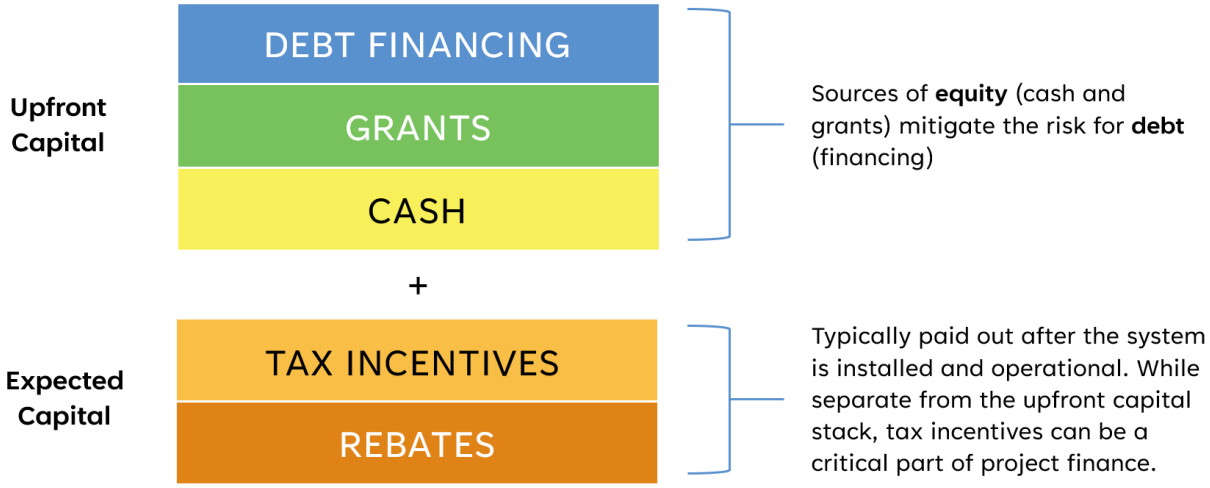
How Nonprofits Can Develop a Capital Stack to Pay for Solar+Storage

Installing a solar and energy storage (solar+storage) system can lead to long-term cost savings, as well as other important benefits such as providing reliable backup power. However, the upfront cost of a solar+storage system can be a significant barrier. Depending on the facility's size and energy savings and backup power goals, the cost of a solar+storage system could range from less than $100,000 to well over $1 million.

Nonprofit organizations seeking to install solar+storage systems will likely need to combine multiple funding streams. Layering sources of capital in support of a project is called creating a "capital stack."

Here is a typical solar+storage capital stack for nonprofits:

Solar+Storage Capital Stack for Nonprofits



Visualizing a project's capital stack can help an organization plan for multiple funding streams. For instance, debt is placed at the top of the stack because it is the highest priority for repayment. Sources of equity - such as cash, grants, and rebates – mitigate the risk debt providers assume, making the project more attractive to lenders, such as banks and community development financial institutions (CDFIs). Tax credits and rebates should be considered within the capital stack, but they are often not included in the primary figure because the funding is only available after the project has been paid for and installed.

This resource outlines considerations for nonprofits in building a capital stack for their solar+storage project.

Building a Capital Stack

Solar+storage funding options vary greatly by state and utility territory. When building a capital stack for solar+storage, nonprofits should first assess what sources of equity can be leveraged for project development, such as a plan to carve out a portion of the organization's operating reserve for special projects or applying for grants or other funding opportunities. Then, depending on what remaining gaps exist, the nonprofit can pursue different debt financing options. Through this process, the nonprofit should consider how the timing of eligible rebates and tax incentives will impact funding, either upfront or retroactively after the project is installed.

Tax incentives are available through the federal government, and from some states and local governments. The federal Investment Tax Credit (ITC), available as a dollar-for-dollar credit to tax-exempt entities through Direct Pay reimbursement, provides a 30 percent credit to install solar, energy storage, and other zero-emissions technologies.[1] Storage projects must be Foreign Entity of Concern (FEOC) compliant and available through the end of 2033. FEOC was designed to "reduce reliance on FEOCs in battery supply chains and bolster the growth of domestic and friend-shored battery materials and manufacturing".[2] Read more about the ITC and its eligibility requirements and deadlines in Clean Energy Group's guide: What Nonprofits Need to Know about the Investment Tax Credit.

Rebates for clean energy technologies may be available through state and local government programs and utility programs. Each rebate program establishes its own eligibility requirements and parameters, such as defining the incentive amount and when it is redeemable (at or after the time of purchase).

For example, nonprofit customers of Santee Cooper, South Carolina's largest water and power utility, can receive up to $5,700 in solar rebates through the utility's EmpowerSolar program. In California, the state's Self-Generation Incentive program provides a rebate to all qualifying energy storage installations, regardless of utility territory.

Debt Financing can be a key part of a solar+storage capital stack, complementing other funding sources or even covering the entire upfront cost. Financing options include loans or third-party ownership structures. Green banks, CDFIs, or other mission-aligned financers may offer competitive financing terms for clean energy projects. Some foundations provide low-interest loans or loan guarantees in the form of a Program Related Investment (PRI).

[1] Solar projects must be Foreign Entity of Concern (FEOC) compliant and begin construction by July 4, 2026 (or be placed in service by December 31, 2027) to be eligible.
[2] To learn more about Foreign Entity of Concern compliance, visit: www.energy.gov/cmei/manufacturing/foreign-entity-concern-interpretive-guidance

Waiting on a Tax Incentive

Tax incentives (and some rebates) do not provide a benefit until after a solar+storage system is installed. Nonprofits and other tax-exempt entities have reported average wait times of 6 to 18 months after a project becomes operational to receive the federal ITC through Direct Pay reimbursement. This means that nonprofits often need funding to cover the gap between the time of project payment and when rebate reimbursement is received. Short-term bridge loans are a potential option to cover the 30 percent or more that is eligible for reimbursement through the ITC, its bonus credits, and other rebates. Alternatively, nonprofits may seek to partner with a tax equity investor that provides upfront funding and in return receives the tax benefit, though this arrangement comes with additional costs and complexities.

Third-party ownership is typically structured as a **lease**, **power purchase agreement (PPA) or energy storage agreement (ESA)**. Leases, PPAs, and ESAs allow communities to invest in solar without the upfront cost. The company or developer managing the agreement owns the solar or battery storage system for the contract term, receives the ITC and other rebates, and is responsible for system maintenance. Under a lease, the facility is subject to a predictable, fixed monthly rate. PPAs and ESAs are usually structured like a variable rate lease, typically based on the level of monthly solar generation. Third-party ownership structures often have an annual escalator built into the agreement. Repayments are typically structured to be less than the anticipated savings generated by the system, ensuring that the customer still benefits from utility bill savings despite not owning the system. Leases, ESAs, and PPAs can be an attractive financing mechanism, but they are not considered debt financing because a third party owns the system.

Grants can help reduce upfront expenses or bridge financial gaps. Communities may pursue grants offered by federal, state, county, or city governments**.** For example, a nonprofit that installs solar in Boulder, Colorado, could apply to grants offered by both the city and county government. The Maryland Energy Administration, a state agency serving all of Maryland, provides solar+storage grants through its Resilient Maryland program. Some utilities also provide grants and/or other incentives for installing solar and energy storage.

Private foundations can serve as important funding partners. Philanthropic project support can help bridge financial gaps or cover initial predevelopment planning costs. Regional, national, or international foundations may provide support for innovative energy initiatives, demonstration projects, or to benefit specific communities or populations. Supporting solar+storage projects could appeal to funders interested in a wide range of topic areas, including renewable energy, public health, and emergency response efforts.

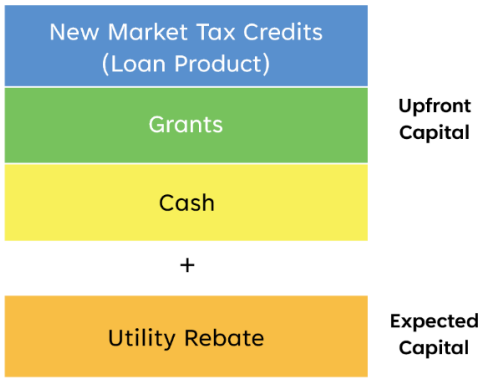
Cash can help a project close funding gaps and reduce debt. It can be raised through fundraising or budgeted from an organization's existing operating reserves or equity. For example, if a project has a hard time securing a financing agreement for solar+storage, an

upfront investment of cash can improve the project's anticipated return on investment (ROI) and reduce investor risk, making it more likely that the project will qualify for financing. Even with debt, a cash purchase of a system can be less expensive than a lease, PPA, or ESA option, depending on the terms.

The Funding Stack in Action

Pueblo Community Health Center (Pueblo, Colorado): Colorado is home to the first (and only) verified net-zero health care facility in the United States. Pueblo Community Health Center (Pueblo CHC) has a history of energy stewardship, first installing solar at a health clinic in 2009. When construction began on the new East Side Clinic in 2020, the Pueblo CHC set its sights on a larger goal: net zero status. To reach net zero, Pueblo CHC installed a 160-kilowatt rooftop solar array and a 120-kilowatt solar carport, a geothermal underground well system, and implemented other energy efficiency measures.

Pueblo Community Health Center Solar Project Capital Stack

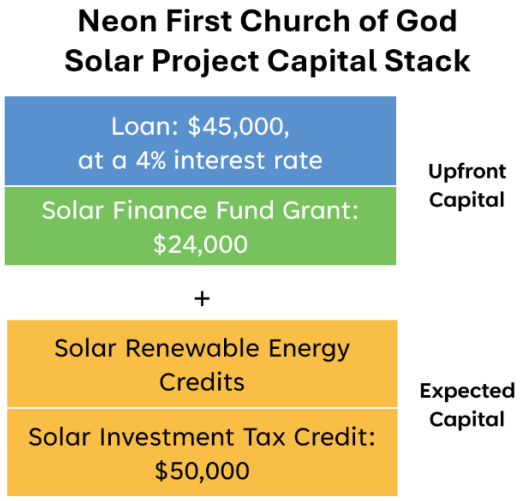


The solar system and energy efficiency upgrades cost $1,500,000, 6.25 percent of the construction contract budget. Due to rising energy costs, Pueblo CHC estimates the system will pay for itself through utility bill savings by 2030, which is three years sooner than originally projected. To fund the system, Pueblo CHC estimates that about two-thirds of the initial cost was paid for through cash reserves, grants, fundraising, and a Black Hills Energy utility rebate. The remaining third was financed through New Market Tax Credits (NMTC), a federal program established in 2000 that encourages private investment in economically distressed communities.

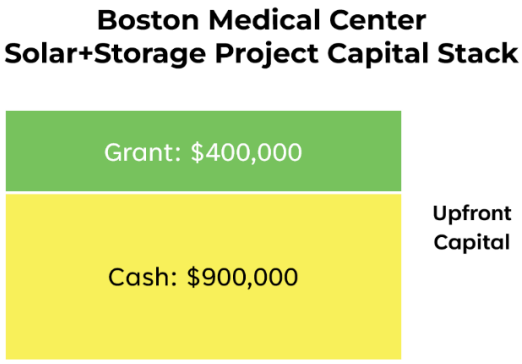
For this project, they engaged in a short-term seven-year loan amortized for 20 years and a long-term 25-year loan, the former of which they were able to pay off early. Compared to market-rate finance options, these NMTC loans offered sub-market rates and a longer amortization period than the 10 to 20 years typical for commercial properties. The long-term loan has an early payoff penalty, so Pueblo CHC is paying the loan as amortized.

In 2024, Pueblo CHC received a $1,400,000 award from the Colorado Department of Local Affairs to install three batteries across their campus. Due to delays and complications with federal Build America Buy America (BABA) requirements, tariffs, and cost increases, Pueblo CHC has had to reduce the size of the batteries. The combined 373 kilowatt-hour system will provide reliable backup power to the health clinic's critical services, including lighting, heating, cooling, security-related systems, patient care equipment, refrigerated storage, and online records, databases, and software. The batteries are expected to be installed in 2026. Learn more about Pueblo CHC in this article.

Neon First Church of God Solar Project (Neon, Kentucky): In the wake of a devastating flood, the Pastor of the Neon First Church of God decided to pursue a long-term goal of equipping the church with solar. The 56-kilowatt solar system cost $145,000 upfront and was funded by a $24,000 grant, selling the system's Solar Renewable Energy Credits, and the Investment Tax Credit ($50,000). The church financed the remaining $45,000 through a 4 percent loan from the Mountain Association, a CDFI serving eastern Kentucky. The Mountain Association also offers predevelopment support, grant application assistance, and information on tax credits, write-offs, and cash flow. The church is expected to save $1 million in energy costs over the solar system's lifetime.[3]



Boston Medical Center Solar+Storage Project (Boston, Massachusetts): Boston Medical Center (BMC), the largest safety net hospital in New England, installed a 572 kilowatt/1,251 kilowatt-hour battery storage system for approximately $1.3 million. Massachusetts awarded the hospital a $400,000 grant, and BMC paid the remaining project cost in cash. Although it was a significant upfront investment, the storage system is projected to create over $130,000 in net annual savings and pay for itself in just 7 years.



To achieve these net savings, BMC uses the storage system to lower operating costs and generate revenue. The storage system participates in Massachusetts' ConnectedSolutions program, a utility-administered incentive program that pays participants to discharge their storage systems during times of high regional energy demand. BMC also reduces its transmission and distribution (T&D) utility charges and ISO-NE capacity (ICAP) charges by using the battery to manage the facility's monthly and annual peak electricity demand. Read a case study of the BMC project here.

[3] To learn more about the Neon First Church of God Solar Project, visit: https://mtassociation.org/lending/saving-grace-and-energy-in-neon-kentucky www.solarfinancefund.org/impacts

Paying for Solar+Storage in the Southeast

The Southeast experiences some of the most severe and longest power outages across the United States. Solar+storage can provide clean, reliable backup power, supporting communities during these outages.

Tax Incentives: South Carolina is currently the only southeastern state that provides a tax incentive to install solar. The state's 25 percent solar tax credit is only available to projects with tax liability. Nonprofits, houses of worship, and community health centers would need to engage a third-party for-profit partner that would pay for and own the solar system. The third-party owner would then receive the 25 percent state tax credit and the federal ITC. Depending on the arrangement, the third-party owner could share a portion of those savings with the nonprofit by reducing lease payments or PPA rates.

Both Tennessee and Florida exempt solar installations from state sales tax. Several other states have varying levels of solar property tax exemption policies.

Rebates: Utilities in Florida (JEA, Orlando Utilities Commission, Lakeland Electric), North Carolina (Duke Energy), and Mississippi (Mississippi Power, Entergy) offer residential and/or commercial rebates when installing energy storage. In South Carolina, utility Santee Cooper offers a rebate for commercial sites – including many nonprofits – that install solar.

Solar+Storage Microgrids for Rural Community Health Centers

The Solar+Storage Microgrids for Rural Community Health Centers Project aims to increase energy reliability and improve access to health centers in low-income, rural communities across eight states (AL, FL, GA, KY, MS, NC, SC, TN) and six federally recognized Tribes in the Southeast. The project is funded by the U.S. Department of Energy Office of Clean Energy Demonstration through the Energy Improvements in Rural or Remote Areas (ERA) program. Funding available through the project will cover up to 70 percent of the cost to assess, design, and install solar and battery storage systems at participating health centers.

The Solar+Storage Microgrids for Rural Community Health Centers Project is a collaboration between Clean Energy Group and the CHARGE Partnership – comprised of the National Association of Community Health Centers (NACHC), Capital Link, and Collective Energy Company.

Learn more and apply on the NACHC website.