Minnesota On Site Solar Procurement Workshop

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NREL Financing Analysis Examples

- Emerging Financing Opportunities
- Location- Economic Analyses
- Twice-yearly PV Industry Update
- Market pricing updates

Available at NREL’s Publication Database
On-Site Solar Energy Financing Options

• Direct ownership
  – Cash
  – Traditional finance mechanisms such as bonds

• On-site purchaser of energy
  – Power purchase agreement
  – Leases
  – Lease-purchase

Risk and reward spectrum

Lower risk and upside

Higher risk and upside
Renewable Energy Federal Tax Incentive Overview

- **Two** Primary Federal Tax Benefits Available for Solar:
  1. Investment Tax Credit (ITC) equal to 30% of qualifying costs and
  2. Accelerated Depreciation
- **In combination**, ITC or PTC (1) and accelerated depreciation (2) can represent up to 50% of a project’s capital costs (depending on declining value of PTC or ITC and project’s actual capital costs)
- **However**, renewable energy owners may not have enough taxable income (aka “tax appetite”) to utilize fully
- **Therefore**, a separate developer “tax equity” investor can be required to utilize tax benefits
- **Looking ahead**, declining or fully-expired tax credits may alter financing practices (discussed later)
  - Commercial-Owned ITC at 10% with not set expiration (favors 3rd-party ownership)
  - Accelerated depreciation with not set expiration (favors 3rd-party ownership)
  - Commercial “begun-construction” qualifying criteria (favors 3rd-party ownership)

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<td>Solar ITC</td>
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In this example the project needs to find investor willing to make a large upfront investment for a long-term payback.

Investors will also need a high tax liability to offset the tax benefits.

Cash flow from operations have varying degrees of certainty, due largely to energy offtaker contract length – the shorter the contract the higher the risk (and the more important the “residual value” is to the owner).

Note: all figures are only representational; individual projects will vary by location and project specifics.
All values are net of taxes
The customer agrees to **host** the system and **purchase** the electricity with remaining electricity coming from the utility (or utility may also provide the PPA).

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<th>“Host” of Renewable Energy Generation Equipment</th>
<th>Renewable Energy Developer and Financial Partner</th>
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<td>Remaining electricity needs</td>
<td>Various project finance structures</td>
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Revenue from electricity sales

Worth ~50% of the cost of a solar system

Local Utility

Tax Benefits

Renewable electricity at fixed prices
Cash Purchase Considerations

**Pros**
- Less complexity
- Likely lowest cost option per watt
- Easier early termination issues

**Cons**
- Large initial cash outlay
- Requires ongoing maintenance and repairs
- Requires ability to use tax benefits
3\textsuperscript{rd} Party Ownership Considerations

**Pros**

- Low/No Upfront Costs
- No O&M Duties
- Easier to Use Tax Benefits

**Cons**

- Involvement of additional party
- Contract commitment 10 to 20 years
- More complex buyout options
Wealth of PPA Resource for Municipal Facilities

Resources (see)
https://www.nrel.gov/docs/gen/fy16/65567.pdf
https://www.nrel.gov/analysis/standard-contracts-downloads.html
Common Contractual Questions in Solar PPA / Leases

Access Questions

• How will the municipality provide legal site access to a contractor for up to 20 years?
• What is the protocol for contractor to be able to access the site and how might that impact municipal functions?
• How might future buildings or renovations impact a solar system’s ability to produce electricity?
Common Contractual Questions in Solar PPA / Leases

Operational Questions

• Why is this contract being held or assigned to a company other than the solar company we have selected?
• What happens if the solar system doesn’t produce as expected?
• What are the responsibilities for the municipality?
• What happens when the roof needs to be replaced?
• Will the panels on the roof reduce the life of the roof?
• Who uncovers the snow from the solar panels in winter?
Common Contractual Questions in Solar PPA / Leases

“Change in plan” questions

• What if we want to install batteries later?
• What happens if Xcel rates change during the term of the contract?
• What happens to the panels at the end of the contract term?
• What if the municipality wants to buy out the PPA contract early?
• What would the price be if the municipality wanted to purchase out the contract?
Opportunity Zones
Opportunity Zones

“An Opportunity Zone is an economically-distressed community where new investments, under certain conditions, may be eligible for preferential tax treatment”

Qualified Opportunity Zones (QOZs) were created by the Tax Cuts and Jobs Act on December 22, 2017.

– In 2018, states nominated low-income communities, which were then designated as opportunity zones by the treasury.

– There are QOFs in all 50 states (and territories); they are home to 35 million people, and are in rural, suburban, and urban areas.

Tax Benefits of Investing in an Opportunity Zone

- **Deferral of Capital Gains**: Investors can take proceeds from the sale of capital, invest in a qualified investment in an opportunity zone, and not pay capital gains from that sale until the *earlier* of (1) the date the investment is sold or (2) December 31, 2026.

- **Step-Up in Basis** (i.e., partial “haircut” to amount of income taxed): If the qualified investment is held for five years, 10% of investment is excluded from capital gains; if it is held for seven years, 15% is excluded from capital gains.
  - Due to the 2026 deadline, investors must invest capital gains before 2020 to be eligible to receive the 15% exclusion (i.e., seven years)
  - Capital gains are further reduced if the FMV of the investment (when taxes are owed) is less than the initial investment of capital gains.

- **Additional Gain is Not Taxed**: If an investor holds their investment for 10 years, they are not required to pay taxes on any additional capital gains (beyond those paid December 31, 2026), no matter how much the asset appreciates.
Tax Benefits of Investing in an Opportunity Zone

Example

Held for 5 Years

- Sale of $1 million asset, invest within 180 days—no taxes owed
- Tax basis: $0

Held for 7 Years

- 10% increase in basis ($100,000)
- Taxed on $900,000 (or FMV if lower) if sold
- 5% increase in basis ($150,000)
- Taxed on $850,000 (or FMV if lower)
- Capital gains accrued on or before December 31, 2026 (sale or no sale)

Held for 10 Years

- Taxpayer sells asset for $2 million.
- Basis in the investment is deemed to be FMV; no federal taxes owed

Notes: Assumes a capital gains tax rate of 20%, a combined corporate tax rate of 27.3% (state and federal), a discount rate of 6%, assumes depreciation is taken when the step-up in basis occurs, and that the first year of depreciation and the ITC flow to the tax equity investor.
Community Financing Facilities
Types of PV Loans

Three basic types of PV loans to date (with variations)

• Secured with the underlying real estate asset (i.e. home or commercial property)
• Secured based on the solar equipment itself
• Based solely on the credit, and outstanding debts and income of the borrower

Data on 6,770 loans representing over $186 million in lending suggest PV loans are performing very well to date—although these results must be put in the context by:

- high credit quality of borrowers
- early state of the loans, and
- recent robust economy
Thank You

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