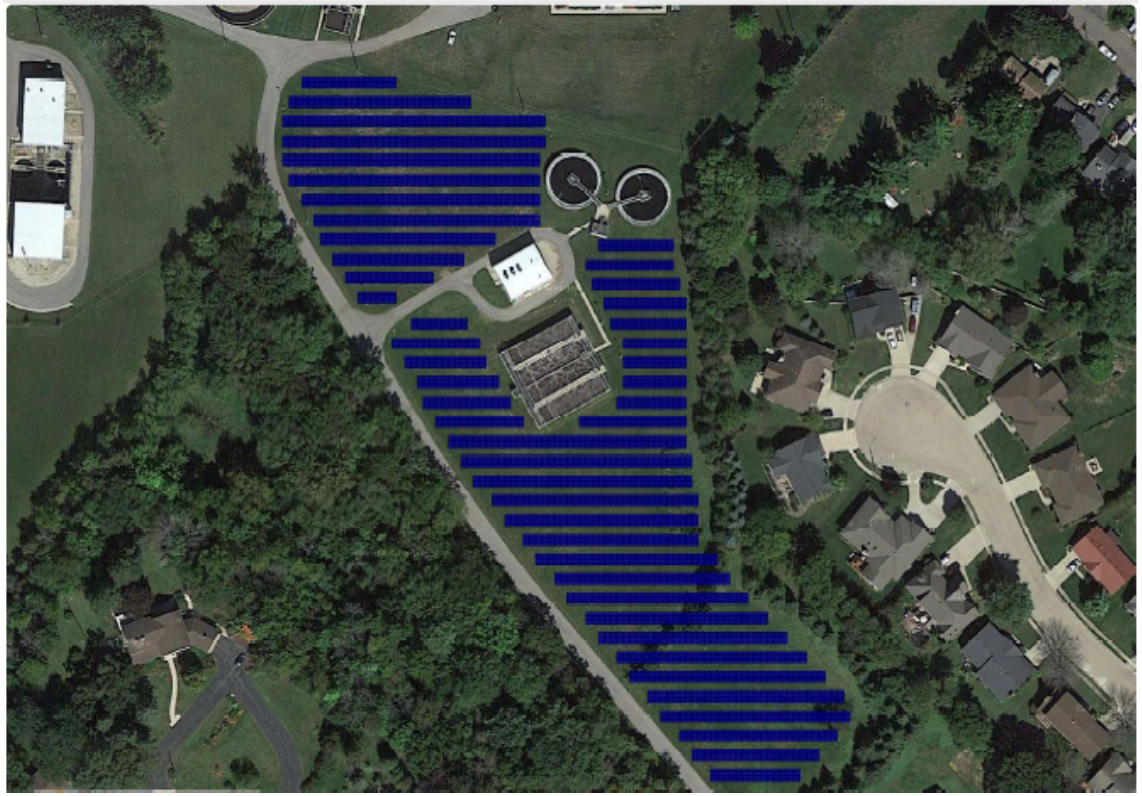
Case Study: Illinois Sanitary District

Bid Results

- Lead bidder combined the three ground-mount locations into a single offer:
  - **kW AC Capacity: 1,360.80**
  - **kWh AC Output Year 1: 1,805,509**
  - **kWh AC Output 20-Years: 34,394,955**
  - **Total Area Requirement: 208,200 sq. ft.**
- Also included utilizing battery storage to improve system functionality

Economics (20 Year PPA)

- Fixed price without escalations
  - **SRECs sold at $100: $0.049/kWh**
  - **SRECs sold at $0: $0.059/kWh**



Key Questions

How does management define value?

- Setting a long term hedge, meet policy objectives

What is the targeted price to meet or beat?

- Current market price, some level of escalation over time?

What is the optimal project size and other characteristics

- Location, duration

What level of investment is management willing to make?

- Staff time, capital, property options

Discussion

Thank you for your time and consideration

Mark Pruitt – The Power Bureau | markjpruitt@thepowerbureau.com | 219.921.3828