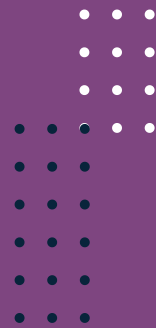




The Energy Coalition (TEC) Secures
\$1.4 Million in Gap Financing for 100
Tesla Powerwalls in Low-Income
Housing





100

Tesla Powerwalls Financing Capacity

\$1.4 million

Gap financing secured

\$16,800

Est. Annual savings per household

1000

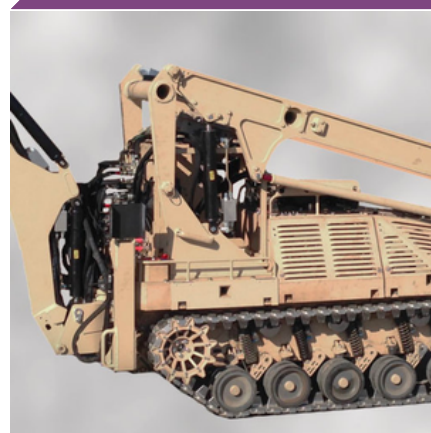
Households targeted

15 MW

Projected program capacity

\$33,000,000

Projected program capital expenditure





CUSTOMER

The Energy Coalition (TEC) has been a stalwart in the realm of clean energy for close to 50 years. Specializing in assisting public agencies and focused on energy justice, TEC aims to transform disadvantaged communities into energy-efficient networks. The organization focuses on the development of programs and projects that increase accessibility to local, affordable clean energy that support healthy and resilient communities.

Throughout its history, TEC has successfully implemented energy efficiency projects with significant savings and impact to the community. TEC excels in establishing partnerships with various stakeholders, including government agencies, private companies, and local communities. Their expertise also extends to spearheading outreach and educational campaigns aimed at raising awareness for energy issues and fostering a culture of sustainability.



CHALLENGE

TEC aspired to develop an unprecedented advanced energy community and intentionally designed the program to maximize customer benefits and increase equitable access to affordable, local, and renewable power. The objectives involved the deployment of Tesla Powerwalls batteries alongside rooftop solar and appliance electrification in low-income households to support lower utility bills and provide backup power, protecting against the rising threat of heat waves and wildfires in Southern California. However, this endeavor necessitated millions of dollars in financing to cover the standard delays for receiving California's Self-Generation Incentive Program (SGIP) rebate.

Due to the uncertain timing of the rebate, the cashflow burden to installation contractors, and the primary objective of not asking low-income households for upfront funds, TEC decided to work on breaking down this market barrier. As TEC wanted to maximize the impact of limited grant dollars, they were looking for a mechanism that would not limit the number of households benefiting from the project and one that would allow for scale.

The energy market is in need of certainty from various factors such as government policies, technological advancements, and economic conditions. Market risks, ranging from the availability of capital to changing utility rates and regulations added another layer of complexity to TEC's challenge of securing adequate financing for their ambitious project.

SOLUTION

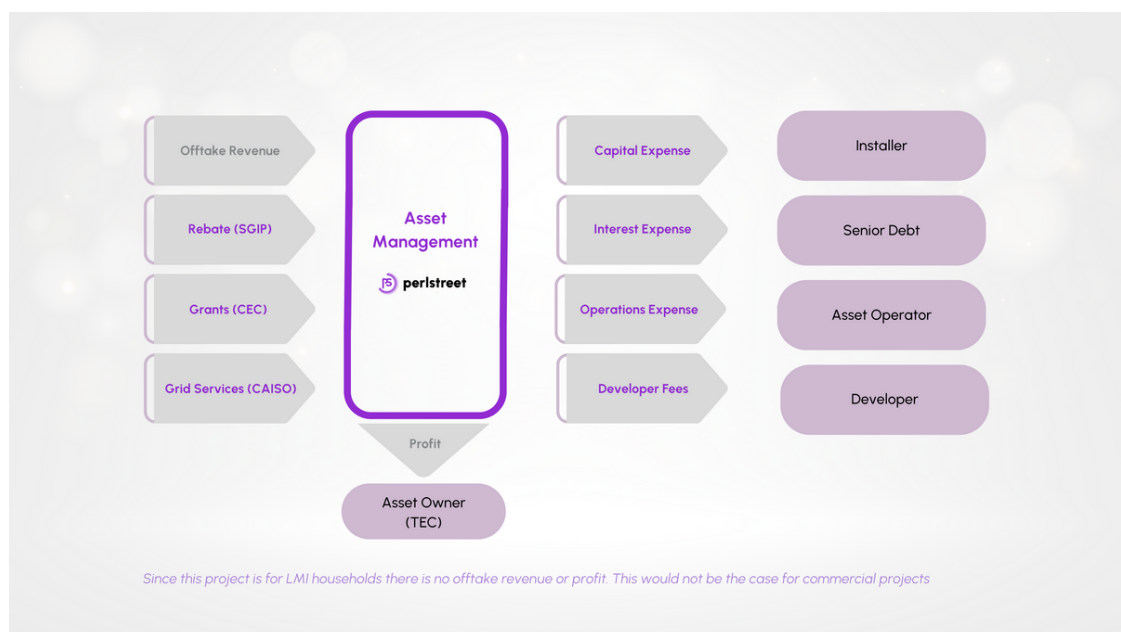
A sustainable and scalable financial solution

After meeting in a Distributed Energy Resources (DER) networking group, TEC initiated a collaboration with Perl Street, the financial operating platform for distributed technologies. Together, they aimed to formulate a sustainable and scalable financial strategy for rapid battery deployment. And, a strategy aligned with TEC's mission and the projects objectives.

The team identified that the SGIP incentive program, administered by the California Public Utilities Commission (CPUC) and state investor-owned utilities, could provide most of the gap funding required to install energy storage in participating low-income homes.

Because the utilities and the state served as extremely creditworthy counterparties, Perl Street was able to secure a financing facility that would cover the entire value of the rebate, making those cash flows available before the installation. The rebate and the facility operate at a per-project level, allowing TEC the flexibility to grow their financing volume as the development pipeline matures.

In addition, TEC applied for a program-level grant from the California Energy Commission (CEC), which helped to cover implementation costs and close any remaining gaps.

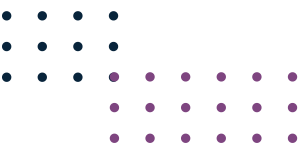




Using incentives as foundational credit is just one method of value stream stacking (Figure 1). Other revenue streams that enable an asset manager to incubate a virtual power plant include:

- Creating the foundation for the credit through a lease or power purchase agreement (PPA) with a credit-worthy buyer (offtaker).
- ITC (Investment Tax Credit) or PTC (Production Tax Credit) and other Federal level incentives from the Inflation Reduction Act (IRA) or Bipartisan Infrastructure Law (BIL)
- Grid service payments from utility companies (i.e., capacity, demand response or peak shaving)
- Portfolio optimization (enhancing grid assets, such as microgrids or EV chargers)

In order to accelerate the adoption of this program, Perl Street set up the pilot program to run off TEC's balance sheet. As projects beyond the pilot are added to the program, it will roll up into a Special Purpose Vehicle (SPV) which is distinct from TEC's balance sheet.



Special Purpose Vehicle (SPV) Financial Operations

As this financing program expands, the assets deployed can be deployed into demand response programs like California's Demand Response Auction Mechanism (DRAM) through energy services agreements with the homeowners. As the total capacity held in these contracts increases, they can be aggregated to deliver ever more value to the grid, building a revenue stream that can support the further deployment of assets.

Perl Street's Special Purpose Vehicle (SPV) was specifically designed for TEC's energy initiatives. This financial structure is predicated on income-generating energy assets, such as Tesla Powerwalls and solar photovoltaic (PV) systems.

The SPV serves as a risk mitigation strategy, allowing TEC to separate the financial responsibilities and liabilities associated with projects from their overall organizational balance sheet. This structure ensures that the project's financial risks are isolated and managed independently.

The SPV will solely consider the cash flow generated by the energy assets. This focused approach enables more accurate financial planning and forecasting, thereby facilitating more effective management of the project's financial health. Perl Street's innovative platform allows for the financial operations of the SPV to be run with minimal overhead and scale up without the associated costs and risks.

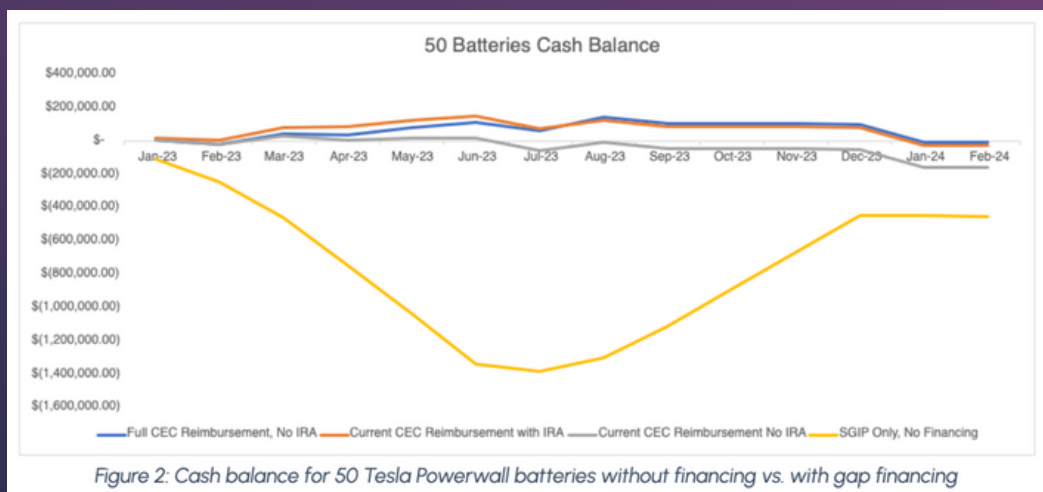


Results and Impact

Immediate Achievements

With the help of Perl Street, TEC is expediting the installation of Tesla Powerwalls and increasing both affordability and reliability for low-income households and in a community previously underserved by clean technology deployment. This was made possible through the acquisition of \$1.4 million in gap financing, which served as working capital for the project. This financial arrangement allowed TEC to deliver on the vision of an advanced energy community. The solution bypasses the slower alternative of deploying energy assets over an extended period, financing the batteries solely through their own balance sheet, and potentially missing the window provided by the SGIP program.

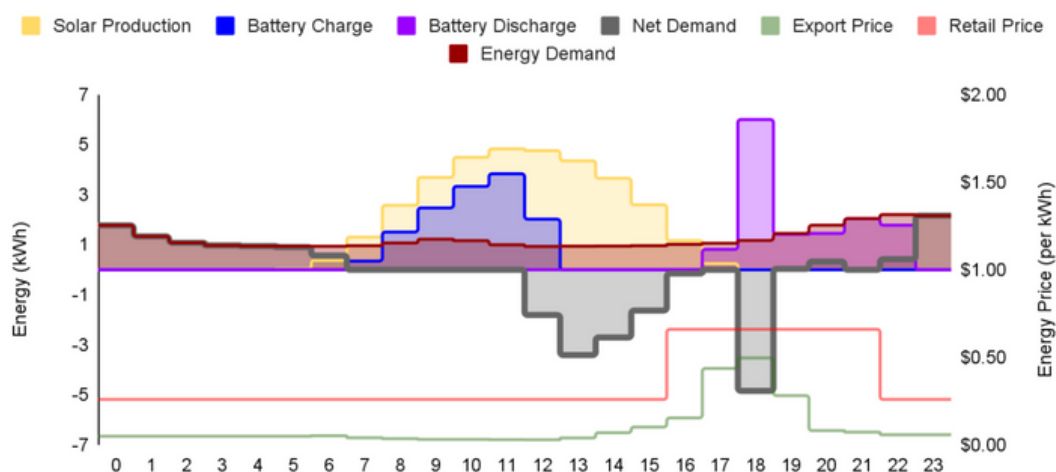
Financial Metrics and Cash Flow



As Figure 2 above shows, with a maximum cash drawdown of only up to about \$200,000, TEC lowered their risk for the project while also empowering themselves to conduct future projects with an energy asset SPV.

Energy Savings and Economic Benefits

Typical Home Solar+Storage Operation & Energy Pricing



The batteries are used in conjunction with the low-income customers' free solar systems to shift the electricity load from on-peak to off-peak hours. The project not only serves as a proof-of-concept but also sets the stage for scaling up. With the financial structuring in place, TEC can replicate this model to benefit more communities, thereby amplifying the impact of their clean energy initiatives. The benefits of this program to their end customers include:

1. Solar Energy Savings: savings from using solar generation instead of consuming grid electricity
2. Grid Services Revenue: revenue from selling grid services to the energy market using aggregation platforms like Leap and market programs like California's DRAM
3. TOU (Time-of-Use) Savings: savings from shifting electricity use to off-peak hours
4. Reliability and Resilience: The batteries serve as a power backup source when grid power is affected by blackouts or weather events

Quantitative Impact

The project is expected to result in significant energy savings and reduced electricity bills for the beneficiary households. Preliminary data suggests a minimum reduction of 20% in energy bills. Savings vary by home, occupancy behavior, and the presence and size of the [Disadvantaged Communities Single Family Solar Homes](#) (DAC-SASH)-provided accompanying solar systems, however, the value generated by this project is expected to be substantial.

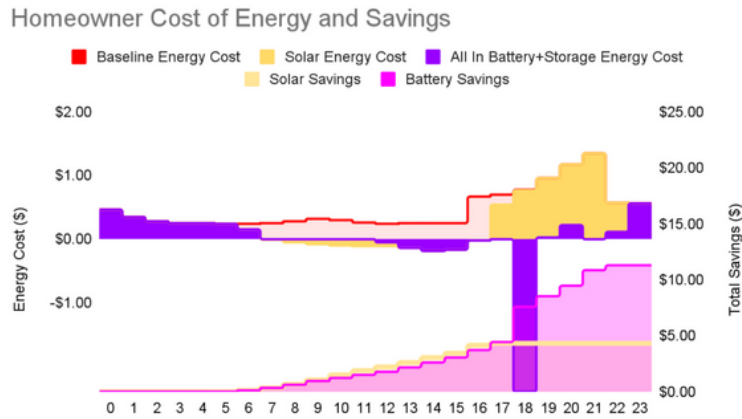
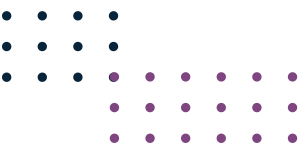


Figure 4 Energy Cost and Savings

For a typical installation with solar in the Southern California Edison (SCE) service territory, installing a battery storage system can reduce homeowners annual energy bills to below zero, even when considering the new Net Energy Metering (NEM) 3.0 rate schedule Figure 5. In this typical instance, the battery system alone represents an additional \$2,500 savings beyond the \$2,400 value of the equipment.

	Annual Energy Cost	Lifetime Energy Cost (10 years)	Lifetime Savings
Baseline Energy Cost	\$4,033.61	\$40,336.13	0
Solar Energy Cost	\$2,478.82	\$24,788.20	\$15,547.93
Solar Storage Energy Cost	\$123.58	\$1,235.78	\$39,100.35
Solar, Storage, TOU Arb	-\$34.99	-\$349.94	\$40,686.07
DERM Program	-\$118.36	-\$1,183.56	\$355.07
Diesel Backup Generator	\$793.78	\$7,937.75	-\$7,937.75
Total Savings	\$4,980.74	\$49,807.39	



Preliminary estimates suggest that each household could conservatively realize savings of at least \$1,400 per year. When scaled to the eventual program size of a thousand households, this translates to a staggering \$16 million over the battery life of 12 years.

On the organizational level, TEC's financing cost for a program of this scale is estimated to be around \$600,000, a figure that should be contextualized against the deployment of \$33 million in capital assets and 15 MW of storage capacity.

Social and Environmental Impact

Beyond the numbers, the project has a broader social and environmental impact. It serves as a model for how clean energy infrastructure can be deployed in disadvantaged communities, thereby democratizing access to renewable energy resources. Moreover, the project aligns with broader environmental goals, contributing to the reduction of carbon emissions and the promotion of sustainable living. Especially given the disproportionate adverse impacts and stress climate change is already putting on low-income and vulnerable communities, the placement of these backup energy storage systems where they are most needed represents a significant contribution towards building a more resilient energy future.

"Securing this financing was a key milestone in ensuring residents in disadvantaged communities have affordable access to clean, renewable energy. Through residential solar plus storage and electrification measures, we are improving residents' comfort and safety, and ensuring everyone participates in the transition to our clean energy future."

-Genaro Bugarin, Director of Energy Innovation at TEC



CONCLUSION

Unlocking this innovative financial instrument allowed TEC to democratize access to equitable smart building infrastructure for low-income households in a disadvantaged community.

Perl Street's Energy-as-a-Service financial model enabled TEC to establish support project credit by leaning on state incentive programs and the fungible value of warehoused equipment. With this battery pilot, TEC was able to successfully gather data, build credit, and create bankable projects, ultimately allowing TEC to deploy more clean infrastructure sooner, and proving out a development model ready for scale.

NEXT STEPS: Equitable Decarbonization with an Off-Balance Sheet SPV: Unlocking the Potential for Healthy and Resilient Homes For All by Leading with Solar + Storage.

While this pilot project featured on-balance sheet financing, scaling is possible using an off-balance sheet SPV to increase leverage and reduce liability to TEC. As a next step, Perl Street can sponsor TEC to become an independent asset manager, infrastructure company, and developer of decentralized energy assets in disadvantaged communities by transferring ownership of the clean energy infrastructure to a separate SPV. Through value stream stacking, the SPV's credit can build off of ongoing revenue and savings generated by the energy assets, allowing TEC to scale the program to 1000+ low-income homes, bypassing the limitations of cash reserves and reliance on temporary grant programs.



There are numerous paths that are open to developers and aggregators of DER projects for commercial or non-profit entities to avail themselves of income tax credits under the recently passed BIL, IRA and other legislation at the federal, state, and county level.

This catalytic capital totals to the tens of billions.

However, while these programs improve the economics of projects considerably, their impact is impinged by the lack of liquidity and limited financial resources at the hands of the project developers and aggregators.

As demonstrated above, Perl Street can unlock liquidity to help commercial or non-profit entities acquire the right blend of financing and terms for deploying their DER assets on programmatic or case-by-case basis.

In addition, Perl Street can assist the borrower to set up the asset company (the SPV as above) and run its financial operations on a streamlined cloud based platform. This allows a reduced cost of operations as well as seamless tracking of the cashflows and financing.

Contact us on team@perlstreet.com for further details.