

GREEN BANKS IN THE UNITED STATES

2020 US GREEN BANK
ANNUAL INDUSTRY REPORT



AMERICAN
GREEN BANK
CONSORTIUM



Coalition for
Green Capital



@agbconsortium
@cgreencapital

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The 2019 US Green Bank Annual Industry Report is produced by the American Green Bank Consortium, a project of the Coalition for Green Capital. The American Green Bank Consortium is a membership organization for green banks, capital providers, developers and other clean energy supporters to work together to expand and accelerate innovative clean energy investment across the United States.

Put Americans Back to Work

More than 40 million Americans so far have filed for unemployment as a result of the COVID-19 pandemic and ensuing economic shutdown. The shutdown, new consumer habits and changed behavior due to COVID-19 have led to [structural changes](#) in the U.S. economy and its workforce. That means it is essential for Congress to help create new jobs for Americans.

A recent national poll showed that [4 out of 5 voters](#) want Congress to invest in new jobs that build clean energy infrastructure, such as wind turbines, solar panels, power lines, and EV charging. And 7 out of 10 voters say the U.S. government should deposit \$35B in the nonpartisan, nonprofit Clean Energy Jobs Fund, as envisioned in the National Climate Bank Act of 2019, to achieve that objective. The opportunity to build infrastructure to generate, move, store, and use clean and efficient energy is immense. [Trillions of dollars of investment are needed](#) to build clean energy infrastructure that will put millions back to work, reduce pollution, improve public health, lower energy costs, and reduce greenhouse gas emissions. The Clean Energy Jobs Fund is also a great complement to other clean energy legislative proposals such as extension of the Investment Tax Credit or a Renewable Energy Standard.

The Clean Energy Jobs Fund

The Clean Energy Jobs Fund (as envisioned in the National Climate Bank Act of 2019 by Rep. Debbie Dingell (H.R.5416) and Sens. Markey and Van Hollen (S.2057)) is the best vehicle for this investment because it will pair each public dollar with multiple private ones to build a range of projects. Each public dollar offered as financing is repaid and preserved by the Fund, which means dollars can be recycled to cause even more private investment in the future. The Fund will use the green bank model that has been proven at the state and local level in the United States. Green banks have driven over \$5 billion of investment into clean energy infrastructure, and for each public dollar invested, \$3.60 of total investment is caused.

Each project financed by the Fund will require Americans with all kinds of skillsets and backgrounds, not just contractors and engineers. Today, [half the jobs in the clean energy sector are in sales, administration and management](#). These are roles that can be filled quickly by those laid off from other sectors like retail and travel.

Strengthening Communities

To strengthen communities in every corner of America, the Fund will help form regional, state and local green banks across the U.S. and provide the funds necessary for them to invest. This will build a network of local institutions designed to meet the employment, energy, and environmental needs of that community. The Fund will also help fund the expansion of those green banks that already exist and are showing others how to lead the way.

No community will be overlooked. Twenty percent of the Fund's investment must go to frontline, low-income, and climate-impacted communities, as envisioned in the National Climate Bank Act of 2019. Existing green banks have proven this to be possible, delivering clean energy and health benefits to those who historically have been left behind. This means clean energy jobs will be formed throughout the U.S.

Moving Forward with Bipartisan Support

The Fund is the evolution of the Clean Energy Deployment Administration (CEDA), introduced in Congress in 2009. CEDA enjoyed broad [bipartisan support](#), passing the House Energy & Commerce Committee with a 51-6 vote and then the entire House. The bill also passed the Senate Energy & Natural Resources Committee with a 15-8 bipartisan vote.

This popular broad support still exists today. Voters across parties want Congress to invest in clean energy job creation to put Americans back to work. That is why Congress should create the Clean Energy Jobs Fund today.

What is a Green Bank?

Green banks are dedicated finance institutions (often public entities or nonprofits) that use innovative financing to connect clean energy, resilience and climate-related projects with capital. Green banks are not literal banks, because they do not take deposits. Rather, green banks are specialty investment funds that provide capital in partnership with the private sector to build a range of projects that otherwise could not be completed. And with that construction comes local job creation, lower energy costs, increased public health, climate resilience and reduced greenhouse gas emissions. Green banks typically focus on underserved markets, where perceived barriers

and lack of private investment slow the adoption of clean energy and related technologies. By using various tools like credit enhancements and long-term debt, green banks mobilize private investment into those otherwise unbuilt projects and prove what is possible. This, in turn, can unlock massive market expansion. Green banks are not meant to compete with private capital where it is already flowing. Instead, green banks expand the pie of the financing market for projects across the country, allowing more private investment to flow where it otherwise wouldn't. To date, green banks have financed tens of thousands of projects that reduce carbon emissions and create jobs in their communities.

What Problems do Green Banks solve?

The United States is currently facing the country's greatest unemployment crisis since the Great Depression. As of the publication of this report, over forty million Americans have filed for unemployment since the COVID-19 pandemic hit the United States. A Clean Energy Jobs Fund, as envisioned in the National Climate Bank Act of 2019, could create [5 million jobs](#) to build clean energy infrastructure. The Clean Energy Jobs Fund will mobilize hundreds of billions of dollars of public and private investment in a range of clean energy projects. This investment will put Americans back to work.

Beyond the current economic crisis raging in America, another massive crisis looms: the climate crisis. In order to turn the tide in the battle against climate change, enormous levels of investment in a new clean power platform need to occur across the globe. In the United States alone, the cost of transitioning to a 100% clean energy electric grid over 20 years would require an annual average new

investment of [\\$225 billion per year](#) - and this is only taking into account the power grid, never mind other sectors of the economy that will need to be decarbonized. However, in the US in 2019, only \$78 billion of new investment flowed into [clean energy](#).

Worldwide, the picture is even less promising. Global new investment in renewables was flat from 2018-2019, with \$363b in total new investment in clean energy [globally in 2019](#). Total global investment numbers are slightly above what is required to decarbonize only the US electric grid, certainly not anywhere approaching the level of investment needed to turn the tide in the battle against climate change. And none of these numbers take into account the cratering effect of the current global pandemic on clean energy markets. Growth in new investment in a clean power platform simply isn't close to where it needs to be, here in the US or around the world, and clearly something needs to be done about this.

A Clean Energy Jobs Fund

The proposed Clean Energy Jobs Fund, as envisioned in the National Climate Bank Act, is a non-profit corporation independent of government whose mission is to invest in projects that create jobs while mitigating the impacts of climate change. It is nonpartisan and will have a bipartisan board of directors.

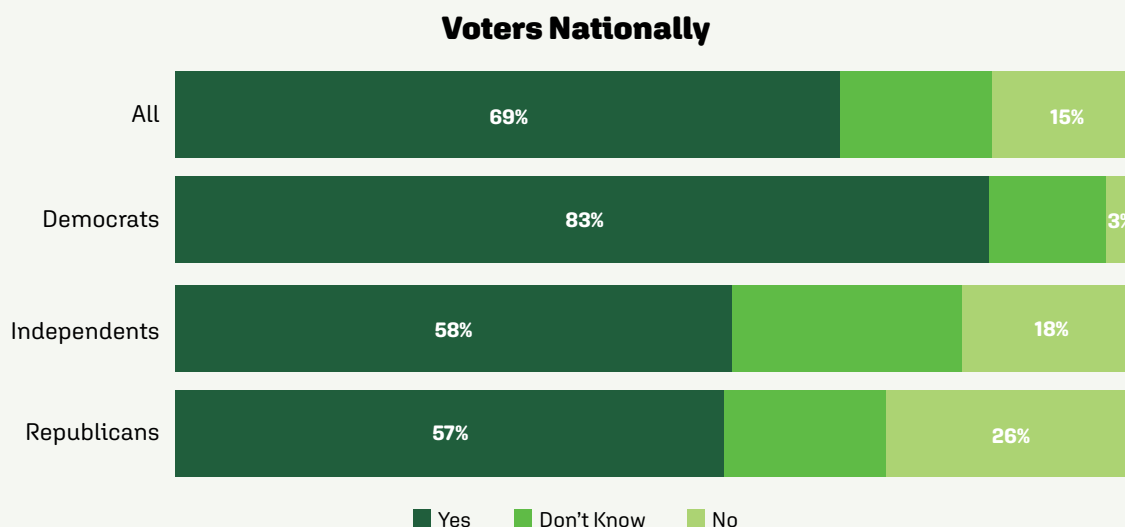
The Fund will be allocated \$35 billion of capital by the federal government, with any residual capital after 30 years of authorized operation returned to the government. Its debt is not guaranteed by the government.

The CEJF aims at maximizing job creation per public dollar invested, as long as investments meet three conditions:

1. Mitigate the environmental impacts of carbon-related economic activity through greenhouse gas emissions reduction or increased climate resilience.”
2. Not harm communities, households and businesses impacted by investments; and where possible make them better off.
3. Have a broad portfolio of risk-adjusted investments, with at least 20% of the portfolio made of investments that benefit low-income, minority, underserved, frontline and/or just transition communities.

7 out of 10 voters want Congress to deposit \$35B in nonprofit, nonpartisan Clean Energy Jobs Fund

Do you think the US government should pass a law that deposits \$35 billion in a nonpartisan nonprofit fund that would create five million new jobs in clean energy? This plan would ensure that consumers pay the same or less for electricity than we pay today.



Within these conditions and targeting the objective function, the Clean Energy Jobs Fund then seeks to maximize private sector co-investment, or leverage, that comes alongside the Fund's public investment. The investments must be in one of these seven defined areas, which include: (1) renewable power generation, including solar, wind, geothermal, hydropower, ocean and hydrokinetic, and fuel cells; (2) building efficiency, fuel-switching and electrification; (3) clean transportation, including electric vehicles, hydrogen vehicles and associated charging or fueling infrastructure; (4)

industrial decarbonization; (5) grid infrastructure, including transmission, distribution and storage; (6) sustainable agriculture, including reforestation, afforestation and regenerative agriculture; and (7) climate-resilient infrastructure.

The Fund will help create, invest in and partner with green banks at the regional, state and local level to support smaller, community-scale investments. It will also be authorized to invest directly in projects of national or regional scale.



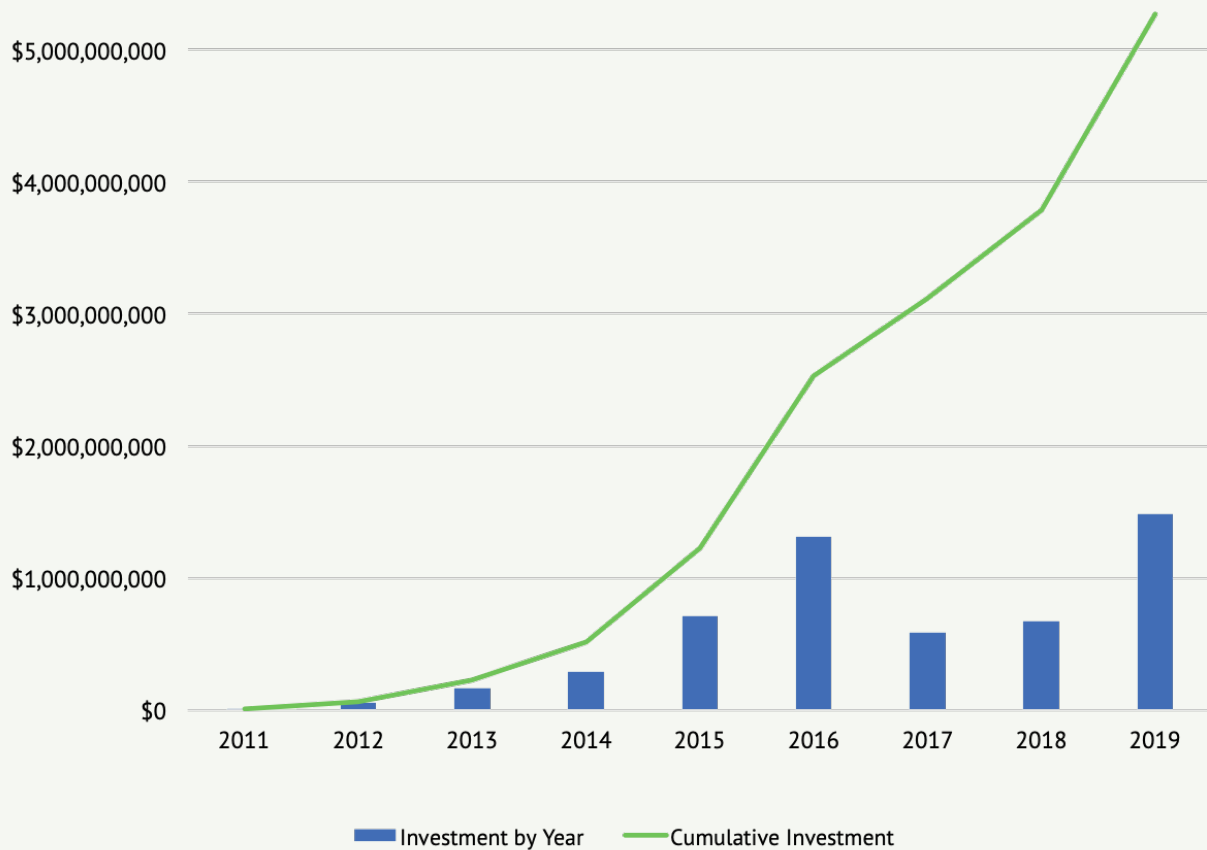
Green Banks at a Glance in 2019

Green banks in the United States had their strongest year ever in 2019. Green banks caused \$1.48 billion in total investment, pushing green bank total investment caused over \$5 billion since 2011.

Cumulative Green Bank Impact through December 31, 2019

Total Investment Caused	\$5.3 b
Total Green Bank Investment	\$1.5 b
Total Private Co-Investment	\$3.8 b
Mobilization Ratio (Overall Project Investment/Green Bank Investment)	3.6 to 1

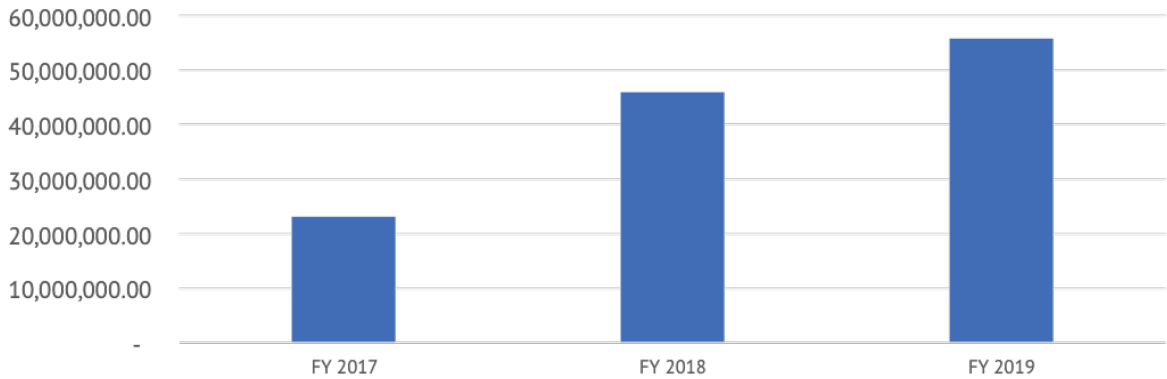
Investment Caused by Green Banks



Increase in Earned Revenue

Green banks in the United States collected \$55.9 million in earned revenue to support their operations in 2019, a 22% increase over 2018's \$46.0 million in earned revenue and a 141% increase from 2017's \$23.2 million in earned revenue. Earned revenue is revenue generated as a result of the organization's operating activities, as opposed to other non-operating funding streams from third

parties (i.e. Regional Greenhouse Gas Initiative funds or systems benefit charges). This ramp-up reflects an industry-wide focus on the importance of financial self-sustainability for green banks in the US, which is a recognition of the risks of relying solely on public funding revenue streams which can be vulnerable to changing political dynamics.



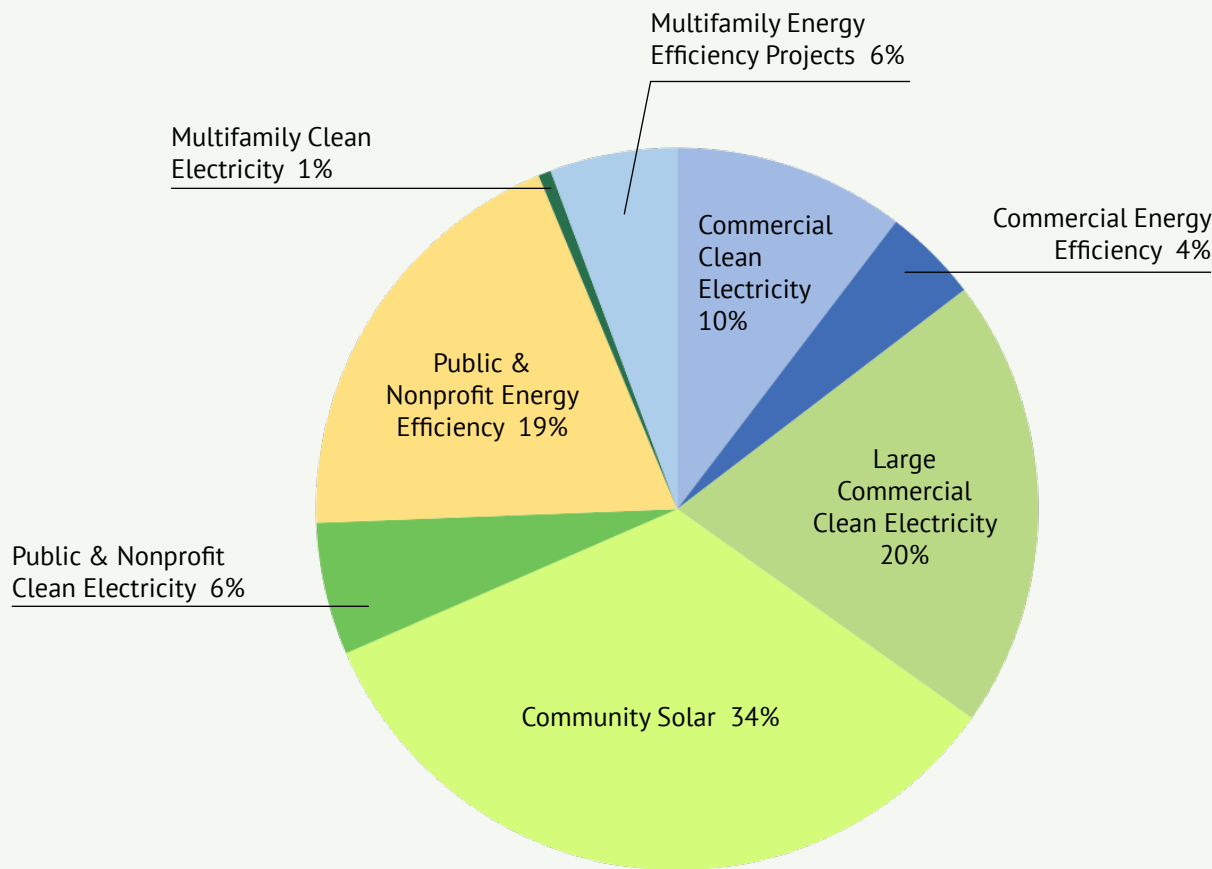
A Snapshot of Green Bank Investment by Sector

The American Green Bank Consortium performed an analysis of US Green Bank investment across \$675m of publicly profiled projects made available through the green banks themselves. While this is not a representative sample of the \$5 billion plus of total projects financed overall, it can give the

reader a good idea of where the highest-profile Green Bank investments are occurring across the country. Community solar projects are the largest category of projects profiled, but the investment is spread across sectors including energy efficiency and clean energy generation.



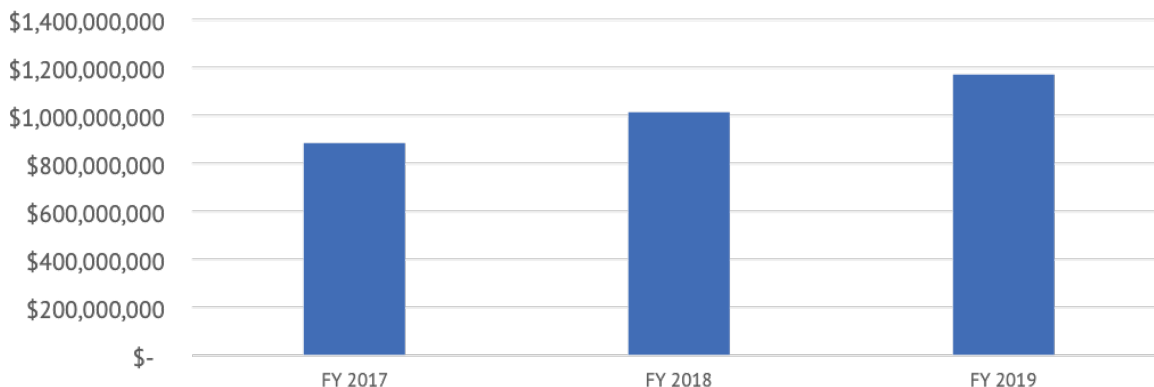
Green Bank Investment in Publicly Profiled Projects



Total Asset Growth

The total assets of green banks have grown significantly in the previous three years as more US-based green banks came online and began to make an impact in their communities. The increase

in total assets on green banks' balance sheets shows the growth that these organizations can achieve, even in a time of little to no availability of public money.



Selected Individual Green Bank Financial Highlights

- 1** The Hawaii Green Infrastructure Authority increased its earned revenue total by \$2.97m between 2017 and 2019, allowing it to generate enough earned revenue to cover its costs for the first time in 2019
- 2** In 2019, Michigan Saves caused 174% more private investment than in 2017 while only increasing public dollars at risk by 19%, reflecting a growth in overall mobilization ratio from 13:1 to 18:1
- 3** The Connecticut Green Bank has increased its earned revenue by 382% since 2017
- 4** The Florida Solar & Energy Loan Fund primarily serves low- and moderate-income households in Florida, and has a less than 1.5% default rate on their loans while saving its borrowers an average of 26% on their energy bills

Special Section: Green banks in a time of crisis

State and local green banks are mission-driven organizations focused on creating jobs and reducing greenhouse gas emissions through investment. But as community-based organizations, they often see their mandate as broader than simply reducing emissions. This is why, as the COVID-19 pandemic swept through the country, green banks have launched efforts to support their communities in new ways. This section takes stock of what some green banks have done to support their communities during the COVID-19 crisis.

- **Repayment flexibility:** Green banks across the country hurried to support their borrowers and contractors during the unprecedented economic shock of 2020. All green banks in the US have sought to offer relief for borrowers during the economic shock induced by the COVID-19 crisis. Borrowers have been offered deferments on their loan payments from 3 months to 6 months, with no interest accruing during the deferment period. The Hawaii Green Infrastructure Authority partnered with Hawaiian Electric, the major utility in the state, to offer up to six months of deferment for borrowers that utilized the Green Energy Money Saver (GEM\$) on-bill financing program. The New York City Energy Efficiency Corporation (NYCEEC) waived pre-payment penalties for certain commercial borrowers looking to pay off their loans where the borrowers faced unusual challenges.
- **Guidance for contractors on Paycheck Protection Program (PPP):** All green banks played a role in providing guidance to contractors that they work with on accessing loans under the Paycheck Protection Program, administered by the Small Business Administration. The Connecticut Green Bank provided an entire resource center to its contractors looking to apply for the mostly forgivable loan to support job retention around the country. Michigan Saves, the Montgomery County Green Bank, the Hawaii Green Infrastructure Authority, the Colorado Clean Energy Fund, and the Maryland Clean Energy Center connected their contractors with a technical assistance webinar hosted by the Coalition for Green Capital on the program.
- **Preparing for what comes next:** Green banks have been working hard to collect data from their lender and contractor partners, as well as their borrowers, that will enable them to offer the right types of solutions to problems that are bubbling up in their respective markets. The Connecticut Green Bank and NY Green Bank have collected extensive data from their contractors to better enable the organizations' proactive response to the pandemic to be useful and help soft spots in the market that most need the assistance. This data, and other data collected through other green banks, will allow green banks to be particularly effective frontline responders to the economic crisis that is gripping their communities. The Montgomery County Green Bank developed a specialized loan product for small businesses that fills a funding gap when utility funds ended so businesses could continue to undertake energy savings improvements, and the MC Green Bank altered its residential loan product to help contractors and homeowners with lower fees and interest rates.
- **Other forms of community assistance:** Green banks have scrambled from the early stages of the pandemic to find ways to be support mechanisms for the communities that they live in. The Connecticut Green Bank organized a mask drive in which their contractors donated N-95 masks for use at local hospitals. The Florida Solar & Energy Loan Fund has organized a Solidarity Fund that will allow for additional resources to be offered to communities especially hard-hit by the pandemic.

Spotlight on 2019 Green Bank Activity

CALIFORNIA ALTERNATIVE ENERGY AND ADVANCED TRANSPORTATION FINANCING AUTHORITY (CAEATFA)

www.gogreenfinancing.com

In 2019, CAEATFA assisted nearly 300 projects. The Hub for Energy Efficiency Financing, which leverages private capital investment to broaden access to capital for energy efficiency retrofits across multiple sectors, had a breakthrough year. The residential program enrolled over 270 home energy efficiency projects and supported \$4.65 million in private capital financing with \$750,000 in credit enhancement. 55% of these projects were in low- and moderate-income census tracts. The program reached its \$10 million milestone, enrolling 47% of its total portfolio in 2019 (launched in 2015). Since its inception, the Program has enrolled 7 lenders, nearly 400 contractors serving 51 counties across the state, financing \$10.4 million of private capital across 612 projects. The Hub small business pilot was launched in 2019 and established a project portal to simplify transactions for contractors, project developers and lenders. In the first year, three finance companies enrolled in the Program, funding three projects valued at \$440,000 for small businesses in the agriculture and sales industries located in California's Central Valley. The Hub's affordable multifamily pilot was also launched in 2019 and its first lender was enrolled in the program, with anticipation of its first financing in 2020. CAEATFA also introduced gogreenfinancing.com, a website for California consumers.

In 2019, CAEATFA provided \$24 million of tax benefits (exclusion of sales tax) to support investments in machinery and equipment for 14 recycling, biofuel (dairies, bio waste, wastewater) and zero emission vehicle and aviation transportation. In addition, in 2019, the \$10 million PACE Loss Reserve -- which supports residential PACE projects -- enrolled an additional 12,173 clean energy home improvement projects.

CLIMATE ACCESS FUND

www.climateaccessfund.org

The Climate Access Fund (CAF) is a nonprofit green bank focused on increasing low-income access to the benefits of clean energy through Maryland's Community Solar Pilot Program. 2019 was a year of growth and capacity building for the Climate Access Fund. CAF received its 501(c)(3) status from the IRS, secured \$600,000 in operating funds, and identified \$1.3 million in low-cost debt. In partnership with the Montgomery County Green Bank and four other nonprofit organizations, CAF formed the Solar Democracy and Equity Collaborative to strengthen the advancement of low-income access to solar power in Maryland by working together. CAF expanded its partnerships with solar developers and led a working group of the Maryland Public Service Commission that resulted in significant improvements to the subscription process for low-income households. Finally, in 2019 CAF expanded its pipeline of potential low-income community solar projects and is looking forward to deploying its debt and guaranty capital in innovative ways in 2020 for the benefit of low-income households in Maryland.

COLORADO CLEAN ENERGY FUND

www.cocleanenergyfund.com

The Colorado Clean Energy Fund (CCEF) officially launched its operations in 2019 and successfully completed its startup activities, thus meeting its organizational goals for the year. Working with the Coalition for Green Capital (CGC), CCEF secured operating capital that will support its 2019/2020 operations. CCEF also applied for and received its 501(c)(3) status from the IRS and formed and convened its Board of Directors, thus completing its formation process and governance structure. Lastly, CCEF originated its first transaction, which closed in May 2020, and completed its business plan that identifies the product lines and accompanying revenue models that CCEF will deploy in 2020 to grow the organization and further support clean energy expansion in Colorado. Looking ahead, CCEF's topic priority in 2020 is to raise its pool of investment capital to support the launch of its inaugural product lines.

CONNECTICUT GREEN BANK

www.ctgreenbank.com

The Connecticut Green Bank, the nation's first full-scale green bank, has a mission to confront climate change and provide all of society a healthier and more prosperous future by increasing and accelerating the flow of private capital into markets that energize the green economy. This is accomplished by leveraging limited public resources to scale-up and mobilize private capital investment into Connecticut. In 2017, the Connecticut Green Bank received the Innovations in American Government Award from the Harvard Kennedy School Ash Center for Democratic Governance and innovation for their "Sparkling the Green Bank Movement" nomination.

In 2019, the Connecticut Green Bank had its best year to date for financing clean energy projects in Connecticut, using \$36m in public funds to cause over \$427m in total investment in the state. A few highlights from the year:

- Issued the first solar Asset Backed Security (ABS) by any green bank which securitized the income from long-term purchase contracts with the utilities for Solar Home Renewable Energy Credits (SHRECs) for Renewable Portfolio Standard (RPS) compliance from projects generating clean energy through the Green Bank's Residential Solar Investment Program (RSIP). This \$38.6 million securitization was a two-time winner of Environmental Finance's 2020 awards for Innovation in Green Bond Structure and Asset Backed Bond of the Year
- Established a new source of capital for Eversource's Small Business Energy Advantage (SBEA) program where the Green Bank and Amalgamated Bank provide \$55 million to provide zero interest loans to small businesses and lowered the cost of capital for the state's ratepayers
- C-PACE, which has now completed more than 300 projects statewide, had a stellar year with the Green Bank having completed \$20.7 million in C-PACE financing. This includes \$7.2 million in new transactions underwritten throughout the year and a \$13.5 million repurchase of C-PACE loans upon the successful termination of its C-PACE financing facility with Hannon Armstrong to enhance the Green Bank's sustainability.

- FuelCell Energy acquired a 14.9 megawatt fuel cell park in Bridgeport, CT, for \$35.5 million from Dominion Energy, in a step towards diversification of their generation portfolio. FuelCell Energy funded the acquisition with a combination of restricted cash on hand and a \$33 million debt facility structured by the Green Bank (\$25 million senior portion from Liberty Bank and Fifth Third Bank, and \$8 million subordinated capital from the Green Bank).
- Surpassed the 100-project milestone for its multifamily housing program while reaching over 8,000 units through the financing of \$34 million in clean energy and health and safety improvements for affordable properties
- The Green Bank's Solar for All initiative continued to gain traction in the state and its partner, PosiGen, continued deploying solar and efficiency leases that have allowed Connecticut to surpass parity in terms of solar deployment in low to moderate income communities and beyond solar for communities of color. The Green Bank worked with PosiGen and Ares Capital to restructure a three-year, \$90 million credit facility, allowing PosiGen to continue their mission in Connecticut and expand to other states.

In 2020, the Connecticut Green Bank is focused on issuing the first Green Liberty Bonds (www.greenlibertybonds.com) to confront climate change.

DC GREEN BANK

www.dcgreenbank.org

The DC Green Bank was established to increase access to funding for energy efficiency improvements and clean energy installations that make District households and businesses greener and create local jobs. The DC Green Bank will provide funding to help decrease utility bills and save residents money, while reducing greenhouse gas emissions and protecting the environment. It will also support clean energy employers and will preserve and create jobs. Recently, the Green Bank completed the appointment of the full Board of Directors for the organization and has hired its first CEO, Eli Hopson. The DC Green Bank is currently advertising several positions on its website, www.dcgreenbank.com.

ENERGIZE DELAWARE (DELAWARE SUSTAINABLE ENERGY UTILITY)

www.energizedelaware.org

Energize Delaware continued providing value to Delaware through its energy efficiency and clean energy programs in 2019. The organization continued to sustain and strengthen its popular programs, while at the same time rolling out new programs. Energize Delaware notched several accomplishments in 2019:

- Permanent long-term bond financing for \$19 million in guaranteed energy saving performance contracts completed in February
- Closed 22 commercial low interest loans financing \$5.2m in energy efficiency and clean energy projects
- Received the ENERGY STAR® Sustained Excellence Award for Program Delivery of its Home Performance with ENERGY STAR® Program
- After a three-year campaign, D-PACE, a commercial Property Assessed Clean Energy financing program was launched
- Lights On Delaware Strong was fully funded as a statewide program after successful pilots in Dover and Seaford improved safety and efficiency
- Fully launched and funded the new Home Energy Counseling and Check-Up (HEC2) Program
- Fully launched the “Energize Delaware” Brand Awareness Campaign in an effort to reach more Delawareans
- Selected to be the Grant Management agency for the new Empowerment Grant Program funded by Delmarva Power

Energize Delaware is dedicated to the goals of reducing energy consumption via energy efficiency, creating green jobs and reducing greenhouse gas pollution, all while saving its customers money and reducing our dependence on foreign oil.

FLORIDA SOLAR AND ENERGY LOAN FUND (SELF)

www.solarenergyloanfund.org

In 2019, SELF deployed \$2.6 million into solar and energy efficiency projects. Over the course of the

year, SELF raised a total of \$9 million, of which \$2 million was from a Community Reinvestment Act (CRA) bank investment and \$5 million from a JP Morgan Chase grant. Most of these funds will be deployed in 2020-2023.

SELF's highlights for 2019 include:

- SELF grew its lending by 71%, reaching \$10 million in unsecured single-family loans of which 60% have been for energy efficiency and clean energy home projects
- SELF had a record year in 2019, closing over 240 residential loans for \$2.6 million in a single year
- Cumulatively SELF has helped over 4,000 people make to energy efficiency, solar energy, and climate resilience home improvements
- In 2019 SELF also helped 37 homeowners in South Carolina and Alabama
- Over 73% of SELF clients are low-to-moderate income; 50% are women; 15% U.S. Veterans; 54% are elderly, and 10% of clients have a disability
- Energy efficiency upgrades have helped SELF clients save an average 26% on energy bills and avoid over 1,100 metric tons of CO2 emissions
- SELF was lead awardee of a collaborative that received a \$5 million grant award from the JPMorgan Chase Pro-Neighborhood Competition aimed at funding green affordable housing units along railway stations in South Florida
 - The project aims to leverage \$5 million into \$75 million in investments for 300 energy efficient and sustainable new and rehabbed affordable housing units
 - In addition, SELF will deploy 200 loans in South Florida and develop new loan products for green affordable housing rehabs and new construction in the next 3 years
- SELF was also awarded \$402,000 from the CDFI Fund
- Finally, SELF received the Sustainable Business award in the Private-Public Partnership category from the Sustany Foundation in Tampa, Florida

HAWAII GREEN INFRASTRUCTURE AUTHORITY

www.gems.hawaii.gov

2019 was a year of growth and new opportunities for the Hawaii Green Infrastructure Authority. The organization achieved a number of milestones, including the following:

- Facilitated almost \$25.0 million in capital invested in clean energy projects over the last calendar year. Total capital invested since HGIA's lending programs began in 2016 aggregate almost \$122.0 million
- Launched its Green Energy Money Saver On-Bill Program
- Posted excess revenues over expenses, exceeding all prior years' deficits; and
- Celebrated its 5th year in operation.

Priorities in 2020 include securing additional loan capital to deploy new loan products and automate residential loan origination and commercial loan servicing.

INCLUSIVE PROSPERITY CAPITAL

www.inclusiveprosperitycapital.org

Inclusive Prosperity Capital (IPC) is a not-for-profit specialty finance organization focusing on the intersection of community development, clean energy finance, and climate impact. IPC spun out of the Connecticut Green Bank in 2018 to increase investment in underserved markets nationally, including low- and moderate-income communities, by accessing new mission-driven capital sources and forging partnerships with mission aligned lenders, community-based organizations and others. 2019 was a year focused on capital raising, product development, building partnerships and pipeline, with a focus on NY, New England, Midwest and Mid-Atlantic. IPC also supported Connecticut Green Bank's financing programs and investments for the residential sector and underserved credits and technologies. IPC closed a \$10M guarantee from The Kresge Foundation that laid the groundwork for raising a flexible capital stack from a range of investors as well as a \$3M program related investment from The Kresge Foundation for solar and storage for resiliency in urban areas.

IPC also secured operating grant funding to expand outside of Connecticut from The Kresge Foundation and McKnight Foundation.

With the support of the William & Flora Hewlett Foundation and in partnership with Michigan Saves and Connecticut Green Bank, a cloud-based workflow platform was developed and launched, called NGEN, that enables the scale-up of a homeowner energy loan program in new regions where local lenders deliver a standardized energy loan product to homeowners through a network of vetted contractors, unlocking local lending capacity for climate finance through a loss reserve. IPC closed its first investment outside Connecticut with a \$5M credit facility for BlocPower, a B Corp provider of leased heat pumps for underserved properties in the urban core. A major focus in 2020 will be on launching our ownership platform for distributed commercial solar and community solar projects, completing our initial capital raise, and building out deployment partnerships with developers, originators and channel partners such as nonprofits, other green banks, and CDFIs.

MARYLAND CLEAN ENERGY CENTER

www.mdcleanenergy.org

The Maryland Clean Energy Center (MCEC) is a corporate instrumentality of the state, created to foster the adoption of advanced clean energy products, services and technologies. Through its financing activities and programs to date, MCEC has leveraged over \$76M in private capital investment to achieve a 10 to 1 return on state and federal funds invested. MCEC is currently preparing to re-launch a statewide residential energy efficiency lending program and is now providing pre-development technical support to drive business more expeditiously to the market. During 2020, MCEC launched the Maryland Energy Innovation Accelerator to support tech to market commercialization of energy technologies emerging from universities and labs in the state, hosted the Maryland Clean Energy Summit to convene industry thought leaders, and completed a strategic plan study recommending investment pathways for the self-sustainability of the instrumentality in the future.

MICHIGAN SAVES

www.michigansaves.org

Michigan Saves is the nation's first independent, nonprofit green bank, committed to serving all consumers and clean energy markets with easy, accessible, and affordable financing solutions that fill market gaps. By leveraging each dollar of public funding to finance more than \$30 in private investments, Michigan Saves reached a new milestone in 2019—surpassing \$229 million in clean energy financing for Michiganders. In 2019 alone, Michigan Saves supported almost \$60 million of energy improvements.

Michigan Saves kicked off the year with website and residential loan application center enhancements, after which the green bank partnered with Inclusive Prosperity Capital (IPC) to develop and pilot a new technology platform that would help program managers, lenders, and contractors communicate, track loan progress, and complete administrative requirements. This innovative new system, called the National Green Energy Network (NGEN), is being offered through IPC to other green financing entities to help reduce costs and create efficiencies in program management and design. Michigan and Connecticut launched the platform in 2019.

For residential customers, Michigan Saves launched a low-to-moderate income (LMI) revolving loan and grant pilot program funded by DTE Energy. The combination of a small loan and grant allows LMI customers in DTE's service territory to make energy efficiency improvements that will be paid for by utility savings, with no cash outlay.

Michigan Saves also received national recognition from Rep. Debbie Dingell of Michigan upon her introduction of the National Climate Bank Act of 2019. Representative Dingell lauded Michigan's green bank as a national leader in clean energy and encouraged the federal government to follow its successful example. Later, Gov. Gretchen Whitmer of Michigan proposed a one-time, \$5 million appropriation to Michigan Saves in the state's 2021 budget to leverage private investment in clean energy improvements for Michigan's residents and businesses. This investment would allow Michigan Saves to make clean energy options affordable and accessible for even more Michiganders.

MONTGOMERY COUNTY (MD) GREEN BANK

www.mcgreenbank.org

In 2019, the Montgomery County Green Bank (MC Green Bank) closed two loans under its Commercial Loan for Energy Efficiency and Renewables product totaling \$1 million in project investment; and provided a critical \$400,000 bridge loan on one project to help move this project forward. MC Green Bank also launched a residential lending product with two credit unions that can support \$5 million in energy efficiency and renewable energy projects for homeowners. MC Green Bank completed a technical assistance pilot that supported two affordable housing owners to identify energy improvement opportunities and strategies for undertaking either immediately or incorporating into their refinance strategies.

Looking ahead to 2020, MC Green Bank will be:

- Supporting commercial property owners with CLEER and alternative financing vehicles
- Supporting energy efficiency and renewable energy projects of homeowners through its residential lending program
- Launching a commercial solar PPA program to serve nonprofits and faith-based organizations with no out-of-pocket costs and low-price kWh pricing
- Launching a community solar project to serve County residents, including 30% Low- and Moderate-Income households
- Supporting several low- and moderate-income condominium communities with technical assistance to assess their energy needs and define a plan for addressing their needs through a pilot program in conjunction with energy performance contractors
- Launching programs that support Covid-19 recovery

NEVADA CLEAN ENERGY FUND

www.nevadacef.org

The Nevada legislature allocated \$400,000 in funding for start-up costs for the Nevada Clean Energy Fund in 2019. The NCEF is the nation's first Green Bank that was created by a Republican governor in the US, Governor Brian Sandoval. The

NCEF has been incorporated, received 501(c)(3) status from the IRS, created foundational governance documents, established an online presence, obtained pro bono legal representation, created a draft business plan, and will hire its first Executive Director once the funds are received.

NEW YORK CITY ENERGY EFFICIENCY CORPORATION (NYCEEC)

www.nyceec.com

In 2019, NYCEEC finalized a new three-year strategic plan with the overarching impact goal to achieve \$1 billion of cumulative investment impact in energy efficiency and clean energy by 2025. The new plan places greater focus on various means of driving impact including stronger emphasis on financing projects in underserved communities and “crowding in” more third-party capital into green investments. At the end of the calendar year, NYCEEC mobilized \$168 million of capital, and “greened” nearly 7,000 affordable housing units with its financing.

As the New York City PACE administrator, NYCEEC worked closely together with the City of New York, prospective PACE lenders, and other relevant stakeholders to implement the upcoming NYC C-PACE program. With 12 lending partnerships, NYCEEC continued to focus on growing such partnerships with banks, CDFIs, private investors, specialty finance companies and affordable housing lenders. NYCEEC continued to assist other local green banks in their formation, including the DC Green Bank, and expects to focus on providing more green bank advisory services in 2020. NYCEEC is a 501(c)(3) specialty lender that provides loans for energy efficiency and clean energy projects in NYC and throughout the Northeast and Mid-Atlantic regions.

NY GREEN BANK

www.greenbank.ny.gov

NY Green Bank had a strong close to 2019, with \$271.6 million of newly committed capital for the year – more than in any previous calendar year. NY Green Bank has built on that momentum in the first quarter of 2020. As of March 31, 2020, total committed capital grew to over \$959 million, stimulating up to \$2.6 billion in clean

energy investments. NY Green Bank has financed projects across the State, including highly efficient greenhouses, LEED certified hotels, community distributed solar, renewable and energy efficiency projects to benefit low- and moderate-income communities, and more. NY Green Bank has played a variety of roles in the capital structures of these projects, including providing construction finance, short-term aggregation finance and long-term finance (including mini-perm structures), and has invested as a senior lender, back-leverage lender, and subordinated lender.

RHODE ISLAND INFRASTRUCTURE BANK

www.riib.org

In 2019 the Infrastructure Bank facilitated over \$121 million of financing for a variety of environmental infrastructure projects, of which 49% leveraged private capital sources. In all, the \$121 million of project finance will support approximately 3,000 jobs for Rhode Island’s skilled laborers. Of the total investment, the Bank financed \$11.3 million in energy projects for public and private sector clients. These clean energy projects saved its clients over \$10 million in energy costs while reducing greenhouse gas emissions by 32,100 metric carbon tons, a figure equivalent to 6,935 average passenger vehicles being driven for one year.

The Bank’s C-PACE program grew year-over year by 48% while financing its first new construction project and its first significant energy efficiency renovation at a prime hotel property. Via the Bank’s other environmental infrastructure programs, it financed its first “Green Streets” initiative that reduced impervious pavement through the deployment of green stormwater technologies for local watersheds. The Bank also launched the Municipal Resilience Program and contributed \$1 million of capital to support environmental infrastructure projects that protect local economies from the impacts of climate change. Looking forward, the Bank will continue to catalyze investment in resilient clean energy and environmental infrastructure, while growing local jobs and protecting the environment.

Looking Ahead for Green Banks

Green banks address clean energy financing needs across many different markets. There are several new markets where green banks are beginning to take a leadership role - serving low- and moderate-income consumers (LMI), financing climate resilience projects, and financing energy storage projects - and this role might expand in the coming years.

Green Bank Low- and Moderate-Income Household (LMI) Lending

Lending to LMI borrowers is a key component of green banks' work in the U.S., and that focus will only grow, especially in response to the economic crisis induced by the COVID-19 pandemic. Green banks throughout the history of the movement have sought ways to make clean energy accessible and affordable to all, including through non-traditional underwriting methods such as evaluating borrowers based on utility bill repayment history as opposed to solely relying on credit scores. These more flexible approaches have yielded major results while demonstrating that default risk is not solely tied to credit scores.

A number of green banks have led the way in serving LMI communities around the country:

- **Florida Solar and Energy Loan Fund (SELF):** SELF is currently the only green bank that has Community Development Financial Institution (CDFI) status, meaning that their primary mission is to focus on LMI customers. 73% of SELF's \$10 million plus in total lending has been directed toward LMI borrowers, with a less than 1.5% default rate on its lending portfolio. Borrowers save an average of 26% on their energy bills after the loans are made.
- **Connecticut Green Bank:** The Connecticut Green Bank has achieved "parity" in its solar lending operations, meaning that the households and businesses that have received solar loans from the Connecticut Green Bank are representative of the demographics of the state itself. The organization has achieved "beyond parity" with solar lending to communities of color. This focus on parity has allowed the benefits of going solar to be enjoyed by people and businesses of all walks of life, not just those that may have more access to information about the existence of these programs.
- **Climate Access Fund:** In 2019, the Climate Access Fund secured \$600,000 in operating funds and identified \$1.3m in low-cost debt to finance community solar projects in LMI areas. The organization expanded its pipeline of potential low-income community solar projects and is looking forward to deploying its debt and guaranty capital in innovative ways in 2020 for the benefit of low-income households in Maryland.
- **Inclusive Prosperity Capital:** Inclusive Prosperity Capital was created specifically to bring clean energy measures to underserved communities in Connecticut and around the US. In 2019 IPC closed a \$10M guarantee from The Kresge Foundation that laid the groundwork for raising a flexible capital stack from a range of investors as well as a \$3M program related investment from The Kresge Foundation for solar and storage for resiliency in urban areas.
- **NY Green Bank:** The NY Green Bank has given special focus to lending to community solar projects across the state that support LMI communities. Since its inception, the NY Green Bank has financed transactions of more than \$227 million for community [solar projects](#), and many of these projects are making an impact in LMI communities in the state. The NY Green Bank believes that ["if a person has a good payment history track record, having a FICO score should not be a threshold requirement to participate in community solar projects."](#) Additionally, in March 2020 NY Green Bank provided a \$25.0 million senior secured, multi-draw credit facility to Inclusive Prosperity Capital to support its investments in underlying energy efficiency, solar, and other sustainable infrastructure transactions that will benefit low- and moderate-income communities and underserved markets.
- **Michigan Saves:** Michigan Saves' residential lending in LMI communities has been 56% of their overall residential [portfolio](#). In 2019, the

organization launched a LMI revolving loan and grant pilot program funded by DTE Energy. The combination of a small loan and grant allows LMI customers in DTE's service territory to make energy efficiency improvements that will be paid for by utility savings, with no cash outlay.

- **Montgomery County Green Bank:** MC Green Bank's initial residential investment of \$1.2 million supported a 100% LMI community of over 200 affordable homes. MC Green Bank also conducted technical assistance for two affordable housing owners with over 300 units of rental homes dedicated to LMI residents to identify energy savings improvements for these properties. MC Green Bank is conducting a technical assistance program for up to 8 affordable condominium properties to support energy improvements that can improve health, comfort, and value of these properties. MC Green Bank is also investing in community solar projects which will at a minimum deliver 30%

of the subscriptions to LMI renter and owner households.

- **Hawaii Green Infrastructure Authority (HGIA):** The HGIA has created an on-bill financing program that makes clean energy upgrades accessible to LMI renters across the state. The Green Energy Money Saver (GEM\$) program allows renters to implement energy efficiency and clean energy upgrades that save money from day one, while ensuring that the repayment of the loan continues on with the next tenant that rents the space. In September of 2019, HGIA committed to only lend to underserved communities in Hawaii moving forward.

This flurry of activity serving LMI communities through green banks is slated to continue and even accelerate in 2020 and moving forward, thanks to a concerted effort across all green banks to bring capital and savings to underserved communities across the country.



Resilience Lending

In the world of climate policy, there are two traditional categories: mitigation and adaptation. Mitigation means pro-actively combating the causes of climate change - for example, adding clean electricity generation such as wind or solar to the electricity grid which displaces fossil fuel-fired electricity. Adaptation means adapting to the changing world we live in to be better prepared for the consequences of climate change.

Generally speaking, mitigation activities, such as deploying clean electricity generating resources, are easier to finance because of the expected future cash flows that arise from these technologies. A bank can feel confident lending to a solar project because the project itself will result in the generation of a valuable commodity, electricity, the proceeds from which can be used to repay the loan. Note that, financing mitigation is easier than financing adaptation, financing mitigation is not easy. Currently, even with the literal burning platform of climate change, new investment in renewables is nowhere near where it is required to be in order to stave off the worst effects of climate change.

Adaptation activities, however, do not benefit from the same intrinsic cash flow generating characteristics as mitigation activities such as wind and solar generation. Generally, adaptation projects provide less quantifiable financial benefits than mitigation, meaning that lenders are more hesitant to make loans to these types of projects. A sea wall might save property damage for homeowners that live on a shoreline, but as far as a lender is concerned this is an unpriced positive externality

of the project, and unpriced positive externalities don't put food on the table for lenders. Safe to say, the larger nut of adaptation financing has yet to be completely cracked. This is where green banks are beginning to step into the void.

Green banks have begun to apply themselves to the task of identifying quantifiable cash flows or savings associated with adaptation projects and have already had some success. In Florida, the Florida Solar & Energy Loan Fund (SELF) has created a program that takes advantage of the insurance premium savings enjoyed by homeowners that harden their roofs against the threat of hurricanes, and uses those anticipated savings to help secure a loan provided by SELF to finance the upfront cost of the entire project. The Rhode Island Infrastructure Bank has also taken a leading position on resilience lending through its Resilient Rhody program. The Bank is home to the state's Chief Resilience Officer, and will bring recommended projects from a resiliency task force from planning to implementation.

This type of financial innovation will require patience, creativity, and long-term thinking, which green banks have in spades. And as more governments and financial institutions (especially in the insurance industry) are recognizing the value of these types of adaptation projects, more ways to bring expected future cash flows or future savings associated with these projects will be identified by green banks. The Clean Energy Jobs Fund would allow for these types of innovative financing techniques to flourish at scale.



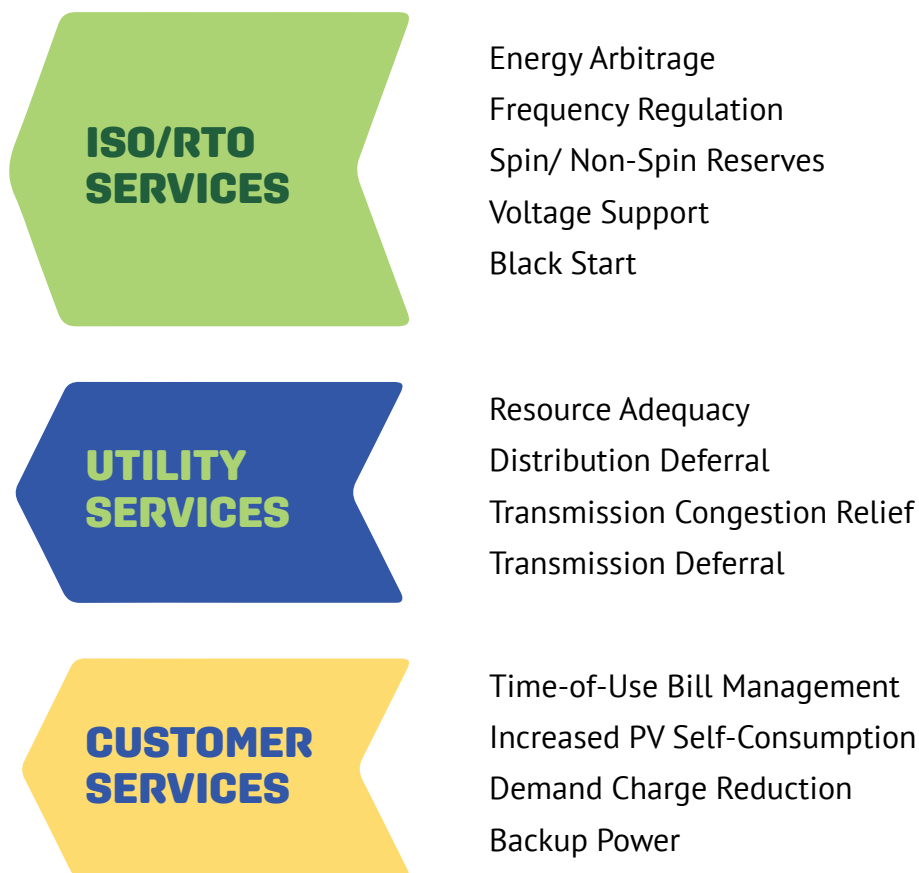
Energy Storage Lending

Energy storage is a key element of success in the battle against climate change. The financing market for energy storage technologies is expanding, with affordable financing beginning to become accessible to these technologies at scale. However, the market remains nascent, much like the wind and solar financing market of [a decade ago](#). Green banks have a role to play in the deployment of energy storage technologies.

While clean energy generation offers one clear and easily quantifiable financial benefit to a customer - predictable future cash flows associated with selling the electricity generated or using it to offset

electricity bills - energy storage comes with a more diffuse set of financial benefits. The image below, from the Rocky Mountain Institute, illustrates the different value streams that energy storage can provide to different types of customers.

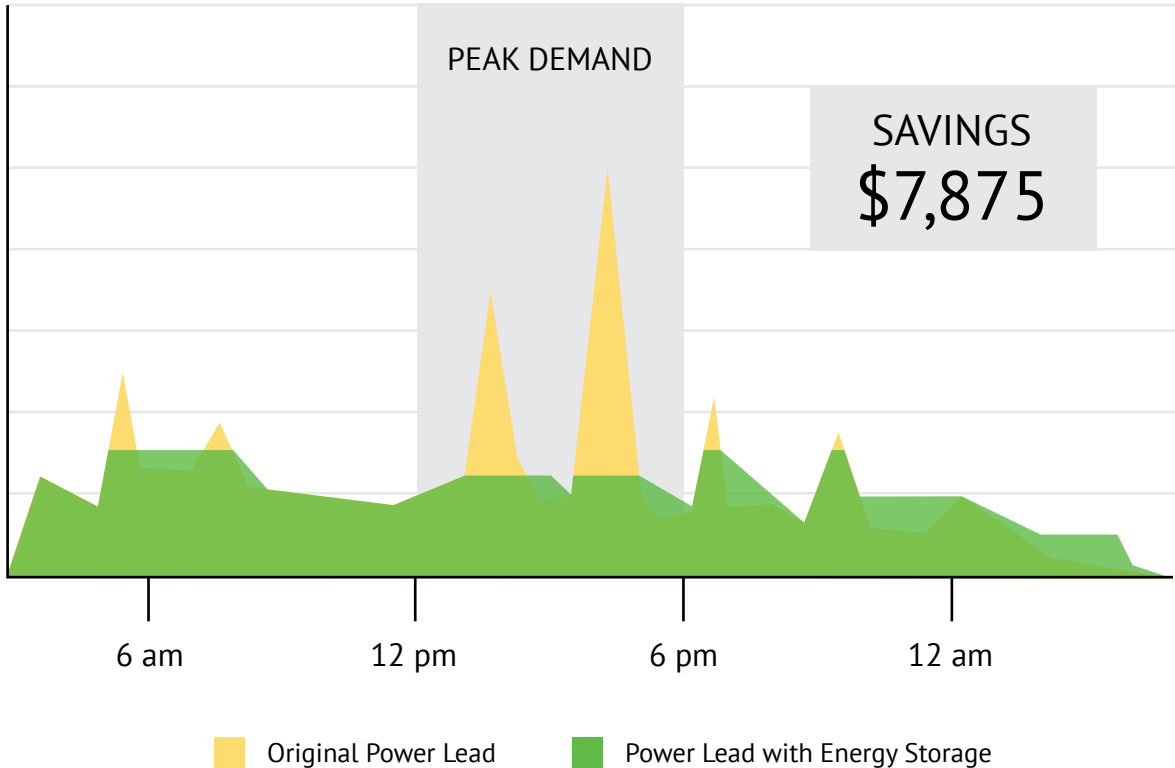
Aside from blackout recovery, which offers a significant but difficult to [quantify value](#), there are three main sources of value that can be derived by commercial and industrial sector end-users that could benefit from state or local Green Bank financing: demand charge management, demand response, and time-of-use bill management.



Source: <https://rmi.org/wp-content/uploads/2017/03/RMI-TheEconomicsOfBatteryEnergyStorage-FullReport-FINAL.pdf>

Demand charge management is the largest opportunity. Electricity bills for commercial and industrial customers are composed of two different charges: total consumption or usage (kWh) and demand charges (kW). The customer's utility bases a portion of the electricity bill on the electricity the

customer consumes during their highest level of demand over a [billing period](#). Demand charges [can account for over 50% of a company's electric bill](#). An [illustrative example of the benefits](#) that an energy storage system can provide for a business's demand charge management is provided below:



Commercial and industrial customers can also benefit from time-of-use management as well as participation in demand response programs. Commercial and industrial customers that choose to participate in voluntary time-of-use rate schedules would be able to realize cost savings thanks to energy storage, and they could also see benefits from participating in utility demand response incentive programs.

The potential revenue and cost-reduction sources covered above can be combined into a valuable asset for commercial and industrial customers, a practice known as value stacking. Value stacking

allows for the business case to be made for energy storage projects and makes the projects increasingly viable for financing. Despite this opportunity, financing concerns still exist. [“If the energy storage market is going to grow beyond the early adopters, there’s going to have to be more widely available, low-cost financing.”](#) Energy storage technology is a mature and dependable technology in many areas, but it is relatively new and with that newness comes an association of risk.

[“Investors are hesitant to invest in relatively earlier stage technology such as energy storage as these are viewed to be more vulnerable to delays and](#)

[to technology performance risk.](#) A study from the Environmental Energy Institute at the University of Windsor concluded that “currently, energy storage as a solution is more inhibited by project financing than by the technology itself. High capital costs and lack of financing options and incentives make it difficult for large scale energy storage to be realized.”

Additionally, a Greentech Media (GTM) study found that [“most of the developers and financiers interviewed \[for the GTM study\] named credit risk – the likelihood that the storage off-taker follows through with timely payments – as their top concern. This worry will drive lenders toward larger C&I customers with lengthy credit histories and robust credit ratings, which could make it hard for smaller companies with limited credit history to secure financing.”](#)

State and local green banks have a key role to play in creating a path toward efficient, liquid financing markets for energy storage technologies, just as they did for clean electricity financing markets as those markets were maturing. The NY Green Bank has taken the lead thus far among green banks, announcing a \$200m commitment for storage-related investments that help drive down costs and provide energy storage capabilities where they are needed most.

For commercial and industrial customers especially, state and local green banks can provide critical

elements of a project’s capital stack that private capital is currently not filling. For example, a state or local green bank can participate in the project’s capital stack with subordinated debt, or else can offer a credit enhancement such as a loan-loss reserve that can help coax lenders into this relatively new market by de-risking the project to a large degree. It is much easier for a lender to step into a new underwriting field if they have this type of green bank support to back them up.

The Clean Energy Jobs Fund can play a similar role by providing credit and credit support to utility-scale projects with an energy storage component that provide value to utilities and ratepayers. A study from the [Massachusetts Department of Energy Resources](#) showed that ratepayers stood to capture \$800m in systems benefits with the addition of 600 MW of advanced energy storage by 2025. Financing these types of deployment at scale could provide immediate economic benefits for ratepayers while maximizing overall deployment of clean energy onto the grid.

Just as state and local green banks have played a key role in helping develop financing markets for renewable energy solutions in their respective jurisdictions over the last decade, these organizations can play a similarly key role in the financing markets for energy storage. The Clean Energy Jobs Fund also offers an opportunity to take energy storage financing to scale across the United States.

Appendix: Methodology

The green bank impacts presented in this report are the result of information gathering performed by CGC. Key metrics were collected from public reports issued by each green bank as well as direct information provided to CGC by various green banks upon request. Sources for green bank data in the report are from green bank self-reporting, as well as press releases, public filings, and other communications from the organizations.