



# Solar Finance and Ownership Options

Dwayne Breger,<sup>1</sup> Zara Dowling,<sup>1</sup> River Strong,<sup>1</sup> and Alison Bates<sup>2</sup>

*1 UMass Clean Energy Extension*

*2 Colby College*

NREL Technical Monitor: Sara Farrar

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Contract No. DE-AC36-08GO28308

**Subcontract Report**  
NREL/SR-7A40-90081  
June 2024



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## Suggested Citation

Breger, Dwayne, Zara Dowling, River Strong, and Alison Bates. 2024. *Solar Finance and Ownership Options*. Golden, CO: National Renewable Energy Laboratory. NREL/SR-7A40-90081. <https://www.nrel.gov/docs/fy24osti/90081.pdf>.

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National Renewable Energy Laboratory  
15013 Denver West Parkway  
Golden, CO 80401  
303-275-3000 • [www.nrel.gov](http://www.nrel.gov)

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This work was authored in part by the National Renewable Energy Laboratory, operated by Alliance for Sustainable Energy, LLC, for the U.S. Department of Energy (DOE) under Contract No. DE-AC36-08GO28308. Funding provided by U.S. Department of Energy Office of Energy Efficiency and Renewable Energy Solar Energy Technologies Office. The views expressed herein do not necessarily represent the views of the DOE or the U.S. Government.

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## Solar Finance and Ownership Options



3. Financing  
/Ownership

This fact sheet is part of the *Community Planning for Solar* toolkit designed to help Massachusetts municipalities and others proactively plan for solar development in their communities. For more information, please visit: <https://ag.umass.edu/solarplanning>

### Solar Financing and Ownership

Communities facing specific solar project development opportunities or proactively planning their solar development strategies will need to have a basic understanding of solar financing and ownership options. How solar is financed and owned has large implications on how the solar project impacts local economic benefits, risk, and capital needs. This fact sheet provides a brief introduction to these considerations for local officials and community constituents to familiarize them with how local benefits and risks contrast across the basic ownership structures available.

*Note: Solar financing is complicated, especially for local ownership options. Expert financial and legal counsel should be consulted. This fact sheet and related documents should not be used as a substitute for such services.*


### Related Documents

*Understanding and Evaluating Solar Financing and Ownership Options* (Step 3, Item a), [ag.umass.edu/solarplanning3](https://ag.umass.edu/solarplanning3): This guide provides a primer on solar financing and ownership options for a community. It provides further explanation of the standard components of solar financing and the ownership structures. It highlights how solar project cash flows accrue within or outside the local economy under different ownership structures.

*Solar Financing and Ownership Options: Cash Flow Model* (Step 3, Item c), [ag.umass.edu/solarplanning3](https://ag.umass.edu/solarplanning3): This user-friendly Excel spreadsheet tool enables local communities to evaluate and compare the magnitudes and distributions of cash flows associated with available solar PV project ownership and financial options. Cash flows are tracked to recipients that are located within the local economic region of interest, and to those outside.

### Community-Informed Solar Financing and Ownership Options: Local Cash Flow Benefits and Risks

Note: **RED** shading indicates more limited local cash flow benefits, and **GREEN** shading indicates opportunities with greatest local cash flow benefits. **MIXED** shading indicates where the distribution of cash-flow benefits are significantly diminished or countered by risk considerations. **YELLOW** shading for the Flip model indicates a merge of the Red attributes prior to the ownership flip, and the Green attributes afterwards.

|                                  | Third Party Ownership   | Third Party Flip  | Community Owned  |  |
|----------------------------------|---|---|--|--|
|                                  |   |   | Taxable Entity   | Non-taxable Entity   |
| <b>Description</b>               | Developer or third party investor provides investment capital and owns solar assets with negotiated agreement with the local host. Investor receives a rate of return sufficient to meet their corporate financial hurdle rate. | Third party investor and local taxable entity engage in financial partnership where third-party investor takes approximately 99% ownership stake for first 6-10 years, and then "flips" this ownership stake at a discounted buy-out price to the local partner. Third party provides investment capital and takes federal tax benefits and early project revenues to gain a rate of return. Local taxable partner may sell or transfer project ownership to non-profit, community choice aggregation, or municipal owner after one year. | Solar assets are wholly financed and owned by local entities. Local owners may or may not be able to access federal tax benefits. For some local owners, projects may be financially acceptable at lower rates of return.<br><br>Federal tax benefits are accessible.<br>Characteristic Owners: Local businesses, for-profit cooperative, individuals or LLC with tax appetite, etc. | Federal tax benefits are not accessible.<br>Characteristic Owners: Municipality, Community Choice Aggregation, non-profit businesses, faith-based organizations, low income individuals. |
| <b>Increasing Local Benefits</b> |   |   |  |  |
| <b>Local Economic Benefits</b>   | Limited Economic Benefits<br>Lease payment, Payment in Lieu of Taxes (PILOT), or Power Purchase Agreement (PPA) or Net Metering with marginal energy discount.  | Delayed Economic Benefits<br>Similar benefits for Third Party Ownership for first 6-10 years, followed by full benefits of Community Ownership.   | Maximum Economic Benefits<br>Ownership investment leads to full (or near full) project cash flows and rates of return accruing within the local economy and associated economic multiplier.  |  |
| <b>Other Benefits</b>            | No investment costs. Transactional simplicity for community.  | No initial investment cost, and significantly reduced investment for buy-out. May provide community with more decisionmaking in project development.  | Ownership provides more local control over siting decisions, site design, job creation opportunities, and electricity oftakers.  |  |
| <b>Risk Allocations</b>          | Risk of project development and asset ownership is on third party for full project life. Local constituents risk the opportunity cost of the site alternative usage.  | Asset ownership risk transfers from original third party owner to second owner when ownership changes. Local partner may lose any costs incurred during project development and financing if project does not go forward.   | Risk of project development and asset ownership, including operation and maintenance (O&M), is on local constituents for full project life. Solar equipment warranties and incentive-based O&M contracts may mitigate risks.   |  |

Development of this fact sheet was funded in part through the NREL SEIN Solar in Rural Communities Program.  
Version: March 2022

| Additional Considerations                     |  |   |  |
|---|--|---|--|
|   | Third Party Ownership  | Third Party Flip  | Community Owned  |
| <b>Alternative Structures</b>                 | As federal Investment Tax Credit value decreases or expires, financial advantages of third-party ownership will diminish.  | Mission-aligned tax-equity investors can lower required third party rates of return to support more local benefits. Financial/legal structure variations include: Partnership Flip; Sale-Leaseback; and Buy Out Option. | Solar asset can be wholly owned by singular entity such as a municipality or local business or organization. Alternatively: 1) community members can co-locate their individually owned solar panels in an array organized and managed by a cooperative; 2) community members can organize a business entity, typically an LLC, to own solar assets; 3) a community choice aggregation entity can own the asset on behalf of its ratepayers. |
| <b>Source of Equity</b>                       | Third party owner, typically using nationally-based tax-equity financial institutions.   | Third party owner, potentially mission-aligned tax equity investor. Local equity replaces third party as part of ownership flip financing.  | Local investment capital must be raised - municipal government, firms, organizations, or constituents.   |
| <b>Source of Debt</b>                         | Commercial national banks.   | Commercial national banks; followed by local banks, credit unions, or municipal bonds as part of ownership flip financing.  | Local banks, credit unions, or municipal bonds.  |
| <b>Tax Treatment</b>                          | Investment Tax Credit, accelerated depreciation, and other tax benefits accrue to tax equity investor.   | Investment Tax Credit, accelerated depreciation, and other tax benefits accrue to tax equity investor, prior to ownership flip.   | Tax benefits remain unavailable to non tax paying entities engaged in ownership. Local for-profit corporate owners may be able to take advantage of Investment Tax Credit, accelerated depreciation, and other tax benefits. Local individual owners may access ITC with earned income or passive income, depending on financing structure.  |
| <b>Electricity or Net Metering Off-Takers</b> | Electricity flows to the grid through net metering, with virtual net metering credits assigned and bought by off-takers spread throughout utility territory. For on-site loads, host may enter Power Purchase Agreement. | Electricity is often sold to future local owner of array through a PPA, or as credits through virtual net metering to community ratepayers.   | Electricity sold to an on-site host through a Power Purchase Agreement, or through virtual net metering credits to municipality, non-profit, local private owners, or as a supply for a community choice aggregation.  |
| <b>Legal/Financial Status and Challenges</b>  | Established market with ample precedent.   | Established model with growing precedent, introduces contractual complexities.  | Limited examples and precedent, though inherently simpler than tax equity financing. Recent increased attention in this area is reducing barriers, but higher risks remain.  |

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