

OCTOBER 2023

CleanEnergyGroup

Resilient Power Funding Programs

Building the Foundation for Energy Resilient Communities

2022 ANNUAL IMPACT REPORT



ABOUT THIS REPORT

Clean Energy Group (CEG), a national nonprofit advancing innovative solutions to ensure affordable, reliable, clean energy for all, established a Technical Assistance Fund (TAF) to assist environmental justice communities gain access to early-stage project development funding, expert guidance and advisory support, and the technical resources needed to develop community-led solar and energy storage projects that can serve as local resilience hubs during times of crisis. To amplify this work, CEG created the Resilient Power Leadership Initiative (RPLI) to provide community-based organizations (CBOs) with funding support to build internal capacity around resilient power solutions.

Since 2014, CEG's Resilient Power Funding Programs have resulted in over \$1.3 million in funding to 112 CBOs, affordable housing providers, municipalities, and first responders across 26 states, Washington D.C., and Puerto Rico. While recipients represent multiple sectors and geographic regions across the country, they are connected in their shared motivation to build a more resilient, renewable, and reliable energy system for their community.

This report provides an overview and details the impacts of the TAF and RPLI grants for the calendar year 2022. The report reflects on the programs' projects, partnerships, and lessons learned, as well as highlights several of the 2022 awardees, all of which will guide CEG and its partners to greater success in the coming years.

ACKNOWLEDGEMENTS

Clean Energy Group's Resilient Power Funding Programs would not be possible without the generous contributions from our philanthropic partners including The Kresge Foundation, The JPB Foundation, and Connecticut Green Bank. CEG is grateful for their support. The authors would like to thank the 2022 TAF and RPLI awardees for their input and feedback on these programs that allow CEG to continue to improve and expand its work on resilient power access. Finally, the authors would like to thank Seth Mullendore, Maria Blais Costello, and Samantha Donalds of CEG for their contributions to this report.

COVER © KATIE SIKORA

Feed the Second Line GET LIT STAY
LIT solar+storage installation at a New
Orleans restaurant, Queen Trini Lisa.

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Resilient Power Funding Programs
**Building the Foundation for
Energy Resilient Communities**

2022 ANNUAL IMPACT REPORT

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2014-2022 Resilient Power Funding Programs' Impacts

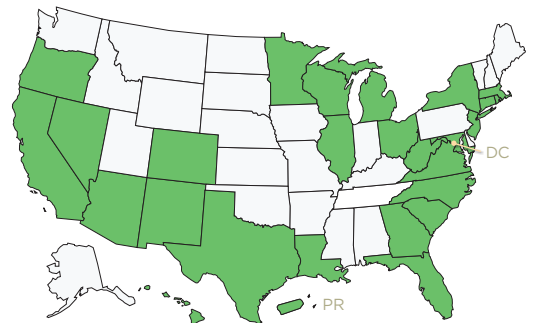
Clean Energy Group (CEG) established two small-grant programs, the Technical Assistance Fund (TAF) and the Resilient Power Leadership Initiative (RPLI), to improve a community's capacity to provide energy assurance, public safety, and better public health outcomes by advancing resilient power technologies—solar paired with battery storage (solar+storage). CEG's Resilient Power Funding Programs seek to expand local knowledge about clean energy and resilient power technologies and build expertise within community-based organizations on the benefits of solar+storage solutions. To date, the TAF and the RPLI have assisted over 100 communities across 28 states and territories in the US to learn more about resilient power and how solar+storage can serve their communities.

255 Community Facilities



Clean Energy Group's **Resilient Power Funding Programs** have advanced the exploration of resilient solar+storage for **255** community facilities in low-income and underserved communities across **28** states and U.S. territories.

28 States and Territories



\$1.3 million in Grant Awards

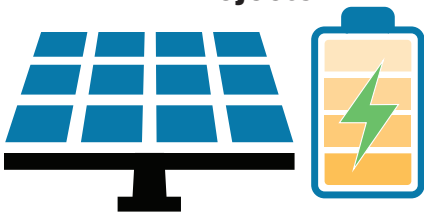


Awarded **130** technical assistance and capacity-building grants totaling **\$1.3 million** to over **100** community-based organizations, municipalities, Native Nations, affordable housing, and community service providers working to advance resilient solar+storage in their communities.

Over 100 Community Service Partners



49 Completed Projects



These collaborations have resulted in **49** completed projects, including fire stations, health clinics, institutions of faith, resilience hubs, municipal facilities, and over **3,000** units of affordable housing.

3,000 Affordable Housing Units



ABOUT CEG'S RESILIENT POWER FUNDING PROGRAMS

Background

Clean Energy Group (CEG) launched the Resilient Power Project in 2013 to help states and communities become better equipped to handle power outages resulting from severe weather events such as Superstorm Sandy, which left over eight million people without power from the Mid-Atlantic to the Northeast in 2012. CEG focuses on equitable and innovative

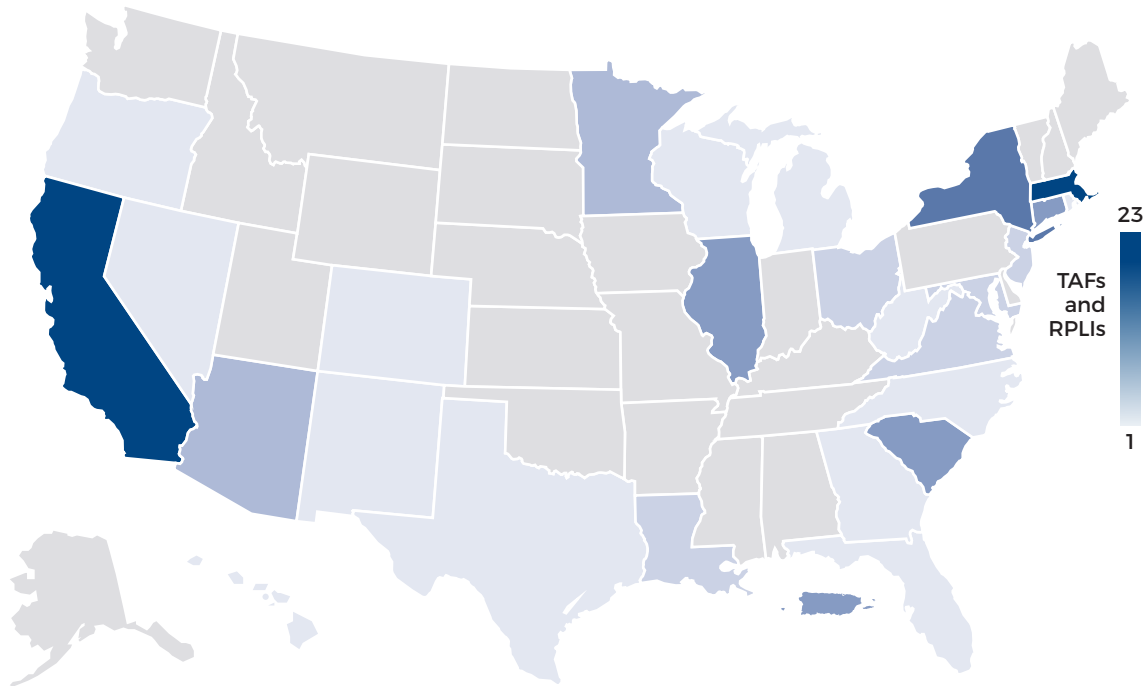
strategies to advance resilient power technologies—solar paired with battery storage—in underserved communities. Recognizing a gap in local knowledge about clean energy and resilient power technologies, CEG established two small-grant programs—the Technical Assistance Fund (TAF) and the Resilient Power Leadership Initiative (RPLI)—to enable communities to learn more about how resilient power solutions can bring improved health, safety, and economic benefits to the most at-risk and marginalized populations, such as medically vulnerable households, environmental justice communities, and communities of color. CEG is committed to awarding at least 50 percent of the technical assistance funding to BIPOC-led organizations. The funding programs provide awardees with one-on-one technical expertise and capacity-building opportunities, in addition to technical assistance grants. Since 2014, CEG has provided over \$1.3 million in funding across 26 states, Washington, DC and Puerto Rico (see Figure 1, page 7).

Recognizing a gap in local knowledge about clean energy and resilient power technologies, CEG established two small-grant programs—the Technical Assistance Fund (TAF) and the Resilient Power Leadership Initiative.

What is Resilient Power?

Resilient power—solar photovoltaics (PV) paired with battery storage (solar+storage)—can provide a facility with continuous, reliable power in the event of a power outage. As long as the sun is shining, a well-designed solar+storage system can continue to recharge a battery throughout an outage. Although a battery can be charged from the grid, without onsite solar connected to the battery, it has limited capacity to provide power during an extended outage. Unlike traditional diesel generators, solar+storage systems are more dependable, do not emit hazardous pollutants, and do not depend on fossil fuels—meaning they are immune to the fuel shortages common following a natural disaster. During times of regular grid operation, solar+storage can provide economic benefits such as offsetting grid electricity consumption. To learn more about solar+storage, see Clean Energy Group's 2020 report, [Understanding Solar+Storage: Answers to Commonly Asked Questions about Solar PV and Battery Storage](#) or visit CEG's website at www.cleanegroup.org or www.resilient-power.org.

FIGURE 1
**2014-2022 Technical Assistance Fund and
 Resilient Power Leadership Initiative Awardees by State**



Since 2014, CEG's small-grant programs have provided over \$1.3 million in funding to 112 community-based organizations, affordable housing providers, municipalities, and critical service providers across 26 states, Washington, D.C., and Puerto Rico.

Source: Clean Energy Group

What is the Technical Assistance Fund?

Clean Energy Group created the Technical Assistance Fund (TAF) to fill a critical resource gap by equipping community-serving organizations with the information they need to advance solar+storage to power essential community services during grid outages. The first steps to acquiring a resilient solar+storage system can be resource intensive, requiring organizations to commit time and money to try to determine the costs and benefits. The TAF seeks to reduce the barriers to accessing preliminary information by providing funding for organizations to engage a third-party engineer to conduct a solar+storage feasibility assessment at a specific community-serving facility. TAF grants are typically \$8,500 per facility.

Through the process of developing a feasibility assessment, community-serving organizations receive the following support and information:

- Consultation with CEG and an experienced third-party engineer to identify the organization's resilience goals, such as continuing services during power outages, saving money on electric bills, or acting as an emergency shelter during outages.
- Estimated solar and battery storage sizing options that can meet those resilience goals.
- Anticipated resiliency benefits, such as the duration of backup power a system of that size can provide.

- Anticipated environmental benefits, such as emissions reduction potential.
- Financial modeling for the 20-year lifespan of the system, including upfront installation costs, yearly maintenance, and potential incentives and demand response programs that can reduce costs.

The TAF-supported feasibility assessment results in a comprehensive report of how solar+storage could serve a facility and provides TAF awardees with the site-specific information they need to pursue next steps in project development, such as leveraging this information to obtain funding and/or financing for project implementation.

Throughout the TAF process, CEG provides dedicated one-on-one support to help organizations gain a better understanding of solar+storage and its benefits. CEG serves as an advisor throughout the process, ensuring that each organization's questions are answered and their unique energy resilience, economic, and community goals are prioritized.

To learn more about the Technical Assistance Fund, visit www.cleanelectric.org/initiatives/technical-assistance-fund.

What is the Resilient Power Leadership Initiative?

In an effort to seed long-term, community-led programs that further advance energy equity and environmental justice, CEG created the Resilient Power Leadership Initiative (RPLI). Through this initiative, RPLI grants have been awarded to nonprofits, primarily community-based and/or grass-roots organizations working in the areas of affordable housing, environmental justice, energy equity, and sustainability. Grant recipients use the awards to develop internal capacity for resilient power awareness and implementation strategies in underserved and marginalized communities.

A RPLI grant is typically \$10,000 and is awarded to community-serving organizations that are interested in advancing energy equity and environmental justice beyond the installation of a single solar+storage system, which is the focus of TAF awards. All recent RPLI recipients have been BIPOC-led organizations. CEG provides one-on-one support to the organization over the course of the award year to help them realize programmatic goals. Since the goal of the RPLI is to provide capacity-building support, there are minimal requirements for how organizations use the grant. Some examples from previous RPLI awardees include the following:

- **Faunteroy Community Enrichment Center:** The Faunteroy Center, a community center serving the historically Black Deanwood neighborhood of Washington, D.C., was awarded a RPLI grant in 2021 and used the support from CEG to develop and integrate a solar+storage focused module into their existing Summer Youth Program, laying the groundwork for future youth workforce development in clean energy.
- **Sail Relief:** Sail Relief, an emergency aid nonprofit, received a RPLI award in 2019 to support its recovery efforts on the island of Vieques, Puerto Rico following Hurricane Maria. Sail Relief used its RPLI support to train two local high school graduates to become solar technicians, and to begin developing a community microgrid to provide power to the island, which was experiencing frequent outages.



Source: Together New Orleans

- **Local Initiatives Support Corporation (LISC) Boston:** LISC Boston is dedicated to helping community residents transform distressed neighborhoods into healthy communities of choice. LISC used its RPLI grant awarded in 2018 to support a series of peer learning forums with affordable housing partners on the benefits of solar+storage, as well as to identify potential affordable housing candidates for solar+storage.
- **WE ACT for Environmental Justice:** WE ACT's mission is advance environmental justice by ensuring that people of color and low-income residents of New York City can participate in the creation of fair environmental health and protection policies. WE ACT received a RPLI grant in 2017 and used it to support staff's continued implementation of its Northern Manhattan Climate Action Plan, which is dedicated to making the neighborhoods of Harlem, Washington Heights, and Inwood more resilient.

To learn about the organizations that were awarded RPLI grants in 2022, see Resilient Power Leadership Initiative Highlights in Section 1.

To learn more about the Resilient Power Leadership Initiative, visit www.cleangroup.org/initiatives/resilient-power-leadership-initiative.

CEG's Commitment to the Equitable Distribution of Funds

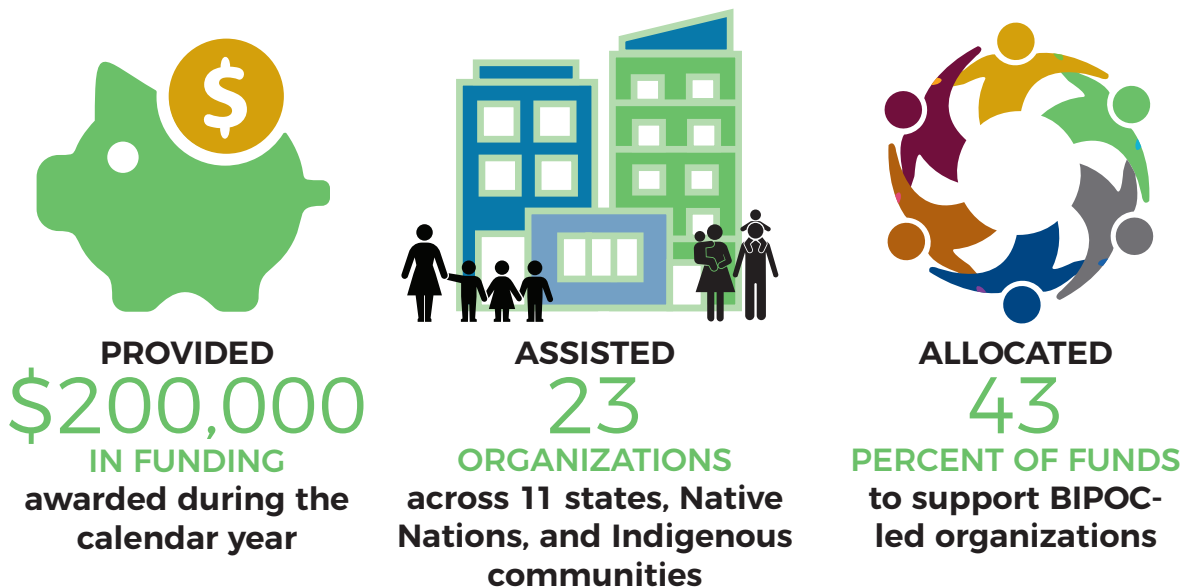
In 2020, CEG has made a commitment to allocate 50 percent of annual TAF awards and 100 percent of RPLI funding to advance the work of organizations led by Black, Indigenous, and People of Color (BIPOC). In prioritizing funds for BIPOC-led organizations, CEG seeks to increase access to resilient solar+storage systems for those most impacted by the climate crisis, including projects led by Indigenous, Black, Latine, and Asian organizations. Institutions that are staffed by and directly serve BIPOC community members face more barriers to accessing funding to pursue much-needed resilient power technologies. Though much more work needs to be done, CEG is committed to expanding access to clean energy and combatting environmental racism, which shares the same roots as the myriad racial injustices and brutalities endured by BIPOC communities for centuries.

SECTION 1

2022 TAF AND RPLI AWARDEES

In 2022, Clean Energy Group's Technical Assistance Fund (TAF) and Resilient Power Leadership Initiative (RPLI) welcomed a cohort of 23 community-based organizations and service providers to explore how solar+storage could help with resiliency, utility bill savings, and public health. The year's awardees come from a wide range of backgrounds and experience, each representing their own unique community. Awards went to 11 states across the country, from California to Massachusetts. A complete list of 2022 TAF and RPLI awardees is shown in Table 1 (page 10). In 2022, 43 percent of funding support went to BIPOC-led community serving organizations. This year represented the highest percentage of funding awarded to BIPOC-led organizations since the programs were established.

2022 IMPACT OF CLEAN ENERGY GROUP'S TECHNICAL ASSISTANCE FUND AND RESILIENT POWER LEADERSHIP INITIATIVE PROGRAMS



Technical Assistance Fund Highlights

In 2022, CEG provided nearly \$200,000 in TAF awards to 21 community-based organizations (CBOs) and service providers across eight states and Washington, DC. CBOs and community service providers received eight awards; recipients included grassroots organizations, institutions of faith, and Indigenous-led advocacy and cultural organizations. The remaining 13 TAF's were

TABLE 1
**2022 Technical Assistance Fund and
 Resilient Power Leadership Initiative Awardees**

| Project Name | Project Type | Organization | State | Award |
|---|----------------------------|---|-------|-------|
| Navajo Nation Off-Grid Residential Homes | Affordable Housing | Navajo Nation, Chichibeto Chapter | AZ | TAF |
| DignityMoves Rohnert Park | Affordable Housing | DignityMoves | CA | TAF |
| DignityMoves Mobile Microgrid | Affordable Housing | DignityMoves | CA | TAF |
| LifeMoves | Affordable Housing | LifeMoves and the City of Palo Alto | CA | TAF |
| Temple Beth Sholom | Religious Institution | Temple Beth Sholom | CA | TAF |
| Button Hill Senior Affordable Housing | Affordable Housing | Willington Housing Authority | CT | TAF |
| Enfield Housing Authority | Affordable Housing | Enfield Housing Authority | CT | TAF |
| Haystack Woods Affordable Ownership | Affordable Housing | Foundation for Norfolk Living | CT | TAF |
| Kingsway HUD Elderly Housing | Affordable Housing | Kingsway Group, Kings Daughters and Sons Housing | CT | TAF |
| Jubilee Housing | Affordable Housing | Jubilee Housing | DC | TAF |
| Ko'olauloa Resilience Hub | Resilience Hub | Hui o Hau'ula | HI | TAF |
| Gentilly Beehive Microgrid | Emergency Management | Groundwork New Orleans (on behalf of NET Charter High School: Gentilly) | LA | TAF |
| SPROUT NOLA Community Garden | Community Garden | SPROUT New Orleans | LA | TAF |
| Nonantum Village Place | Affordable Housing | CASCAP, Homeowners Rehab | MA | TAF |
| Hillandale Gateway | Affordable Housing | Housing Opportunities Commission of Montgomery County | MD | TAF |
| Newburgh Housing Authority | Affordable Housing | Newburgh Housing Authority | NY | TAF |
| Gethsemane Greenville Baptist Church | Religious Institution | Gethsemane Greenville Baptist Church | SC | TAF |
| Gullah/Geechee Energy Hub | Resilience Hub | Gullah/Geechee Sea Island Coalition and Gullah/Geechee Angel Network | SC | TAF |
| Upstate Circle of Friends | Religious Institution | Upstate Circle of Friends | SC | TAF |
| Solon Springs School | School | Solon Springs School | WI | TAF |
| WHPC Microgrid | Affordable Housing | Villa West Senior Housing | WI | TAF |
| GET LIT STAY LIT, Restaurant Resilience Program | Internal Capacity Building | Feed the Second Line | LA | RPLI |
| Solar+Storage Training Program | Workforce Development | United Parents Against Lead & Other Environmental Hazards (UPAL) | VA | RPLI |

Source: Clean Energy Group

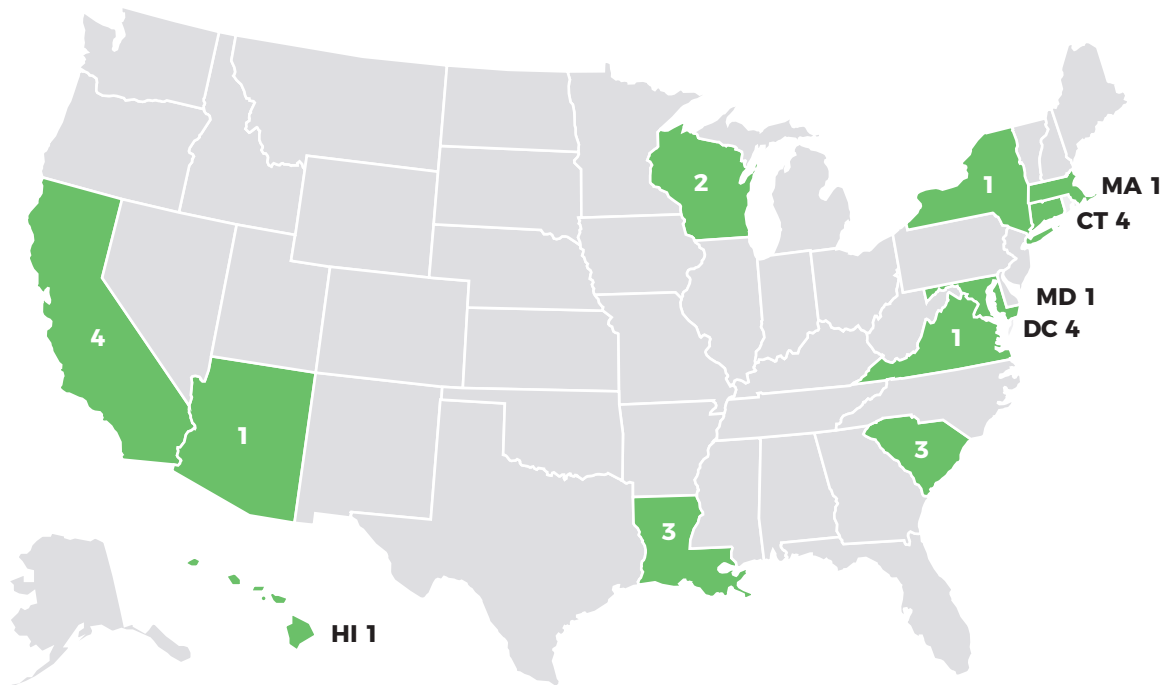
awarded to affordable housing projects led by nonprofit affordable housing developers, city housing authorities, transitional and long-term supportive housing organizations, Native Nations, and Indigenous communities. While most housing projects were multifamily affordable housing, two TAF awards supported solar+storage for off-grid, single-family homes in Navajo Nation (to learn more about these two projects, see “Resilient Power for Public Health,” page 20).

Of the \$200,000 awarded, more than \$72,000 of TAF funding went to BIPOC-led organizations. At nearly 40 percent of total funding, this is the highest percentage of TAF funding awarded to BIPOC-led organizations since the inception of CEG’s BIPOC commitment goal set in 2020. CEG will continue its outreach efforts in vulnerable communities to ensure that 50 percent of TAF funding is distributed to BIPOC-led organizations in the coming years.

Geographic Expansion

In 2022, TAF grants were awarded for the first time to organizations from Wisconsin and Louisiana. In Wisconsin, solar+storage feasibility assessments were conducted at a low-income senior living facility and a public school district. In Louisiana, solar+storage was explored to 1) support energy security through refrigerated storage for produce from local farmers and

FIGURE 2
2022 Technical Assistance Fund Awardees by State



In 2022, the Technical Assistance Fund Awards were awarded to projects in eight states and the District of Columbia. Projects in Wisconsin and Louisiana were awarded TAFs for the first time this year.

Source: Clean Energy Group

2) develop a pilot for how stationary storage can support mobile solar+storage resources during emergency response (to learn more about the New Orleans projects, see “Mobile Solar+Storage,” page 20).

Completed TAF Projects

On average, 25 percent of TAF recipients have moved forward to install a solar and/or solar+storage system. In most cases, the project development and installation process can take several months or years. In 2022, at least six prior-year TAF awardees completed the installations of solar or solar+storage systems. Many of these projects had been in development for years, held up by significant delays such as the corona virus pandemic and interconnection issues (to learn more about barriers to project development, see “Barriers” on page 34). The solar or solar+storage projects completed in 2022 by previous TAF awardees include the following.

“Clean Energy Group’s Technical Assistance Fund has been critical in our ability to conceptualize and design solar, storage, and resilience hub projects in the Midwest. With their support, we have five projects in construction and many more in the pipeline.”

VITO GRECO

Director of Solar Programs
Elevate

COMMUNITY SOLAR RESILIENCE HUB

United Parents Against Lead (UPAL), a Virginia-based environmental justice nonprofit, purchased a former USO center to be remodeled and developed into a resilience hub and workforce development training center in Petersburg, a historically Black neighborhood. UPAL was able to install solar panels on the site but is still awaiting battery storage. Once the battery is installed, the center will be able to serve as a resilience hub in a neighborhood that experiences frequent flooding, giving community members a place to shelter, charge their phones, and receive emergency aid. UPAL was also awarded a RPLI to support solar+storage workforce development efforts at the Hub (to learn more about UPAL’s RPLI, see “Resilient Power Leadership Initiative Highlights” on page 16).

FINCH CAMBRIDGE (FORMERLY CONCORD HIGHLANDS)

The Finch Cambridge multifamily affordable housing development, formerly known as Concord Highlands, in Cambridge, Massachusetts, includes 98 units for low-income families. Homeowner’s Rehab, Inc. developed and manages the site, and was able to install solar on the building. Battery storage was not financially feasible for the site, but the solar has provided savings of thousands of dollars in utility bills.

GLEASON FAMILY YMCA

The Gleason Family YMCA has been serving families in Wareham, Massachusetts for nearly 20 years. The facility was able to install solar panels in 2022 and plans to install a battery system in 2023. Once the battery is installed, the YMCA will be able to serve as a resilience hub for the surrounding community, providing shelter and electricity during emergencies and power outages.

COMPLETED TAF PROJECT: VIEQUES ISLAND SOLAR+STORAGE

Since receiving a TAF in 2019, [Community Through Colors](#)—a small community-led nonprofit—has built **over 16 solar+storage systems** in Vieques, Puerto Rico, totaling 225 kilowatts of solar and 355 kilowatt-hours of lithium-ion battery storage. This resilient infrastructure provides power to the island’s emergency communications tower, cancer center, emergency medical center, multiple hurricane resilience hubs, fire department, and other community facilities, as well as to community members reliant on energy dependent medical equipment during the island’s frequent black-outs and near daily brown-outs. After Hurricane Fiona in 2022, these solar+storage systems remained operational through Vieques’ extended, island-wide blackout.



Rooftop solar installed in Vieques, Puerto Rico.

Source: Community Through Colors



Battery installed in Vieques, Puerto Rico

Source: Community Through Colors

“Our organization applied for the Technical Assistance Fund to provide Vieques, Puerto Rico equitable access to resilient energy following the devastation of Hurricane Maria. Participation in the Fund proved invaluable as it provided the support necessary for us to successfully develop a community solar microgrid plan, reduce energy costs and increase energy efficiency, and promote sustainable practices in our community.” — **OSCAR RUIZ**, President and Executive Director, [Community Through Colors](#)

SOMA STUDIO AND FAMILY APARTMENTS

The SOMA Studio and Family Apartments, owned and operated by the Tenderloin Neighborhood Development Corporation (TNDC), serve 162 low-income families and individuals in San Francisco. TNDC was able to install solar panels on the three buildings that make up the SOMA site, but battery storage was not feasible. The solar installation has allowed TNDC to save thousands of dollars, and should TNDC wish to revisit battery storage, the organization will be able to connect the existing solar to the battery to provide reliable backup power during power outages in the apartments' community spaces.

UNION SQUARE APARTMENTS

This 35-unit multifamily affordable housing development serves low-income residents of Somerville, Massachusetts. The project was unable to install battery storage due to technical complications with the design but did install solar panels in 2022. The solar helps to offset the electricity costs for common areas of the building and will enable the site to offer resilient power backup should a battery be installed later.

VIEQUES ISLAND RESILIENCY HUB NETWORK

Community Through Colors, a small nonprofit in Vieques, Puerto Rico, was able to install 16 solar+storage systems on the island of Vieques. The systems power community resilience hubs and emergency shelters across the island, which serve residents both during natural disasters and during near daily brownouts (for more information, see box, "Completed TAF Project: Vieques Island Solar+Storage").

Resilient Power Leadership Initiative Highlights

In 2022, CEG awarded two RPLI awards totaling \$20,000 to community-based organizations, one in Virginia and one in Louisiana. For a second year in a row, 100 percent of RPLI funding was awarded to BIPOC-led organizations. The 2022 RPLI awardees were Feed the Second Line in New Orleans, LA and United Parents Against Lead and Other Environmental Hazards (UPAL) in Petersburg, VA.

FEED THE SECOND LINE, NEW ORLEANS, LA

Feed the Second Line, a nonprofit organization dedicated to supporting the culture bearers of New Orleans, applied for the RPLI to support internal capacity building efforts for their GET LIT STAY LIT program. GET LIT STAY LIT provides New Orleans restaurants access to solar+storage technologies. Many of these restaurants are forced to close and throw away spoiled food during a power outage due to a lack of refrigeration. Solar+storage ensures that food remains refrigerated and available to the community, while also allowing the restaurants to remain open and operational. The restaurants also become cooling centers, cell phone charging sites, and food distribution sites for their neighborhoods.



Feed the Second Line GET LIT STAY LIT solar+storage installation at a New Orleans restaurant, Queen Trini Lisa. Source: Katie Sikora

“The RPLI provides extra support for Feed the Second Line leadership to continue the work being done on the frontlines—in efforts to continue to support the communities in our city in the aftermath of a natural disaster through our Get Lit Stay Lit program.” — TINICE “TEE” WILLIAMS, Executive Director, [Feed the Second Line](#), 2022 RPLI Awardee

UNITED PARENTS AGAINST LEAD AND OTHER ENVIRONMENTAL HAZARDS (UPAL), PETERSBURG, VA

UPAL, a national nonprofit networking organization of and for parents of lead poisoned children, utilized the RPLI to advance their workforce training program, with funds supporting their first cohort of solar+storage installer trainees. In addition to coursework, the 20-student class participated in the installation of solar panels at a historic USO facility in Petersburg, Virginia that is being converted into a community training center and solar+storage resiliency hub. The students were primarily community members, and the course focused on allowing students to “enter as an absolute beginner and leave with basic and advanced knowledge needed to stand out as a PV professional.” In addition to RPLI support, CEG provided a Technical Assistance Fund award in 2021 for UPAL to conduct a solar+storage assessment at the USO site.

“We are thankful to Clean Energy Group for providing the technical assistance funds that made it possible for us to have a much-needed feasibility study performed on our building. With the feasibility study we were able to determine the exact amount of solar panels and battery storage we would need to power the Community Resiliency Hub. Clean Energy Group, through the Resilient Power Leadership Initiative, also funded UPAL’s inaugural Solar PV Installation training session held on August 29th through September 22, 2022. We graduated 20 individuals who will contribute to Virginia’s clean energy workforce.”

— **QUEEN ZAKIA SHABAZZ**, Founder and Director, United Parents Against Lead and Other Environmental Hazards (UPAL), 2022 RPLI Awardee



UPAL’s first graduate class for solar+storage training. Source: UPAL

SECTION 2

2022 SOLAR+STORAGE TRENDS

Each year, Clean Energy Group’s work with the Technical Assistance Fund sheds light on new or continued trends in solar+storage development. Consistently, at least a portion of TAF demand is driven by state and utility support of solar+storage; organizations located in regions with more supportive clean energy policies are oftentimes more motivated to take advantage of resulting programs and pursue solar+storage projects in their communities. The 2022 federal Inflation Reduction Act (IRA) has many provisions that support the expansion of solar and solar+storage; its passage will likely increase applications to the TAF for years to come. In 2022, CEG also saw more interest in solar+storage projects to support specific public health efforts, including resilient power for medically vulnerable populations and emergency management initiatives. Lastly, although stationary solar+storage systems remain the primary system type considered for grants, more mobile solar+storage applications were explored than in years prior.

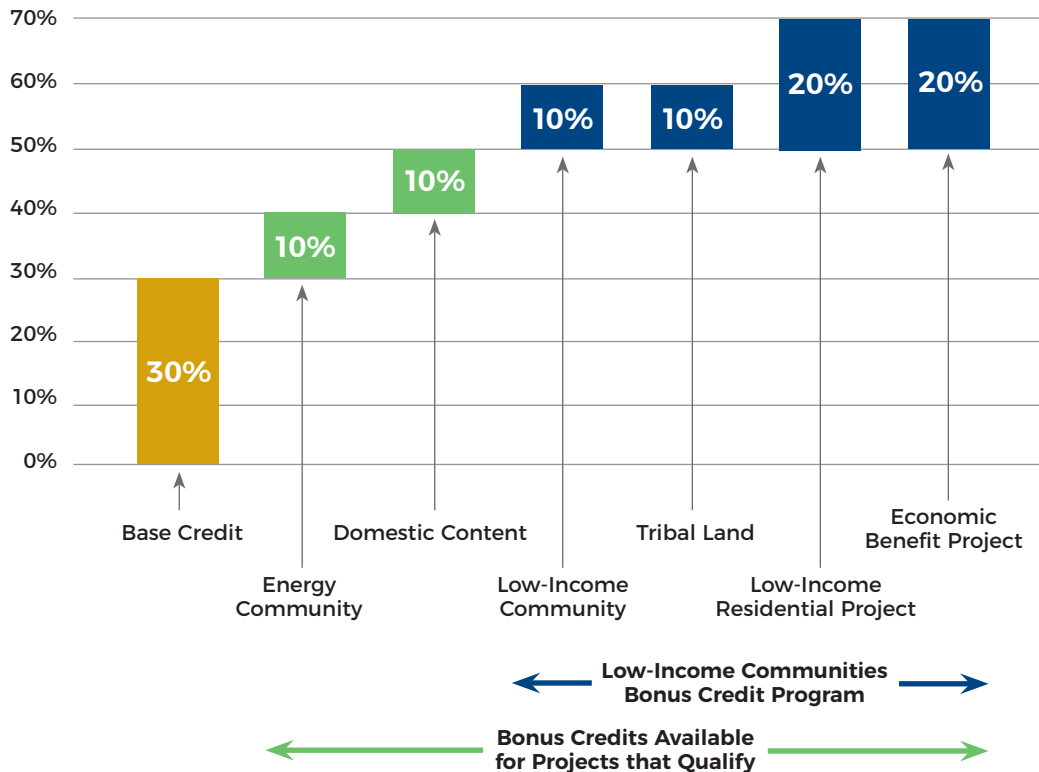
The Impact of the 2022 Inflation Reduction Act on Solar+Storage

In 2022, federal policy became an important driver for solar+storage projects as new tax incentives made solar and solar+storage more accessible to low-income and marginalized communities. The Investment Tax Credit (ITC) is a federal incentive to encourage the deployment of clean energy technology in the United States. It allows individuals or businesses to deduct a certain percentage of the costs for installing clean energy systems from their taxes. The Inflation Reduction Act of 2022 (IRA) updated and expanded the ITC for solar and/or battery storage technologies in four crucial ways:¹

1. Nonprofits, municipalities, and Tribal governments, which do not have a tax liability, can now apply for an elective pay reimbursement equal to the value of the tax credit, also known as “direct pay”
2. Storage-only projects are now eligible for the ITC
3. The ITC baseline was increased to 30 percent of eligible project installation costs
4. Six “bonus credits” or “adders” were created to support projects serving low-income and/or environmental justice communities (see Figure 3, page 19)

¹ To learn more about how changes to the ITC can impact non-profits, see www.cleangroup.org/what-nonprofits-need-to-know-about-the-investment-tax-credit and www.cleangroup.org/publication/investment-tax-credit-fact-sheets-bonus-credit-program.

FIGURE 3
Bonus Credits Available within the Investment Tax Credit



The federal Investment Tax Credit and its six bonus credits authorized through the Inflation Reduction Act could reduce eligible solar+storage project costs by up to 70 percent.

Source: Clean Energy Group

Since the TAF was started in 2014, it has often been the case that TAF recipients who did not move forward with project development most often cited cost as the primary barrier to solar+storage systems being built. With the new ITC guidelines, over half of the TAF recipients that did not move forward with proposed solar+storage installation in the past could now qualify for 40 percent or more in credits. Such significant incentives could support organizations in overcoming cost barriers by dramatically increasing the project’s financial feasibility.²

Because of the provisions in the IRA regarding tax credits and bonus credits, over 60 percent of all past and current TAF awardees could now be eligible for the 10 percent low-income community bonus credit and approximately 20 percent of projects could now be eligible for the 10 percent energy communities bonus credit. Overall, 12 percent of proposed projects could be eligible for both. Because of the improved economic case for solar+storage projects, CEG expects that demand will increase for its technical assistance and the number of applications for the TAF will continue to grow.

² To learn more about the ITC bonus credits, view CEG’s series of fact sheets at <https://www.cleanegroup.org/publication/investment-tax-credit-fact-sheets-bonus-credit-program>.

Resilient Power for Public Health

Since 2019, Clean Energy Group has focused on the relationship between energy security and public health.³ The combination of increasing numbers of natural disasters and an aging, outdated, and fossil-fuel dependent energy system has resulted in widespread, frequent, and, oftentimes, lengthy power outages. These outages force the most at-risk populations into life threatening situations. This is especially true for medically vulnerable individuals, including the elderly and those reliant on electricity-dependent home medical equipment. Resilient power can provide reliable, renewable, and automatic backup power, ensuring that high-risk individuals have access to local backup power resources in the event of an outage.

In 2022, CEG was presented with unique opportunities to support health-focused resilient power projects. Several TAF awards were made to support medically vulnerable communities, including an affordable housing complex that serves seniors and/or people living with disabilities in Wisconsin; transitional and supportive housing in California; senior affordable housing in Connecticut; and a resilience hub serving a remote community in Hawaii. One particularly innovative, health-driven TAF award explored the potential benefits of solar+storage for off-grid single-family homes in Navajo Nation (see Box, page 21).



Source: Solar Responders

Mobile Solar+Storage

Community-based organizations and local governments are increasingly interested in mobile solar+storage systems to support vulnerable populations. Mobile solar+storage systems consist of solar panels and a battery, typically installed on a trailer or other vehicle, allowing the system to travel, charge, and operate independently from a stationary solar+storage system. Mobile systems can be used both to power other facilities and/or to act as a stand-alone backup power resource.

In the event of an outage, mobile solar+storage systems can be transported to support critical community facilities—such as community health clinics, senior centers, and fire stations—and public health entities. In prior years, TAF partners have utilized mobile solar+storage systems to support emergency first responders, such as powering Red Cross computers and communication

³ To learn more about how power outages impact public health, and how resilient power can support response and recovery, see the following Clean Energy Group resources: *Home Health Care in the Dark: Why Climate, Wildfires and Other Risks Call for New Resilient Energy Storage Solutions to Protect Medically Vulnerable Households from Power Outages* at <https://www.cleangroup.org/wp-content/uploads/Home-Health-Care-in-the-Dark.pdf>; and *Resilient Power: Battery storage as a home-based solution to address climate-related power outages for medically vulnerable populations* at <https://www.cleangroup.org/publication/resilient-power-battery-storage-medically-vulnerable-futures>.

SOLAR+STORAGE FOR MEDICALLY VULNERABLE RESIDENTS: A TAF FOR NAVAJO NATION

Residents of the Navajo Nation Mountain Chapter that reside more than three to six miles from the main power lines are typically not provided service from the electric utility. In the 1990s, some homes received solar and lead-acid batteries to generate power off-grid, but these technologies have since failed due to design flaws. The TAF supported the development of a solar+storage feasibility assessment for two single-family homes for residents that required electricity for medical purposes. These homes are located in an area that is inaccessible to ambulances and is 40 miles from the nearest hospital, on roads that can only be driven at 5 miles per hour with off-road vehicles. Each home was served by a small diesel generator, primarily used to power electricity at night.

When solar+storage is installed, each of these single-family homes could serve as a hub for other nearby off-grid residents living in rural and remote Native communities. At least one home is already scheduled to install 1.6 kilowatts of solar and 10.2 kilowatt-hours of battery storage. The solar+storage system will be able to provide power for up to two days, depending on how many appliances are turned on simultaneously.



TAF engineerig partners with Navajo Nation residents receiving solar+storage on their family home.

Source: JPHB



The home is only accessible by traveling on steep and unpaved roads. Source: JPHB

systems in the field and using the portable systems as a mobile emergency management department in rural communities.⁴

In addition to rapid emergency response, mobile solar+storage solutions can be used to adapt to the needs of vulnerable populations. In these instances, mobile solar+storage transforms into systems that can be easily and efficiently taken apart and transported to new locations, effectively allowing community service providers to travel to and set up sites where their services are needed most. In 2022, CEG awarded TAF awards to the Footprint Project and to Dignity Moves to develop mobile solar+storage solutions.

Layered resilient power system deployment for emergency response. The Gentilly Beehive Microgrid project, designed by Footprint Project in partnership with Groundwork New Orleans and the NET Gentilly Charter School, received a TAF award to demonstrate how stationary solar+storage can support mobile battery storage units that can be charged and then dispatched during emergencies to the communities who need backup power the most. Mobile solar trailers will be parked onsite and connected to a stationary microgrid. During an outage, the solar trailers will be deployed where needed for emergency power.



Willie Jones installing a solar panel “wing” on a prototype solar trailer “Bee” on the Net 2 Gentilly “Beehive.” Source: Footprint Project

⁴ A mobile solar+storage trailer in Puerto Rico, designed by Footprint Project in partnership with Sail Relief, has supported the Vieques Oficina Municipal para el Manejo de Emergencias (OMME) office in Vieques, Puerto Rico since 2020. To learn more about this 2018 TAF recipient, visit www.cleangroup.org/initiatives/technical-assistance-fund/featured-installations/vieques-emergency-management-trailer.

“CEG’s TAF has been instrumental in seeding our earliest, most innovative projects. Our current TAF-supported initiative, the Beehive Microgrid, envisions pairing mobile solar generators with a permanent solar and battery storage microgrid for layered community resilience. Taking this from concept to construction drawings requires patient, thoughtful partners, and we’re deeply grateful to have CEG’s support. The TAF is a kick-starter for community resilience.” — WILL HEEGAARD,
Operations Director, [Footprint Project](#), 2022 TAF Awardee

Powering Temporary Affordable Housing and Service Sites. [DignityMoves](#) is a California-based nonprofit working to end unsheltered street homelessness by building cost-effective, resilient transitional housing. DignityMoves partnered with Clean Coalition, a nonprofit seeking to accelerate the transition to renewable energy through technical, policy, and project development expertise, to complete a TAF-supported feasibility assessment for a solar+storage system designed for use at temporary housing structures. The solar+storage microgrid will deliver utility bill savings and added resilience for a temporary housing and community services complex and is designed to facilitate easy relocation every three to five years. This unique feature allows the solar+storage system to align with DignityMoves’ mission of providing housing and support services where they are needed, rather than making unhoused populations come to them.

Each year, CEG fields an increasing number of requests to provide informational materials related to mobile solar+storage. Working with TAF partners, awardees, and engineers, CEG has published multiple webinars, reports, and blogs on the subject.⁵

TAF Awards by State

Clean Energy Group receives applications for the TAF from all regions of the country. For the second year in a row, California received the most TAF awards (see Table 1, page 11). There are a variety of reasons for the higher number of TAF applications from California, including a favorable economic and policy environment for solar+storage development.⁶ This year, Connecticut tied with California for the number of TAFs awarded, driven in large part due to the recently passed Energy Storage Solutions program, which incentivized solar+storage for residential and commercial facilities.⁷ The number of applications from Connecticut can be attributed to both the new incentive program, as well as to the targeted technical assistance CEG has provided to Connecticut’s affordable housing providers through a partnership with Connecticut Green Bank (to learn more about this partnership and initiative, see “Partners by Sector,” page 29).

While the availability of state incentives for solar or solar+storage installations has prompted many TAF applications, there has also been a significant increase in interest from community

5 Clean Energy Group published the following mobile solar+storage resources in 2022, including the following: Webinar— Mobile Solar+Storage for Emergency Management, see www.cleangroup.org/webinar/mobile-solarstorage-for-emergency-management. Blog - Solar+Storage Supports Emergency Response in Puerto Rico After Hurricane Fiona, see www.cleangroup.org/solarstorage-supports-emergency-response-in-puerto-rico-after-hurricane-fiona. Blog— Resilient Power for Emergency Operations: Freeing First Responders from the Burden of Unreliable Backup Power, see www.cleangroup.org/resilient-power-for-emergency-operations.

6 Four TAFs were awarded to California-based organizations in 2022, compared to five in 2021.

7 To learn more about Connecticut’s Energy Storage Solutions program, visit www.ctgreenbank.com/home-solutions/energy-storage-solutions.

service providers in states experiencing more frequent and intense environmental disasters due to climate change. In 2022, many of these applications came from New Orleans-based partners, where a robust, community-based, movement-building effort has led to a spike in resilient power advocacy and system deployment. Despite a challenging utility and regulatory environment, community leaders in New Orleans are pursuing local solar+storage solutions to build resilience in the event of a natural disaster such as those that occur regularly in that city: hurricanes, tornadoes, and dangerous heat waves.

TAF Awards by Sector

Through the TAF, CEG supports solar+storage installations at facilities for critical community services providers across the United States. Awardees fall into five categories: affordable housing, community organization, medical facility, Tribal Nations, or state/municipal projects.

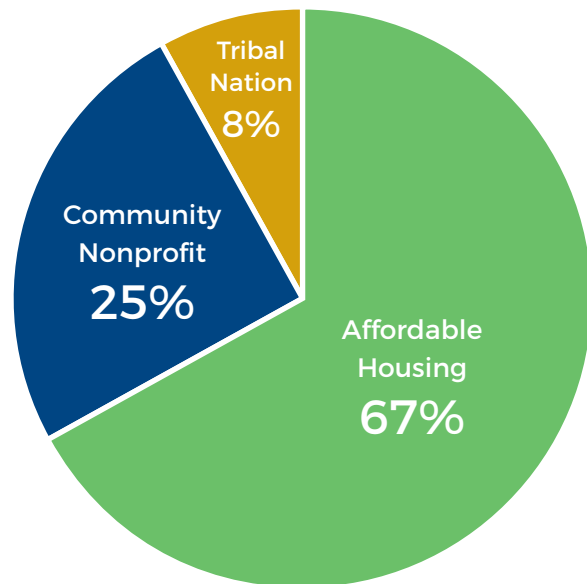
The technical assistance that CEG provides via the TAF is widely sought by groups that develop or manage affordable housing. This sector accounts for 67 percent of the TAF awards made in 2022 (see Figure 4). TAF popularity among affordable housing providers is, in part, due to an increased interest in providing backup power to community spaces that would allow for residents to shelter in place when power outages occur. Additionally, many affordable housing providers pay for the utilities for common area spaces, which resilient power systems can help to offset, resulting in what can be significant utility bill savings.

Community-based organizations represented 25 percent of TAF awardees for 2022. Notably, this year, CEG saw a greater diversity in community organizations that applied for and received TAF and RPLI awards. Six of the ten

COMMUNITY HIGHLIGHT: NEW ORLEANS SOLAR+STORAGE

SPROUT NOLA, a nonprofit in New Orleans that works on food systems and farming, received a TAF in 2022 to support increasing the food security in low-income communities during an outage by powering refrigeration to protect fresh food grown by local farmers. In the event of an outage, farmers have been forced to watch food spoil as record temperatures impact their supplies. With reliable backup power for refrigerated cooling, farmers can both store their goods and coordinate with emergency management to ensure that local, fresh food is available to vulnerable residents through an outage. Learn more about their work at www.sproutnolafarm.org.

FIGURE 4
2022 Technical Assistance Fund Awards by Sector



Technical Assistance Fund grants are awarded to community service providers across five categories: Affordable Housing, Community Nonprofit, Medical Facility, State/Municipal Facility, and Tribal Nation.

Source: Clean Energy Group



Source: Clean Energy Group

TAFs awarded to community organizations were to BIPOC-led organizations. Additionally, three TAF awards were granted to Native Nations and Indigenous communities in 2022, the most awards of any year. The historic lack of TAF applications from Native Nations and Indigenous communities was one of the driving factors behind CEG's commitment to 50 percent of TAF funding for BIPOC-led organizations. CEG's outreach efforts have been adjusted (and will continue to be re-evaluated) to make sure that new partners are engaged and become aware of the TAF and how to apply.

In 2022, CEG didn't award any TAFs to municipalities or medical facilities. Though there are multiple reasons for the lack of applications, the primary reason was capacity issues due to competing priorities (primarily, COVID response and recovery efforts) that resulted in resilient power goals being delayed and, to a lesser extent, limited other opportunities for municipalities and medical facilities to access resilient power development funds. As the COVID pandemic dissipates and new federal funds become available to support community resilience efforts, CEG anticipates a resurgence of applications from municipalities and medical facilities ready to pick-up on resilient power development.

Overall, 2022 trends reflect the continuation of award patterns from previous years. However, there are some indications of shifting priorities that will likely continue into 2023, including more awards to Native Nations and Indigenous communities, as well as more awards to a broader array of community organizations, including BIPOC-led organizations.

SECTION 3

NEW AND CONTINUED PARTNERSHIPS

An important component of the TAF is its growing network of awardees, engineers, and other mission-aligned partners and its potential to expand solar+storage solutions. This network not only extends the reach of the TAF into new communities, but it also provides opportunities for capacity building and innovation through knowledge sharing and collaboration. CEG understands the value of this network and the benefits each partner brings. In 2022, CEG worked to expand and diversify the TAF network, both in terms of awardees as well as the engineers who conduct the TAF funded feasibility assessments. CEG also built upon existing relationships with partners like the Connecticut Green Bank to support the equitable implementation of resilient power programs, including the Connecticut Energy Storage Solutions program, which began in 2022.

Equitable Distribution of Funds and Engagement with MWBE Partners

For the past two years, CEG has fallen short of awarding 50 percent of TAF funding to BIPOC-led organizations. As discussed previously, in 2022 that figure was 43 percent. While each year has seen a higher percentage of funding awarded to BIPOC-led organizations, there is more work to be done to increase diversity among TAF awardees. The factors contributing to this shortfall include CEG's relatively small-but-growing network of TAF awardees who could make referrals. CEG is also committed to engaging with established BIPOC-led engineers in this space to conduct the feasibility assessments; efforts are continuing to find and partner with BIPOC-led service providers.

Clean Energy Group will work to expand the TAF into underserved communities through coordination with past TAF awardees, direct outreach to new communities, and new partnerships with local Minority- and Women-Owned Business Enterprises (MWBEs) that can conduct assessments. The goal of this work is not just to increase the number of awards to BIPOC-led organizations, but to also foster long-term relationships and build local capacity and expertise within marginalized communities and the groups that serve them. These communities have been largely excluded from the clean energy transition, but would benefit the most from clean, reliable, and resilient power solutions.

In 2022, CEG worked to expand and diversify the TAF network, both in terms of awardees as well as the engineers who conduct the TAF funded feasibility assessments.

BIPOC-LED TAF AWARDEE SPOTLIGHT: JUBILEE HOUSING

As of 2022, affordable housing organizations made up 44 percent of TAF awardees (see Figure 4, page 24, for a full breakdown of TAF awards in 2022 by sector). CEG is aware that affordable housing is a predominantly white industry, so ensuring that BIPOC-led affordable housing developers also benefit from the TAF is a priority.⁸ Through CEG's partnership with New Partners Community Solar, we were able to provide two TAFs to Jubilee Housing, a small, BIPOC-led affordable housing developer. In 2022, CEG awarded a TAF for New Part-

ners Community Solar to conduct an assessment on two of Jubilee Housing's housing sites, which provide low-income housing for formerly incarcerated individuals. In 2018, CEG awarded a TAF for New Partners to conduct an assessment on another Jubilee Housing site, Maycroft Apartments. Through this assessment, Jubilee Housing was able to power a resiliency center in the building through solar+storage. The resiliency center provides backup power for critical loads for up to three days, including refrigeration for food and medication, exhaust and floor fans, lighting, outlets for charging cell phones and medical devices, a microwave, a television, and emergency lighting throughout the building.⁹



Solar array on Maycroft Apartments.
Source: New Partners Community Solar.

EXPANDING THE LIST OF SERVICE PROVIDERS FOR FEASIBILITY ASSESSMENTS

Clean Energy Group's relationships with mission-aligned engineering firms are key to the success of the TAF's feasibility assessments. CEG serves as an advisor to TAF awardees throughout the technical and economic feasibility assessment process (and beyond as awardees seek to install solar+storage), but the actual feasibility assessments are conducted by third-party engineers.

While awardees are welcome to work with any engineer they choose, many are unfamiliar with solar and/or battery storage technologies and rely on CEG's guidance to select a trusted engineer for the feasibility assessment process. CEG vets engineering partners thoroughly prior

⁸ Recent studies indicate that only 2% of development companies are Black-led and minority-led real estate firms control only 1.5% of real estate assets that are under management. To learn more, visit Enterprise Community at <https://www.enterprisecommunity.org/impact-areas/racial-equity/equitable-path-forward>

⁹ To learn more about Maycroft Apartments and the resiliency center, visit www.cleanegroup.org/initiatives/technical-assistance-fund/featured-installations/maycroft-apartments.

to referring them to awardees, and only refers partners who have successfully completed at least one feasibility assessment through the TAF process.

The role of engineers within the feasibility assessment process is vital, particularly for community service providers who are new to solar+storage. Engineers provide information on available federal and state incentives that can finance a solar+storage system, as well as information about the size and design of the solar+storage system needed to support an organization's resilience goals. CEG has taken considerable efforts to build and maintain relationships with credible and professional engineering firms—some of which are years-long TAF partners. In addition to conducting feasibility assessments, engineers have also expanded the reach of the TAF by referring eligible organizations and projects that may not have otherwise known about this assistance available to communities from Clean Energy Group.

EXPANDING THE TAF ENGINEER NETWORK

In addition to its goal of making 50 percent of TAF awards to BIPOC-led organizations, CEG has prioritized expanding the network of TAF engineers, with a priority to incorporate more MWBEs for TAF engineer referrals. The TAF program can unlock opportunities for these firms to conduct assessments for organizations that would otherwise be unable to afford their services. In addition, CEG is committed to using the TAF as a capacity-building opportunity for MWBEs, who may encounter more obstacles in reaching a wide audience to promote their services.

“Clean Energy Group’s Technical Assistance Fund absolutely enables small community-oriented organizations to receive the highest quality advising and technical analysis for their nascent distributed energy projects that would otherwise be outside their reach. . . . This funding is providing the catalyst for a grassroots shift toward renewables and resilient microgrids in places where traditional commercial entities may overlook.” — **AMY SIMPKINS**, Chief Executive Officer, [MuGrid Analytics](#)

For CEG, an expanded network of engineers has helped to expand the reach of the TAF to communities and community partners it may not have otherwise. Through a partnership with the nonprofit technical, policy, and project development organization Clean Coalition, CEG was able to award TAFs to an innovative shelter network for Southern California’s unhoused population. In 2022, CEG also developed a partnership with Gemini Energy Solutions, a Black-owned engineering firm focused on bringing a “Clean Energy Hub” model, which incorporates solar, battery storage, and electric vehicle charging, to Black-led community institutions. Through its partnership with Gemini Energy Solutions, CEG awarded TAFs to the nonprofit [Upstate Circle of Friends](#), as well as [Gethsemane Baptist Church](#), a Black-led church.

“The Clean Coalition is grateful to the Clean Energy Group for its leadership in proliferating Solar Microgrids, including by supporting Solar Microgrid feasibility studies that the Clean Coalition conducted for almost a dozen Critical Community Facilities in California this year. The leadership provided by the Clean Energy Group is truly accelerating the transition to clean local energy and the unparalleled trifecta of economic, environmental, and resilience benefits that it delivers to communities everywhere.” — **CRAIG LEWIS**, Executive Director, [Clean Coalition](#)



Source: Clean Energy Group

“At Gemini we work with community anchors to bring decarbonization, resilience, and revenue generation to communities that have historically been overlooked and disadvantaged. Clean Energy Group’s Technical Assistance Fund (TAF) has been critical in helping us achieve this. The TAF team is A+ and we are excited to continue this relationship with the goal of reaching hundreds of community anchors in the coming years.” — ANTHONY KINSLOW II, PH.D., CEM Founder and CEO,

[Gemini Energy Solutions](#)

Partners by Sector

The partnerships built with TAF awardees extend well beyond receiving a feasibility assessment. CEG remains a partner for project development after the TAF award is made, engages with awardees on a range of other climate resilience efforts, and remains available for technical support and guidance on clean energy topics.

This section focuses on the partnerships developed through the TAF. All Resilient Power Leadership Initiative awardees are nonprofit, community-based organizations—the majority of which are BIPOC-led organizations.

AFFORDABLE HOUSING

As discussed in Section 2, affordable housing developers/providers received nearly 70 percent of all TAFs awarded in 2022 (see Figure 4, page 24). This was, in part, due to CEG's partnership with the Connecticut Green Bank. In 2022, the Connecticut Insurance Department and Connecticut Green Bank, in partnership with Clean Energy Group, Yale University, and Operation Fuel began providing energy cost reduction and energy resilience support to affordable housing providers in Connecticut through the Robert Wood Johnson Foundation (RWJF) funded "Climate Smart Technologies and Home Medical Devices for Affordable Housing" program. Through this initiative, CT multifamily affordable housing providers whose residents include medically vulnerable individuals are eligible for weatherization and resilient power support, incentives, and resident engagement opportunities.¹⁰ As a technical provider, CEG builds resilient power awareness, including how solar+storage can support tenant health in the event of a power outage, with a focus on the unique needs of residents reliant on electricity-dependent medical equipment.

Innovative partnerships like the one with the Connecticut Green Bank allow CEG to provide targeted, tailored technical assistance to a specific sector (in this case, affordable housing). This focus has allowed CEG to build regional relationships more quickly, especially with niche providers such as smaller affordable housing providers and state and city housing authorities, who typically have less capacity to pursue solar+storage.

"The Green Bank is committed to delivering the benefits of the green economy, including grid resilience and improved health outcomes, to all residents, especially those in vulnerable communities. We are proud to work with CEG, the Connecticut Insurance Department, Operation Fuel, and Yale to provide this technical assistance to owners and developers of affordable multifamily properties to help them access the environmental and financial impacts of solar plus storage." — **BRYAN GARCIA,**

President and CEO, [Connecticut Green Bank](#)

COMMUNITY-BASED ORGANIZATIONS

In 2022, the TAF developed new relationships with a diverse set of community partners. Awardees included Upstate Circle of Friends, a youth workforce development center serving at-risk children; Gethsemane Greenville Baptist Church, a Black-led church; and Temple Beth Sholom, a synagogue, among others. In 2022, 60 percent of the TAFs awarded to CBOs went to BIPOC-led community organizations. As trusted entities within communities, these partners will become key allies to expand resilient power into communities that need it most.

Looking to 2023, the expanded federal tax credits that incentivize solar+storage projects in marginalized communities, as well as the rollout of the new direct pay option that allows non-profits to receive the full value of federal tax credits for solar+storage, will hopefully motivate and support more community-based organizations in their pursuit of solar+storage.

¹⁰ To learn more about CEG's health resilience efforts in Connecticut, visit <https://www.cleangroup.org/initiatives/connecticut-health-resilience/>.

MUNICIPALITIES

There were no TAF awards to municipalities in 2022. In prior years, CEG has awarded up to six TAFs per year to municipal-led projects. Most municipal-led projects were referred to CEG by the Urban Sustainability Directors Network (USDN), a nonprofit working to create equitable, resilient, and sustainable communities by advancing the field of local government sustainability. CEG is the technical partner of USDN's Resilience Hub effort, which supports local governments and community organizations in the development of resilience hubs.

“Clean Energy Group has been an amazing partner for Urban Sustainability Directors Network. . . . We appreciate that our organizations are values-aligned and actively work to shift resources, capacity and funding to the most marginalized communities in the US. We’re grateful for their support and commitment to pro-actively building resilience and centering racial equity.” — **KRISTIN BAJA**, Director, Director Support & Innovation, [Urban Sustainability Directors Network \(USDN\)](#)

NATIVE NATIONS AND INDIGENOUS COMMUNITIES

For decades, many Tribes have dealt with insufficient energy infrastructure that cannot serve the needs of their communities. For example, 32 percent of homes on the Navajo Nation lack access to grid powered electricity.¹¹

In 2022, three TAF projects serving and led by Native Nation and/or Indigenous community partners were awarded to the following:

- **Navajo Nation:** to conduct a feasibility assessment for a community of off-grid single-family homes belonging to medically vulnerable residents of the Navajo Nation.
- **Cullah/Geechee Nation:** to conduct an assessment for potential community resilience hubs across St. Helena Island.
- **Oahu, Hawaii:** for solar+storage technical support for a resilience hub, a project of Hui o Hau`ula, a nonprofit led-by and supporting the Ahupua`a of Hau`ula in the Ko`olauloa District on Oahu.

“JPHB Solutions LLC extends its upmost appreciation to Clean Energy Group for their continued support on assessing energy resilient solutions for off-grid family homesteads within Indigenous communities. Our collaboration with CEG enables a strong commitment toward serving underrepresented populations across federally recognized tribal lands in ways that promote energy independence and sustainability. We are excited to continue working with CEG on future projects that strengthen our outreach endeavors and ongoing relationship.”

— **ANTHONY NICHOLSON POSTDOCTORAL FELLOW**, NSF-MPS ASCEND, [JPHB Solutions LLC](#)

¹¹ Yeagley, Rebekah May. “Why Native American Reservations Are the Most Poverty-Stricken Lands in America: Rebekah May Yeagley.” FEE Freeman Article, November 9, 2020. <https://fee.org/articles/why-native-american-reservations-are-the-most-poverty-stricken-lands-in-america>.

SECTION 4

PARTNER FEEDBACK

Clean Energy Group seeks to serve as a trusted partner to TAF awardees, both through the formal TAF process and after the solar+storage feasibility assessment is completed. The TAF application process begins with the interested community service provider completing an intake form, which asks for preliminary information about the organization as well as the goals and motivations for exploring solar+storage. The TAF received 33 new intake forms in 2022.¹²

After the feasibility assessment has been conducted, CEG asks TAF awardees to fill out an exit survey to reflect on their experiences working with CEG throughout the process, as well as what they anticipate are their next steps (for example, do they have a plan in place to pursue solar+storage development?). The exit survey is submitted after the feasibility assessment is completed, but well before a solar+storage system is ready to be installed.

In this section, TAF data based on partner feedback are explored. CEG has aggregated data from the intake forms and exit surveys to identify potential trends in TAF experience and the likelihood of solar+storage project developments. This data from 2022 awardees is contextualized with anecdotal information from TAF awardees collected both during the TAF process and afterwards.

Motivation

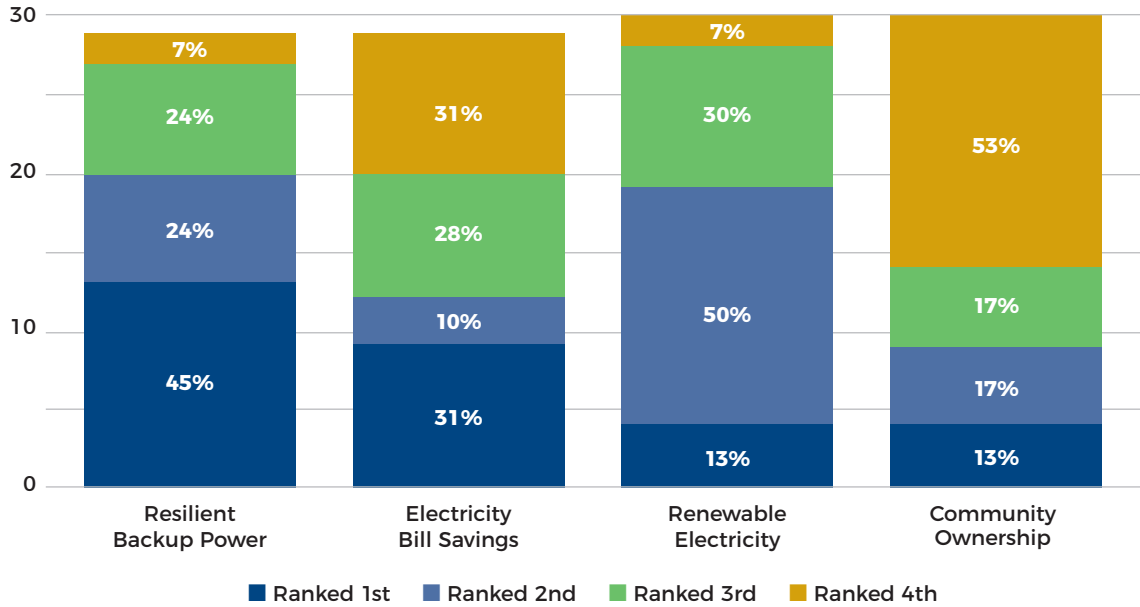
The most often cited motivations for pursuing solar+storage projects were resilience (backup power) and electricity bill savings (see Figure 5, page 33). Most applicants cited potential cost savings as a key determinant, if not the most important factor, for influencing whether a solar+storage project would be economically feasible.

While resilient backup power ranked highest as the primary motivator with 13 responses, an additional 14 respondents ranked resilience as second or third. It is important to note that though backup power provides electricity to facilities during a grid outage, the decisions on what facility functions are critical and for how long those functions would need backup power are the responsibility of the community served. The feasibility assessments that the TAF supports helps communities to explore and answer these questions.

The most often cited motivations for pursuing solar+storage projects were resilience (backup power) and electricity bill savings.

¹² Submitting an intake form is the first step in applying for the Technical Assistance Fund. The intake form can be found here: www.surveymonkey.com/r/newTAF.

FIGURE 5
**Technical Assistance Fund Partners' Motivations
 for Pursuing Resilient Power in 2022**



This figure illustrates the four main priorities that motivated 2022 Technical Assistance Fund awardees to begin exploring solar+storage solutions at their facilities.

Source: Clean Energy Group

Technical Knowledge

On the intake form, TAF applicants indicate their level of solar+storage experience and competency. Some applicants have already explored the installation of solar and/or storage on their own properties or have some knowledge of the technologies. Occasionally, organizations apply to the TAF with no knowledge of solar and/or storage (see Figure 6, page 34).

In creating the TAF, one of CEG’s primary goals was to provide the opportunity and resources for community service providers to learn more about solar+storage. In addition to supporting the development of individual projects, the TAF strives to build the capacity of community-based organizations to advocate for resilient power, regardless of whether they are ultimately able to install a system at an individual facility or not.

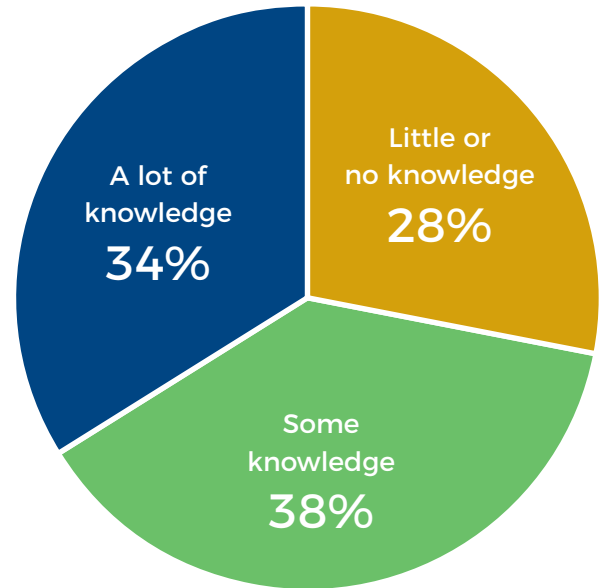
“Gethsemane Baptist Church is extremely grateful for the opportunity to explore the opportunities presented to us by Clean Energy Group and its partners. We were totally ignorant to the solar and battery storage industry. We now feel like we are better equipped to make an investment in clean energy as well as better able to educate our community and members. I’m sure we will see fruits of our feasibility study in the near future.” — PASTOR EMANUEL DUNCAN, Gethsemane Baptist Church, Greenville, SC

Barriers

Within the exit survey, TAF recipients are asked to indicate the top three barriers their project has experienced in pursuing next steps in solar+storage development. In 2022, TAF awardees most often cited the project's economic feasibility as the primary barrier to project development (see Figure 7). Permitting and interconnection issues and lack of financing options and funding opportunities were also cited as significant barriers for several projects.

In 2022, TAF awardees cited a variety of reasons why project costs proved to be a problem. Some solar+storage projects had a long payback period of 10, 15, or even 20 years. For more expensive and expansive systems, especially those that attempted to power the facility's entire load during an outage or were designed to provide backup power for many hours or days on end, it is unlikely to ever recover the solar+storage system's upfront costs through utility bill savings' revenue alone. Projects located in less supportive regulatory and utility environments, such as those without energy storage grid services programs, are also less likely to be able to recoup installation costs.

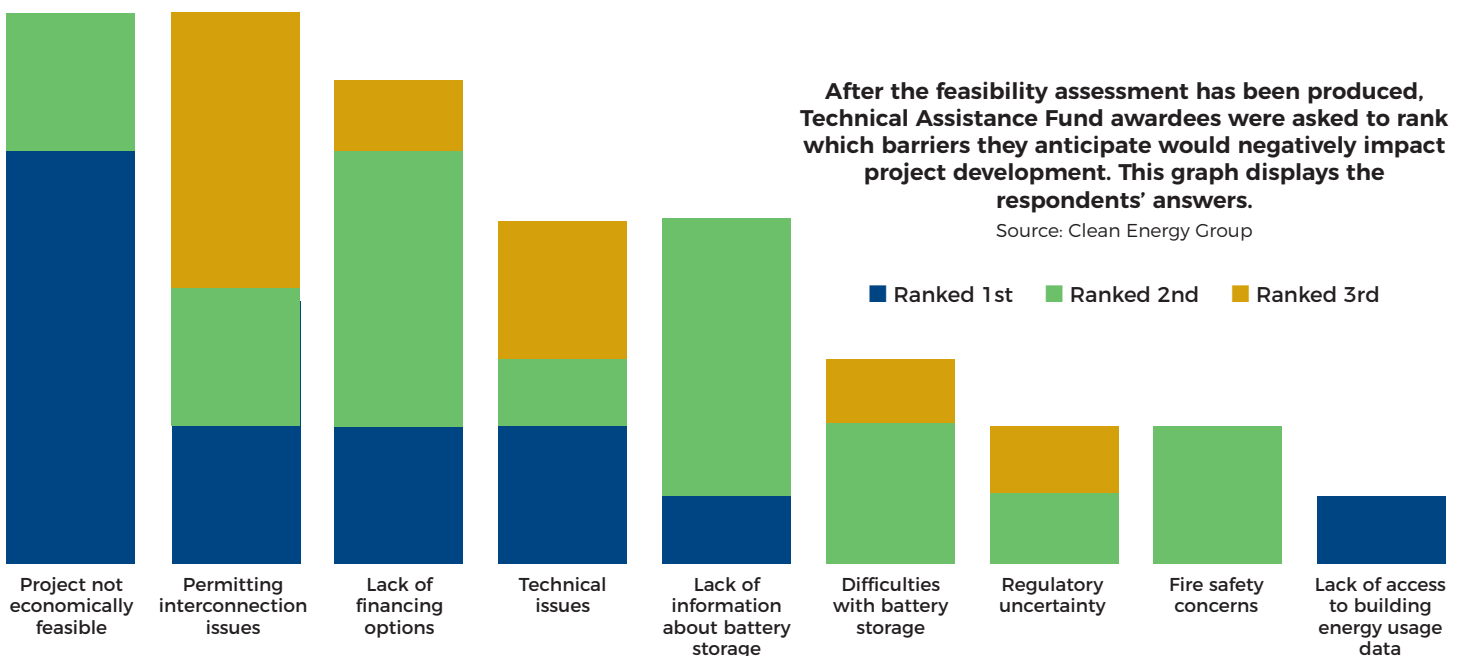
FIGURE 6
Level of Existing Knowledge on Solar and Storage Technologies



This figure shows the level of existing knowledge about solar+storage technologies that organizations noted in their Technical Assistance Fund applications.

Source: Clean Energy Group

FIGURE 7
Top Three Barriers to Solar+Storage Project Development



OVERCOMING BARRIERS AND DELAYS: CALIFORNIA INDIAN MUSEUM AND CULTURAL CENTER

The CIMCC received a TAF award in 2020 with the goal of serving as a resilience hub and cooling center with clean air filtration. In this capacity, CIMCC could continue to serve community members during public power safety shut offs, wildfires, and during times of poor air quality. CIMCC's solar+storage effort is part of its [Resilient Native Generations](#) initiative, which seeks to expand tribal stewardship and ensure that Native voices and perspectives are represented in city and county climate change planning and adaptation.¹³

“Our technical assistance grant from Clean Energy Group supported our efforts to verify the feasibility of our Resilient Native Generations project. In serving our local tribal community, it is critical that we implement strategies that provide environmental and cultural resource protection and emergency response during wildfires and power outages.” — **NICOLLE LIM**, Executive Director of the California Indian Museum and Cultural Center

CIMCC experienced several delays in developing the project including, delays due to the coronavirus pandemic, permitting, securing a developer that would work on a smaller project, and interconnection complexities. CIMCC navigated these obstacles and was able to complete the solar installation.

CIMCC worked with the microgrid engineering firm American Microgrid Solutions (AMS) first through the TAF and later for project development and installation. Geoff Oxnam, Found and CEO of AMS said, “Together, supply chain issues and the coronavirus created a range of project development bottlenecks. These included longer than expected lead times on certain equipment and slowdowns in permitting and other processes as we all adapted to remote work models.” Geoff added, “But for a few notable exceptions, including utility transformers and some generators, most of these have abated.” CIMCC expects the battery to be installed fall 2023.



California Indian Museum and Cultural Center's new solar array.

Source: California Indian Museum and Cultural Center

¹³ To learn more about CIMCC's resilience efforts, CEG hosted CIMCC in a 2021 webinar; the recording of the webinar can be found here: <https://www.cleanegroup.org/webinar/overcoming-barriers-to-solarstorage-in-critical-facilities-serving-low-income-communities>.



Source: Bright Power

Even if solar+storage is financially feasible, the community service provider may not be able to afford the building repairs and upgrades necessary to allow for solar+storage equipment to be installed, such as replacing an old roof or upgrading electrical wiring. These factors lead most TAF partners to rank project costs as a barrier to project development. In some cases, otherwise prohibitively expensive solar+storage projects end up moving forward with a more cost-effective solar-only system that is battery compatible, making it more convenient and cost effective should the organization decide to install a battery at a later date.

LOOKING FORWARD

In 2022, the TAF supported 21 communities that wanted to discover what solar+storage could mean for them and their resiliency goals. By participating in the TAF process, these communities are now equipped with the knowledge, resources, and connections necessary to take the next step towards resilient power project development. Many of these potential solar+storage projects will encounter additional barriers to development; according to data obtained from the TAF awardee's self-reported exit survey data, the number one barrier to project development is making the project economically viable. In addition to the TAF, CEG seeks to address these challenges through its other programs such as the [Energy Storage Policy and Regulation](#) initiative, which works with states to advance energy storage policies and incentives that can improve the economic viability of resilient power projects. All of CEG's program areas work in concert to support access to clean, resilient power for the communities that need it most.

The value of supporting these projects goes beyond increasing the deployment of clean energy technologies, because all the projects supported by the TAF provide benefits to marginalized communities. Based on self-reported data from awardees, if each of the TAF awards made in 2022 should lead to a future solar+storage installation in the respective community, projects have the potential to serve over 20,000 community members and 3,000 affordable housing residents. CEG will continue to work toward expanding our network and program offerings to ensure that critical community serving institutions are able to bring the benefits of clean, resilient power to their communities.

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Anna Adamsson is a Project Manager at Clean Energy Group (CEG). Her work focuses on increasing equitable access to solar and battery energy storage systems. Anna helps manage CEG's Technical Assistance Fund, which provides capacity-building support to low-income and marginalized communities seeking resilient power. As part of her role, Anna works with communities to build local and national awareness about resilient solar+storage and energy justice. Previously, Anna worked for CEG's sister nonprofit the Clean Energy States Alliance (CESA) on the Solar with Justice project and the Energy Storage Technology Advancement Partnership. Prior to joining CEG/CESA, Anna interned at RE-volv for three years. In that role, she connected nonprofits in her home state of Indiana to solar financing options. Anna holds a bachelor's degree in Global Studies and Environmental Policy from Purdue University.

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Marriele Mango is a project director for Clean Energy Group. In that role, Marriele manages technical assistance and capacity building programs to support critical service providers and community-based organizations in their efforts to development resilient power projects that benefit marginalized communities. She also leads CEG's efforts advocating for resilient power as essential to public health and emergency response, especially for high-risk and medically vulnerable populations. Marriele's work with CEG is focused on projects that prioritize community ownership, health, equity, and energy security. Marriele has 10+ years in clean energy advocacy, policy, and program implementation. Prior to CEG, she developed clean energy strategies for the Marion County Emergency Management Office in Salem, OR and led a nonprofit energy efficiency program aimed at assisting low-wealth communities and faith-based institutions on Long Island. Marriele holds a M.S. in Environmental Policy and Sustainability Management from The New School.

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Abbe Ramanan is a Project Director at Clean Energy Group, where she supports the Resilient Power Project and leads the Hydrogen Information at Public Education Project. In her role with the Resilient Power Project, Abbe supports small grant programs to promote solar+storage for affordable housing facilities and community-based organizations. Through her work with the Hydrogen Information and Public Education project, Abbe develops educational materials and reports to equip advocates, regulators, and policymakers with non-biased facts to counter irresponsible hydrogen proposals. Prior to joining CEG, Abbe worked on Vote Solar's Policy and Advocacy team, supporting workforce development efforts in solar. Abbe received a master's degree in energy policy from the Fletcher School of Law and Diplomacy at Tufts University.

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Resilient Power Project

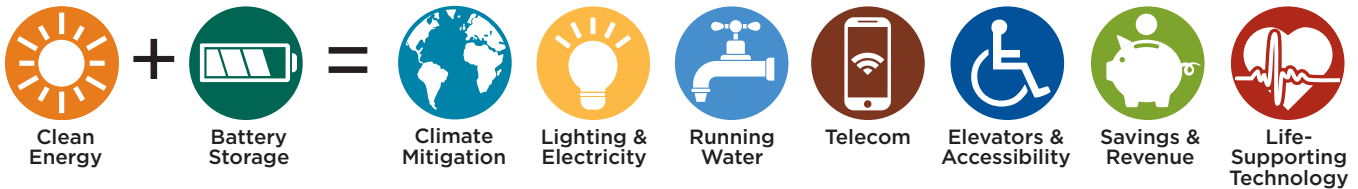


Clean Energy Group (CEG) is a national nonprofit that works to accelerate an equitable and inclusive transition to a resilient, sustainable, clean energy future. CEG fills a critical resource gap by advancing new energy initiatives and serving as a trusted source of technical expertise and independent analysis in support of communities, nonprofit advocates, and government leaders working on the frontlines of climate change and the clean energy transition. CEG collaborates with partners across the private, public, and nonprofit sectors to accelerate the equitable deployment of clean energy technologies and the development of inclusive clean energy programs, policies, and finance tools.

Photo: Courtesy of L+M Development Partners, Inc.

RESILIENT POWER

A project of Clean Energy Group



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