The Development of Green Bank Programs in Cincinnati

Phase 1

April 30, 2024

Prepared for:
The Port
Cincinnati Development Fund
Cincinnati Business Committee
Cincinnati Regional Business Committee
City of Cincinnati
Hamilton County

Prepared by:

DONOVAN ENERGY

Executive Summary

The City of Cincinnati, Hamilton County and the Greater Cincinnati region have an unprecedented opportunity to collaborate to transform their clean energy economy.

This opportunity will support the expansion of existing public/private financing programs and the development of new solutions to reduce energy costs and expand access to renewable energy and alternative fuel vehicles. With 15 years of related experience, the region has built a solid foundation on which it can expand the breadth and depth of these programs. More recently, organizations that deliver such programs have become known as "green banks." Currently, the work in this region is being done by multiple entities serving various sectors of the marketplace, all with the goal of reducing energy costs and carbon emissions for homeowners, building owners, and renters.

The region is already a national leader as an advocate and promoter of policies supporting clean energy. The City of Cincinnati recently constructed a 100-megawatt solar array. When it went online in 2021, it was the largest City-led solar project in the country. The challenge today is to take the region's successful track record to the next level alongside unprecedented economic opportunity and a global imperative. It is projected that through recent legislation, anchored by the Inflation Reduction Act of 2022 (IRA), federal government investment in clean energy will exceed $100B/year. Analysis of local market data indicates that the total investment for energy upgrades in homes and buildings in Hamilton County could be in excess of $650M.

What does Greater Cincinnati need to do to ensure that this rapidly growing opportunity segment of our economy does not pass by without transformative impact?

Here in Ohio, Cincinnati can look to its peer cities like Columbus and Cleveland, or to several other City, County, and statewide efforts across the country to see focused, scalable green Bank programs several years in the making. This is aligned with the federal government's single-largest funding program within the IRA: the $27B Greenhouse Gas Reduction Fund (GGRF), administered by the U.S. Environmental Protection Agency. It was recently announced that state-based collaborations in each of Ohio, Kentucky and Indiana received a total of $335M in funding through the "Solar for All" GGRF program. The GGRF programs are focused on green bank program development for all market segments and reducing the energy burden for low-income communities.

How will the region respond?

Over the last 6 months, over 200 local stakeholders have provided feedback, ranging from elected leaders focused on policy advancement, to developers looking to fill out project capital stacks, to advocacy organizations focused on affordable housing and environmental justice. That engagement has yielded at least 15 new or expanded green bank financing programs offered for consideration in this report, anchored by potential funding sources. The region desperately needs more housing to meet needs at all income levels. New development projects oftentimes encounter financing gaps due to rising interest rates on traditional financing solutions. Far too many residents and small businesses in our community spend a disproportionately large amount of their monthly income on utility bills, creating a heavy energy related cost burden. A well-designed set of green bank solutions that coordinates and leverages newly-available grants and tax incentives with existing financing tools, and advances complementary policy objectives, can be positioned to not only address these constraints but to also establish new programs that benefit this community for many years to come.

The local and regional value of a green bank is in the collaboration between the City, the County, Cincinnati Development Fund, The Port, Cincinnati Business Committee, Cincinnati Regional Business Committee and real estate developers, and service providers across the region. By closely coordinating the design and implementation of green bank products, it is possible to lower barriers to adoption and combine green bank products together with other community and economic development incentives. As we have seen in other parts of Ohio, the successful collaboration of green bank efforts at this scale requires full-time green bank staff to coordinate efforts across the public sector, development agencies, and the development community to maximize the considerable funding and growth potential unlocked by the GGRF and IRA. This region can win by formal collaboration across participating organizations that builds on 15 years of local momentum while dedicating new human and financial resources toward shared goals. Not only can Greater Cincinnati be a leader in green bank programs, but the investment in local and regional coordination of development goals will also pay dividends for decades to come.

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List of Abbreviations and Definitions

Glossary of terms and abbreviations used in the report.

179D	Section 179D Federal Tax Deduction
45L	Section 45L Federal Tax Credit
AFI	Alternative Fuel Infrastructure
CCIA	Clean Communities Investment Accelerator
CBC	Cincinnati Business Committee
CDF	Cincinnati Development Fund
CRBC	Cincinnati Regional Business Committee
CDFI	Community Development Financial Institutions
CRA	Community Reinvestment Act
CPRG	Carbon Pollution Reduction Grant
DOE	Department of Energy
EE	Energy Efficiency
EECBG	Energy Efficiency and Conservation Block Grant
EPA	Environmental Protection Agency
EV	Electric Vehicle
EVSE	Electric Vehicle Supply Equipment
GGRF	Greenhouse Gas Reduction Fund
GHG	Greenhouse Gases
GRRP	Green and Resilient Retrofit Program
HEEHRA	High-Efficiency Electric Home Rebate Act
HUD	Department of Housing and Urban Development
IRA	Inflation Reduction Act
IRS	Internal Revenue Service
ITC	Investment Tax Credit
LIHTC	Low-Income Housing Tax Credit
LLR	Loan Loss Reserve
LMI	Low-Moderate Income
LPO	Loan Program Office
MSA	Metropolitan Statistical Area
NCIF	National Clean Investment Fund
OAQDA	Ohio Air Quality Development Authority
ODOD	Ohio Department of Development
OKI	Ohio Kentucky Indiana Regional Council of Governments
PACE	Property Assessed Clean Energy Financing
PPA	Power Purchase Agreement
PPP	Public/Private Partnership
RLF	Revolving Loan Fund
SEFI	State Energy Financing Institution
SFA	Solar For All

Introduction

Donovan Energy was engaged by The Port, on behalf of a collaboration that includes the Cincinnati Business Committee (CBC), Cincinnati Regional Business Committee (CRBC), Cincinnati Development Fund (CDF), City of Cincinnati, and Hamilton County. The focus is the development of a marketplace for green bank financing programs in Cincinnati and Hamilton County ("the region"). The proposal and subsequent research focused on the following key activities to explore the development of clean energy financing programs:

Engagement of stakeholders and market participants to determine investment pipeline, financing challenges and potential solutions;

A pathway to developing equitable solutions with a focus on gaps in the housing marketplace;

Research of other green bank efforts in Ohio and around the country evaluating approaches to raising loan capital, loan loss reserves, revolving loan funds and other credit enhancements to bring new solutions to market;

Analysis of new and existing funding sources, both for loan capital and operational funding; and,

Research of relevant policy at the local, state, and federal level that would impact the viability of developing a green bank in the Cincinnati/Hamilton County region.

The goal of these activities was, firstly, to establish a green bank definition for our region.

This was essential in clearly communicating what we envision the region's version of a green bank to look like. We examined best practices, funding sources, market sizing and governing structure of the effort. This work will be essential in helping our region organize and compete for new state and federal dollars for subsidy and financing programs to drive investment in energy efficiency and solar in homes and buildings. The overarching focus for this work is on meeting or exceeding the federal government's goal of investing at least 40% of these resources in low-income communities, an effort known as the Justice 40 Initiative.

It is notable that our region has more than a decade of history in the deployment of innovative clean energy financing programs funded by public and private sources. This record of accomplishment includes longstanding programs operated by The Port and Cincinnati Development Fund, and successful models for raising impact capital from the Greater Cincinnati Foundation to leverage funding from the U.S. Department of Energy. There is a foundation for the green bank to build upon in the region, and unprecedented levels of funding immediately forthcoming to significantly accelerate growth. Higher costs of construction materials and rising interest rates commonly lead to financing gaps. Green Bank solutions can help fill these gaps in development deals, particularly to accelerate the buildout of additional housing.

DONOVAN ENERGY

THE PORT
Making Real Estate Work

CBC
Cincinnati Business Committee

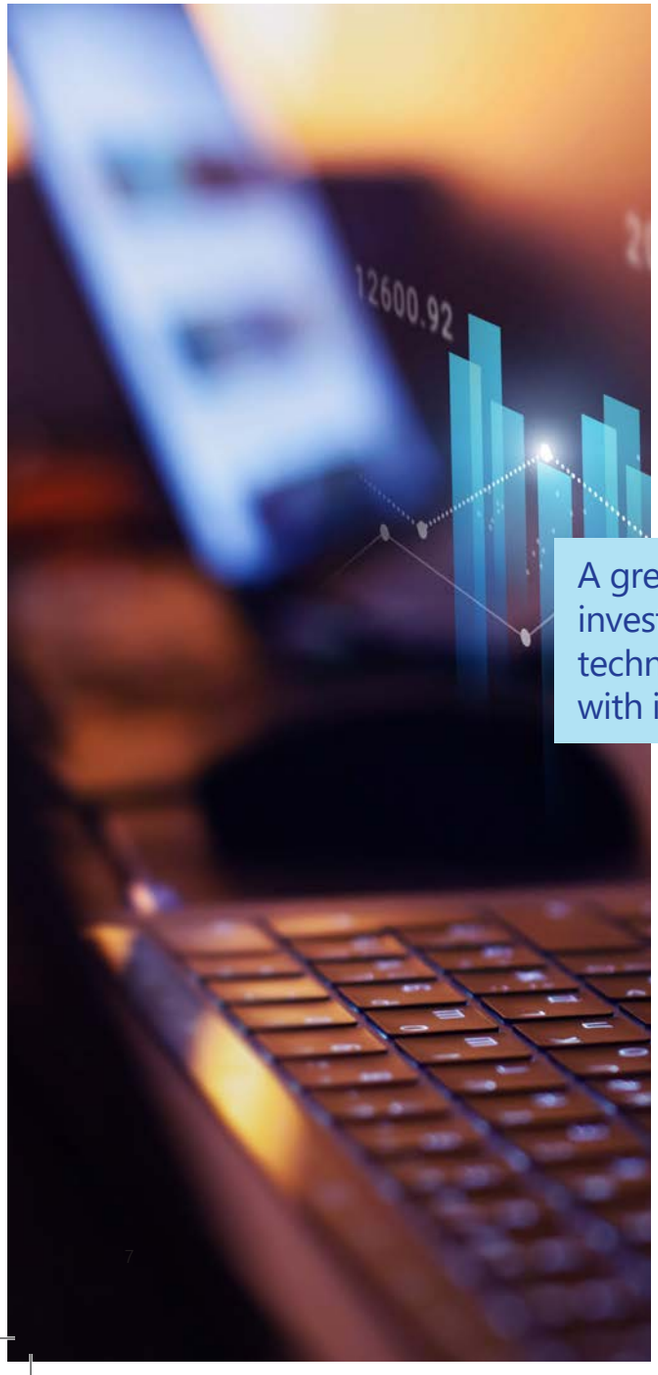
CINCINNATI REGIONAL BUSINESS COMMITTEE

CINCINNATI DEVELOPMENT FUND

city of CINCINNATI

Hamilton County

Green Banks: What/Who/ Where Are They?



According to a 2022 Coalition for Green Capital report, green banks have invested $4.2B and leveraged over $14.8B in investment nationwide. As our region mobilizes around a focused effort to significantly expand green bank financing programs, it is important that we have a common starting ground as to how a green bank will impact the region. The definition of a green bank can be widely variable and unfocused. There is no standard definition; however, outlining a commonly held definition benefits our region. The term "green bank" is being used much more frequently by state and federal government agencies given the influx of funding to support clean energy financing solutions, namely from the Inflation Reduction Act of 2022.

The definition that is suggested for our region is:

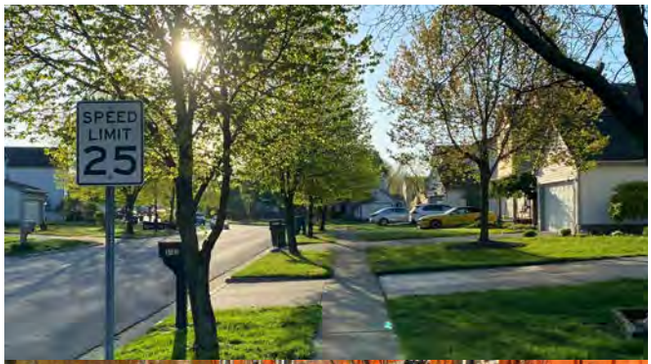
> A green bank is a regional effort to drive equitable investment into clean energy by coordinating public policy, technical assistance, and access to grants and incentives with innovative public/private financing solutions.

Green banks can be structured in various forms, including public, quasi-public, or nonprofit organizations. Some of the initial green banks like Connecticut and New York were established by statute as government agencies funded primarily by public and utility ratepayer funds. As the green bank concept has spread to more cities, counties and states across the country, the nonprofit model has become more mainstream. Examples of nonprofit green banks include Michigan Saves and the Columbus Region Green Fund. The following table is an overview of different green bank structures, most of which operate close to us.

Green Bank	Governance Structure	Products/Services	Funding Includes
Columbus Region Green Fund	501c3 nonprofit organization, focused on the Columbus, OH MSA	Solar PPA	The Columbus Partnership, Local governments (City of Columbus at $2M, and Franklin County at $7M) and private investment
Go Green Energy Fund (Growth Opps) based in Cleveland	501c3 nonprofit CDFI based in NE Ohio, but focus extends across several Midwest and Mid-Atlantic states	Solar for All funding to support solar investment in low-income and disadvantaged communities	The George Gund Foundation, The Cleveland Foundation, Morgan Foundation, the Cuyahoga County Government, and private investment
Ohio Air Quality Development Authority	Independent public agency formed by statute 50+ years ago and operating statewide	Clean Air Resource Center – grants + tax incentives for small business, Clean Air Improvement Program – Tax incentives for larger ($2M+) projects, Green Bond designation, C-PACE, LLR	U.S. Environmental Protection Agency, State budget, Ohio department of Development, Fee for Service
Michigan Saves ("The nation's first nonprofit green bank")	501c3 nonprofit organization with Board and no staff that contracts with Public Sector Consultants, operating statewide	Single-family residential & commercial lending backed by credit unions with interest-rate buy-downs funded by utilities, robust contractor network	Michigan Public Service Commission, The Kresge Foundation, US DOE
Indiana Energy Independence Fund	Nonprofit organization with Board and no staff that contracts with Public Sector Consultants, operating statewide	Newly formed, focused on bringing innovative clean energy finance solutions to the State	The McKinney Family Foundation, the Energy Foundation, the City of Indianapolis Office of Sustainability, Elevate Energy, and the Natural Resources Defense Council
Connecticut Green Bank ("the nation's first state green bank")	Quasi-public agency with a Board of Directors, formed by 2011 statute	Residential: Smart-E, solar/battery storage loan fund; Commercial: C-PACE, Solar PPA, Solar/Batter Storage Lease, Multi-family financing	The Kresge Foundation, Regional Greenhouse Gas Initiative, private investment, US DOE, Rockefeller Foundation

There are multiple approaches to raising loan capital, that aim to bring new solutions to market. These efforts have been tested throughout the green bank. For example, the Connecticut Green Bank and NY Green Bank provide credit enhancements, revolving loans, and other mechanisms to attract private investment. Michigan Saves focuses on partnering with area credit unions and employing loan loss reserves to absorb risks. The Columbus Region Green Fund directly invests in projects to reduce cost of capital and use a loan loss reserve to enhance the credit of projects to make them more appealing private investors. One common element across many green banks is integration with local electric and gas utilities. Often, with state regulatory commissions and other local partners, clean energy financing programs are funded directly by utilities and can be designed to drive demand to utility rebate programs.

Market Analysis



The total addressable market (TAM) for energy efficiency upgrades in Hamilton County's built environment is an estimated $654.6 million.

This substantial market potential underscores the economic and environmental benefits of strategic investments in energy efficiency, which promise not only to enhance the living conditions of low-income and disadvantaged communities through lower utility bills and improved housing quality, but also to stimulate local economic activity. Our methodology began with collecting comprehensive building data across Hamilton County, categorizing structures into residential, commercial, industrial, and educational facilities. We then established key assumptions based on industry standards for upgrade costs, and market penetration rates based on markets acceptance of energy efficiency measures. This data-driven approach provided a tangible foundation to estimate the scope of potential investments, crucial for informing the strategic deployment of capital into green bank financing programs.

This framework aims to identify where to focus the investment of funding within our region's built environment.

In our research, we focused on the market dynamics surrounding low to middle-income housing and the conversion of commercial properties into residential units. The Cincinnati Metro area, spanning Ohio, Kentucky, and Indiana, grapples with a notable housing shortage, falling short by approximately 155,000 homes against the required 1,100,000 units, according to the Cincinnati Affordable Housing Report by Pad Split. This scarcity is compounded by rising rental costs, with a median monthly rental cost reaching $1,119, posing a significant affordability challenge. To pay these rental costs, tenants would need an annual income of at least $40,284, creating a considerable affordability gap of $6,361 when compared to the

city's median income of $33,923, underscoring the value in lowering energy costs to reduce overall household expenses.

Since 2016, the available housing inventory in Hamilton County has shown a steady decline, according to Redfin, dwindling from 3,013 active listings in July 2016 to just 768 active listings by January 2024. This trend is not unique to Hamilton County but is reflective of broader trends across the Greater Cincinnati region. The overall housing stock experienced a decrease between 2020 and 2021, driven in part by apartment dwellers shifting preferences towards single-family homes amidst the work-from-home movement spurred by the Covid-19 pandemic. Although there have been fluctuations in the housing stock since 2021, the total inventory has yet to surpass pre-pandemic levels.

Additionally, office vacancy rates in the Cincinnati region are notably high, with rates ranging from 20.3% to 41.8% across different suburbs like Mason, Sharonville, and the Central Business District according to the Cincinnati Chamber's 2023 State of the Region report. Despite the housing shortage, Cincinnati lags in the number of residential building permits per 1,000 people compared to peer metros like Columbus, Indianapolis, and Raleigh, highlighting the need for zoning reforms to facilitate housing development and innovative financial tools to enable vacant commercial buildings to attract residential developers.

To help alleviate the growing costs for Low and Moderate Income (LMI) households, the Ohio Air Quality Development Authority applied for $250M in funding from the US EPA's $7B Solar for All program in October 2023. That award would be invested to provide financial assistance to approximately 55,000 LMI households across Ohio to decrease their energy burden. Out of 55,000 total households, OAQDA plans to serve at least 10,000 single family units. To get a better idea of the impact this funding will have on LMI households in Hamilton County, we assume that the 55,000 households are evenly distributed statewide by population which equates to about 3,800 households in Hamilton County. For context, this would be more than a 10x increase in annual residential solar production from 2023 data. With Solar for All, OAQDA aims to install 310 MW of solar across Ohio. By implementing solar for LMI households, these residents will see an average annual energy savings of 24%. By extrapolating these numbers further, we can assume that about 21 MW (21,000 kW) will be allocated to Hamilton County. With Solar for All funding, OAQDA aims to install 310 MW of solar across Ohio, generating average annual energy savings of 24%. By extrapolating these numbers to understand the potential local impact, we can forecast that approximately 21 MW of solar will be deployed in Hamilton County. For reference, the Solarize Cincy program has installed roughly 726 kW of solar on over 120 homes since 2015.

By installing 21,000 kW of solar, about 20,191 tons of carbon dioxide would be avoided each year in Cincinnati/Hamilton County, aligning with OAQDA's mission to decrease air contaminants.

OAQDA also intends to provide solar training programs and robust financial assistance; developing this amount of scale for residential and small commercial solar installations will create major opportunities for job growth in that sector. Co-op Cincy, aided by a $500,000 US DOE green workforce development grant, is leading our region's strategy for increasing supply of qualified trained workers earning good wages to enter the clean energy job market. The success of this workforce effort is paramount to the success of green bank financing programs.

➔ *For further detail on how we came to this number, please refer to Appendix E.*

Stakeholder Engagement

Engaging stakeholders such as developers, lenders, business owners, non-profits, community development finance institutions (CDFIs), local government, and other market participants was crucial in the first phase of work to start to garner ample feedback from the marketplace.

Diverse perspectives from local stakeholders provide insights into project feasibility, creative financing options, and community needs. Developers highlight potential projects, while lenders can suggest pathways to favorable investment terms. Non-profits ensure investments align with social priorities, and CDFIs offer creative financing solutions for underserved areas that bridge gaps left unfulfilled by traditional lending solutions. Local government leads by example and provides legislative support. This collaborative approach ensures investments meet community needs and drive sustainable development.

Engaging stakeholders also helps to foster collaboration and partnership, which is essential for overcoming financing challenges and implementing effective solutions. Collaborative and diverse efforts can lead to the development of innovative financing mechanisms, such as public-private partnerships or revolving loan funds, that unlock new federal investment opportunities and drive sustainable development. Overall, engaging stakeholders is essential for knowledge dissemination, fostering collaboration, unlocking financing solutions, and mobilizing resources to address investment pipeline challenges. By working together with stakeholders, we aim to drive positive change, promote inclusive development, and create lasting impact in communities. Considerable interest in this topic locally enabled us to take a multi-faceted approach to stakeholder engagement.

Two large-scale events were put forward, The Green Bank Forum (the "Forum") on March 1, succeeded by the CDF Developer Session (the "developer session"), on March 19. The Forum attracted over 125 attendees, bringing in national experts from the Rocky Mountain Institute, World Resources Institute and U.S. Department of Energy, state-based leaders from ODOD, OEPA and OAQDA, along with several local developers. The day was kicked off by the President of Hamilton County Commission Alicia Reece, who provided insightful remarks about the importance of this work in the fight against climate change. City of Cincinnati Mayor Aftab Pureval followed, and highlighted the need for this work to be done by uplifting the fact that Cincinnati is a climate haven, and we will need

to prepare for the influx of climate refugees by providing sustainable housing and living in a resilient community. This Forum provided attendees with an idea of the scale and robustness of complimentary grants and tax incentives in addition to highlighting clean energy finance solutions that are already working in the market as well as complimentary technology and workforce development solutions. One big opportunity for our region to figure out, that cannot be understated when it comes to the success of green bank program development, is the parallel development of a framework to ensure all available subsidies are maximized prior to any project taking on financing. As we discuss more below and in Appendix A, there are hundreds of millions of dollars of clean energy grants and tax incentives that can be stacked with financing solutions. But because these incentive programs are administered by multiple state and national funders, it is a complex system to navigate, and a substantial risk of leaving dollars on the table, particularly for projects in underserved communities.

➔ *For the full slide deck from the Forum, over 200 slides from 20+ presenters, see Appendix C.*

About two weeks later, a local developer session was hosted at the Cincinnati Development Fund (CDF) to dive deeper into the topics covered by the Green Bank Forum that related specifically to developers that are supporting the housing market. This session explored the stacking of multiple tools (grants, tax incentives, financing) on an example project. Time was also taken to discuss in detail 3 or 4 of the new and expanded green bank financing solutions that this work has incubated. We know from stakeholder engagement and green bank industry experience, that building new financing programs will not automatically be successful; but if our region designs new clean energy financing solutions with ample feedback from the marketplace, the deal volume should outpace our peers. The session also explored the intricacies of the new financing products that could come out of a local green bank like a bridge loan fund, solar revolving loan fund for low-income housing tax credit (LIHTC) deals, and mezzanine debt for implementing solar or energy efficiency solutions.

We have also had the opportunity to share details behind the green bank effort with several important stakeholder groups that are central to long-term success. In November 2023, the group working on the US EPA Climate Pollution Reduction Grant (CPRG) $100M+ grant application, led by OKI, asked us to present on the importance of a green bank and how it ties in to addressing high-priority carbon emission reduction efforts. In January 2024, Faith Communities Go Green assembled over 50 people from places of worship across the region and invited us to share an overview of this work, particularly for non-profit organizations. Additionally, in March 2024, we presented to the City of Cincinnati's Climate, Environment, and Infrastructure committee of City Council, Chaired by Councilmember Meeka Owens. Later that month, we presented to the Cincinnati Regional Business Committee's Regional Assets and Community Improvement Committee, and the Board of the Cincinnati Development Fund. Across the groups, there was active dialogue, helpful feedback, and each discussion led to insightful takeaways and a growing group of engaged stakeholders.

Lastly, we facilitated individual meetings with over 150 stakeholders. These meetings were meant to be complimentary to the larger group settings, helping to ensure we met each key stakeholder where they were. These meetings focused on bringing them up to speed with a common foundational understanding of the green bank effort and how it can advance their mission. We also received direct feedback related to program design and what their hurdles are for gaining more access to capital. We identified recurring themes in these conversations which informed our list of potential green bank financing solutions.

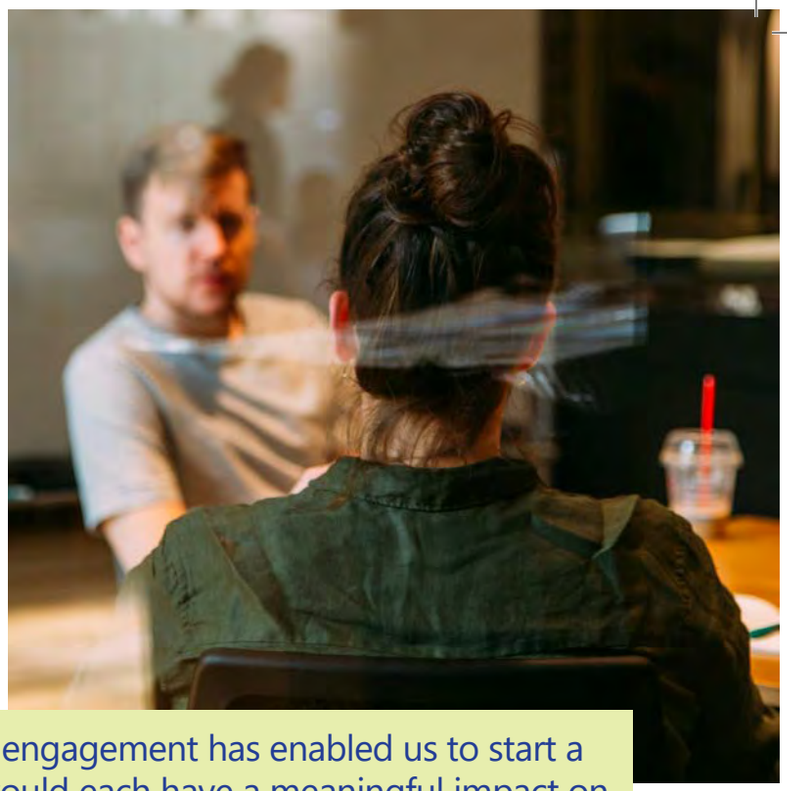
➔ *This is discussed further below and in Appendix A.*

Policy

The IRA bill of 2022 brought forward considerable change to policy that materially benefits the advancement of green bank programs.

Chief among them are changes to the federal tax code, highlighted by:

- **Section 48 Investment Tax Credit** – offers a tax credit of 6%, up to as high as 70%, on qualifying clean energy improvements such as geothermal, solar, battery storage, and electrochromic glass. This credit is in place through 2032 and provides a steady and predictable boost to any eligible project irrespective of the more unpredictable environment for grant funding.
- **Section 30C/D** – offers a tax credit up to 30% on the purchase of electric vehicles and charging infrastructure, targeting projects implemented in low-income or rural communities.
- **Section 179D** – a federal tax deduction up to $5.36/SF for efficiently designed lighting, HVAC, hot water and building envelope systems applicable to most buildings.
- **Direct (Elective) Pay** – a cash payment in the form of a federal tax refund is directly paid out in order to enable tax-exempt entities to maximize the benefits of the federal tax credits such as 45 and 30C. This enables governments and non-profits that don't pay federal taxes to cash in on this significant tax credit, functioning like a reimbursable grant.
- **Transferability** – taxable for-profit entities that do not have a tax appetite to use credits such as 48 and 30C directly now can transfer (sell) the credit to those that do. The sale does not change the



legal ownership of the project and is already a multi-billion-dollar marketplace. This gives project owners an ability to model the financial value of the credit while taking on lower transaction fees.

- **45L Federal Tax Credit** – expanded incentive offering up to $5,000/housing unit for buildings to achieve a certain level of energy efficiency and solar readiness, and when used alongside LIHTC funding, the value of 45L no longer reduces the project's cost basis.

At the local level, our research and stakeholder engagement has enabled us to start a list of several policies that, when put in place, would each have a meaningful impact on accelerating the growth of green bank financing programs.

The benefits they bring include the following:

- **Greater transparency in the marketplace;**
  - Requiring buildings to disclose their energy use would allow prospective tenants and buyers to clearly understand occupancy costs and compare them to similar buildings.
- **Place greater value on reducing the energy burden for those already dealing with cost-prohibitive energy bills;**
  - Add capital and expand the policy of the Affordable Housing Leverage Fund to enable it to offer more funding for projects that achieve a higher level of energy performance.
- **Invest more into communities that have historically been overlooked;**
  - Consider the restructuring of the City of Cincinnati CRA tax abatement to place more value on meaningful reduction of energy usage, especially for those that cannot afford to pay.
- **Reduce transaction fees to better reflect best practices in cities/counties that our region benchmarks itself against;**
  - Reduce fees at the City and County level necessary to give building owners the option to use PACE financing. PACE financing is special assessment financing from private capital providers or bond funds, dedicated to investing in energy upgrades in buildings. It is arguably the most successful clean energy finance innovation in the last 15 years. Based on recently assembled 2023 market data, Ohio is one of 39 states that has PACE legislation in place (since 2009), and in 2023, Ohio saw approximately $80M in deal volume, part of what is now a market sized at $7B+ across the U.S. Of this $750M, Hamilton County has seen roughly $70M in deal flow. This compares to Montgomery County generating slightly less deal volume during this same time, but almost 4x the amount of deal volume in Franklin County, as nearby reference points.
- **Establish sustainable revenue streams to help enable the long-term success of green bank financing programs.**
  - Advocate as a region (if not a state), for Duke Energy, its peer investor-owned utilities in Ohio, and the regulatory bodies to enable a voluntary program for supporting the acceleration of green bank financing programs to be included in Duke's portfolio of clean energy investments.

➔ *These policies are examined in greater detail in Appendix A – Projects, Funding Sources, Policies, and Resource Map on the Policies Tab.*

Funding Opportunities

The current funding landscape has never been better for the formation and operation of a green bank.

Federal spending on climate is on track to exceed over $100 billion annually through at least 2027. These headline numbers undersell the potential that clean energy investment can have as there are uncapped clean energy tax credits that could lead to more than $1 trillion in federal investment. Any strong effort to drive community development needs to have a balance of public funding, philanthropic funding, and funding from electric/gas utilities where goals are aligned to increase resiliency, control costs, and decarbonize the built environment.

In our meetings with local stakeholders and discussions with national experts, the following four sources of public funding were those that received the most focus:

1. Greenhouse Gas Reduction Fund

The largest single piece of spending in the IRA is the US EPA's $27B hallmark program, the Greenhouse Gas Reduction Fund. This investment is split into three program, detailed in the table that follows. The NCIF and CCIA awards were announced on April 4, distributing $20B to 8 organizations, see below for more details on next steps. The awards for Solar for All were made on April 22, 2024. The Ohio Office of Management and Budget in conjunction with OAQDA and the OEPA applied for $250M to SFA and received $156M on behalf of the State to expand the use of solar technology in historically underserved Ohio communities. The City of Cincinnati is also a partner on an application led by Growth Opportunity Partners, a CDFI based in Cleveland that assembled 31 cities across 8 states focused on making an impact in the Industrial Heartland. Their allocation also totaled $156M.

Overview of the Greenhouse Gas Reduction Fund competition structure

	National Clean Investment Fund	Products/Services	Funding Includes
Competition description	**Fund 2-3 national nonprofits to partner with private capital providers** to deliver financing at scale catalyzing tens of thousands of clean technology projects	**Fund hub nonprofits to rapidly build clean financing capacity of networks of community lenders** to finance pollution-reducing projects in low-income & disadvantaged communities	**Support states, territories, Tribal & municipal governments, & nonprofits** to expand access to solar for low-income & disadvantaged communities by priming markets for investments
Number and type of grantees	**2-3** national nonprofits	**2-7** hub nonprofits	**Up to 60** states, Tribal & municipal governments, & eligible non-profit entities
Funding available	**Nearly $14B**	**$6B**	**$7B**
Expected impacts	**Historic public sector investment with the scale to attract private capital leverage in clean projects,** supporting the 2023, 2035, & 2050 climate goals of the United States and catalyzing tens of thousands of clean technology projects	**Robust pipeline of thousands of community-led clean projects with meaningful benefits,** generated by hundreds of community lenders capitalized by GGRF to start or expand clean lending in underserved communities	**Energy bill savings and energy resiliency for millions of underserved American households** via states, Tribal & municipal governments, & other recipients creating new or expanding existing low-income solar programs across the country

2. Clean energy tax credits

Section 48W and 30C/D federal tax credits that provide a cost reduction of anywhere between 6-70% depending on use of prevailing wage labor, location and size of project and use of domestic content. As discussed above, these tax credits are applicable in different ways for both for-profits, non-profits, and government agencies. It is estimated that over $1 trillion in tax credits will be deployed between now and 2032.

3. Home Appliance and Efficiency Rebate Programs

The $8.8B federal efficiency rebate program funded through the US DOE to state energy offices. In Ohio, there is currently $250M being programmed by the Ohio Department of Development to provide point-of-sale rebates for the purchase of high-efficient electric appliances and comprehensive residential energy upgrades. Upgrades include insulation, air sealing, windows, doors, HVAC, and plumbing, driven by a

trained and certified local contractor base. This could amount to providing a total of $14,000 per housing unit for the appliance rebates, focusing on those below 150% of Area Median Income. Such subsidies could be a core funding source to drive efficiency particularly in the buildout of affordable housing units. These rebates are stackable with tax credits and low-interest financing that are funded by other programs.

Climate Pollution Reduction Grant

The $4.6B Climate Pollution Reduction Grant, administered by the US EPA, is routing funding largely through state-based EPA's and Metropolitan Planning Organizations. In our region's case, both OKI Regional Council of Governments on behalf of the tri-state region that includes Hamilton County, and state agencies on behalf of Ohio, Kentucky, and Indiana, submitted applications by the April 1, 2024, deadline. A common focus area for these submissions included investing in decarbonization for governments in both their buildings (efficiency, solar) and electrifying their fleets, while bringing forward new financing strategies in developing to establish financially sustainable programs.

- ➔ *We analyzed funding sources, both for loan capital and operational funding, that could support a green bank locally.*
- ➔ *In Appendix A - Projects, Funding Sources, Policies, Resource Map, the tab titled Funding Sources details many local, state, and federal programs that can be utilized or bolstered by a green bank.*
- ➔ *The 15+ programs that are detailed in the spreadsheet can supply funding in a variety of ways including grants, loans, rebates, and tax credits. Of those, there are at least 10 that would be able to provide funding to green bank programs serving our region. It is important that the region is ready to apply for these funds as they become available.*

Greenhouse Gas Reduction Fund Update

On April 4, 2024, the US EPA announced the 8 organizations that are being awarded $20B of the $27B through GGRF, specifically for the National Clean Investment Fund and Clean Communities Investment Accelerator. And on April 22, the final $7B in Greenhouse Gas Reduction Fund (GGRF) funding was announced through the Solar for All program. A subset of the award winners that have greater relevance to this region can be found below, including actions steps being taken to develop partnerships. Overall, the NCIF and CCIA awardees have committed 70% of their capital to be invested into low income and disadvantaged communities at a 7x leverage factor, meaning that for every $1 of public funding provided, $7 of private capital is invested. SFA awardees are 100% focused on low-income communities. Collaborating and advocating to these organizations to fill holes in our region's clean energy finance market is critical to scale and long-term success of this effort.

- ➔ *Additional details on these awardees and other applicants can be found in the table that follows.*

Grantee Name	Amount	GGRF Program	Organization Summary	Local Actions
Climate United Fund	$6.97B	NCIF	Led by Calvert Impact, partnered with Self-Help Ventures Fund and Community Preservation Corp. and will be spending 60% of funds in low-income communities	Reach out to contacts at Calvert and Self Help.
Coalition for Green Capital	$5B	NCIF	Focused on existing net-work of green banks as distribution channel for PPP financing	Reach out to CGC con-tacts; OAQDA is a sub-grantee
Power Forward Communities	$2B	NCIF	Non-profit coalition led by Enterprise Community Partners and included Rewiring America, LISC, Habitat for Humanity, and United Way	Form a local coalition for outreach and advocacy that includes leaders of LISC Greater Cincinnati, Habitat for Humanity of Greater Cincinnati, and United Way of Greater Cincinnati
Opportunity Finance Network	$2.29B	CCIA	40-year-old non-profit intermediary that counts a national network of 400+ CDFI lenders	CDF provided letter of support and is a long-time member, leading outreach
Inclusiv	$1.87B	CCIA	50-year-old non-profit CDFI intermediary with national network of 900+ regulated credit unions	CDF provided letter of support and is engaged in outreach; reach out to local leaders of credit unions
Justice Climate Fund	$940M	CCIA	Assembled by African American Alliance of CDFI CEOs including 1,000+ CDFIs, 500 credit unions, and 120 banks led by African American, Latino, Asian and Native American individuals	CDF provided letter of support and is leading outreach
Appalachian Community Capital	$500M	CCIA	CDFI launch green bank for Rural America	CDF provided letter of support; researching to understand service territory, reach out as appropriate

Grantee Name	Amount	GGRF Program	Organization Summary	Local Actions
Native CDFI Network	$400M	CCIA	Umbrella organization supporting 60+ Native CDFIs	Researching to under-stand service territory, reach out as appropriate
Ohio office of Management and Budget, OAQDA/ OEPA	$156M	SFA	State organizations focused on air quality improvement, energy savings, and public health	Submitted a letter of support, survey open to submit project pipeline
The Industrial Heartland Solar Coalition	$156M	SFA	Led by Growth Opportunity Partners, the coalition focuses on transitioning to clean energy in America's industrial heartland communities. Partners include The George Gund Foundation, Coalition for Green Capital, JP Morgan Chase, Cleveland Foundation, etc.	A coalition of 31 cities across 8 states including Cincinnati. Reach out to position investment in a complimentary way to the gaps other pro-grams are filling.
Inclusive Prosperity Capital	$249M	SFA	Nonprofit focused on in-vesting in clean energy for underserved communities led by CT Green Bank, Sierra Club, The Kresge Foundation, NY Green Bank, MacArthur Foundation, etc.	Look to develop a regional partnership as IPC serves 44 states, with a focus on Community Solar.
Kentucky Energy & Environment Cabinet	$62M	SFA	Cabinet that serves the Commonwealth by providing technical assistance, education, and funding to protect natural resources and the environment	Facilitate NKY-based partnership to create scale for state to invest in solar in low-income communities
Indiana Community Action Association	$117M	SFA	Coalition of municipal governments and community entities in Fort Wayne, Gary, Indianapolis, and Columbus, combined with six statewide organizations	Facilitate SE Indiana-based partnership to create scale for state to invest in solar in low-income communities

Green Bank Solution Development

Our primary findings indicated a significant need to enable additional investment and fill gaps to expand housing, develop new solutions to make the most of the significantly expanded federal tax credits, bridge capital to fill the timing gap until grants/tax credits are received, and expand upon current and successful community lending programs.

Overall, the opinion was that to make energy efficiency incentives win, they need to bring more money to the project than they cost to implement. Operational cost savings in the form of lower energy bills do not typically have an impact on the upfront ability to secure more lending to fill capital stacks. This could be considered a shortcoming in how deals are getting underwritten by the private market and thus will require innovative financing solutions anchored by public and philanthropic funds to prove that more capital can be lent upfront when the debt service coverage ratio is positively impacted by measurably lower energy bills and operating costs.

Put another way, the wave of new green financing tools coming to the market can drive significant investment into our region if we can coordinate these new incentives with existing public/private financing programs to make deals work. This coordination of new and existing financing tools is a fundamental – and achievable – green bank solution for our region. More specifically, the Greater Cincinnati Green Bank effort can act as a "one-stop shop" or clearinghouse for both developers seeking to access and "stack" multiple financing tools in a single project and the funding agencies seeking to deploy the incentives. Through a tightly coordinated process to intake new projects, and dedicated staffing resources, our green bank can be the linchpin for a developer trying to invest in equitable growth in Greater Cincinnati, or for a homeowner trying to reduce their energy burden. This coordinated program could provide access to both the new subsidy and tax incentives discussed in this report and to existing complementary tools provided by CDF, The Port, the City, the County and OAQDA, among others. And, on the other side of that coin, a trusted green bank partner will facilitate performance of project delivery, reporting, and compliance by private and non-profit development parties that directly benefits the project's public partners.

In a new marketplace like this, investment and focus are likely to flow to the places where it's easiest to get things done. Regions that figure out how to do this are going to win, and those that don't will miss out. Other Ohio jurisdictions have begun this process; for example, the establishment of non-profit Columbus Region Green Fund (CGRF). CGRF was founded a couple years ago through a collaboration between the Columbus Partnership, the City of Columbus, and Franklin County to mobilize private investment for sustainable and inclusive economic growth. Cincinnati can complete and win its share of resources if we commit now to this type of intentional coordination through the green bank effort.

In addition to an overarching commitment to coordination of financing tools through a green bank, a few of the more commonly discussed new financing solutions are highlighted below.

➔ *See Appendix A – GB Solutions tab for nearly 15 solutions in total to consider.*

- **Expansion of existing lending capacity for mezzanine debt products supporting affordable housing.**
  - Raise additional capital to offer more debt upfront for projects that invest in energy efficiency and/or solar to achieve certain performance targets.
- **Maximize the monetization of clean energy investment tax credits.**
  - The overhaul of the ITC and offering up to 70% tax credit for solar, geothermal battery storage and more, and the fact that this federal legislation is in place through 2032, is a game changer. Further, the transferability and Direct Pay provisions put these credits in reach for about any building owner – for profit, nonprofit, gov't, developer, etc. But there are two tools that can be considered to improve how this new market operates:
    - Direct Pay Bridge Loan Fund – those tax-exempt entities that are eligible to monetize their tax credits upon filing the tax returns from the year the system is placed in service will need to wait anywhere from 9-24 months more from the time they pay the vendor in full to the time the IRS provides the owner with the Direct Pay reimbursement. Capitalizing a loan fund to bridge this gap or putting up a loan loss reserve for a private capital provider to step in will be critical, especially for entities that don't have excess cash to float for an intermediate period.
    - ITC Transferability Marketplace – Proactively assisting the private sector with the ability to monetize their tax credits where they do not otherwise have a tax appetite. Raise $50M+ of tax appetite from a local corporation and develop pre-determined criteria for deals to fit into, and pricing so that owners know what to model. The ability to leverage green bank support dollars to design this localized marketplace will serve to increase deal flow and reduce the accounting, legal and brokerage fees each deal would need to encumber.
- **Greater Cincinnati Home Energy Loan Program (GC-HELP) is a low-cost, unsecured lending solution to assist single-family homeowners with investment in energy efficiency and solar.**
  - Given the considerable grants and rebates that are going to be available for this market, and the fact that this program has a successful record of accomplishment in the form of a pilot roughly 10 years ago, there could be an opportunity for the program's revival. There are turnkey underwriting platforms available for tools like this, that could also leverage philanthropic capital, pursue partnerships with credit unions and subordinate all risk with GGRF capital.
  - PACE financing for small projects" with the sub-bullet "As the $7B nationwide market for Commercial PACE financing continues to grow, it has become more challenging to access affordable capital for C-PACE deals less than $3M in scale. A local revolving loan fund that offers liquidity for this solution that focuses on small business energy upgrades could be positioned to access an emerging national market for warehousing similar financing solutions.

The process our region goes through to determine the top priorities for development of new or expansion of existing financing solutions to build out our portfolio of green bank programs will be an intricate balance. It will entail gathering feedback on the highest market demand and linking it with a funding source. That funding source could come from a variety of places, for example, one of the CCIA or NCIF winners, future CPRG funds, or Solar for All, just to name a few. For much of this, details are not yet available but should be known imminently.

Where We Can Go From Here

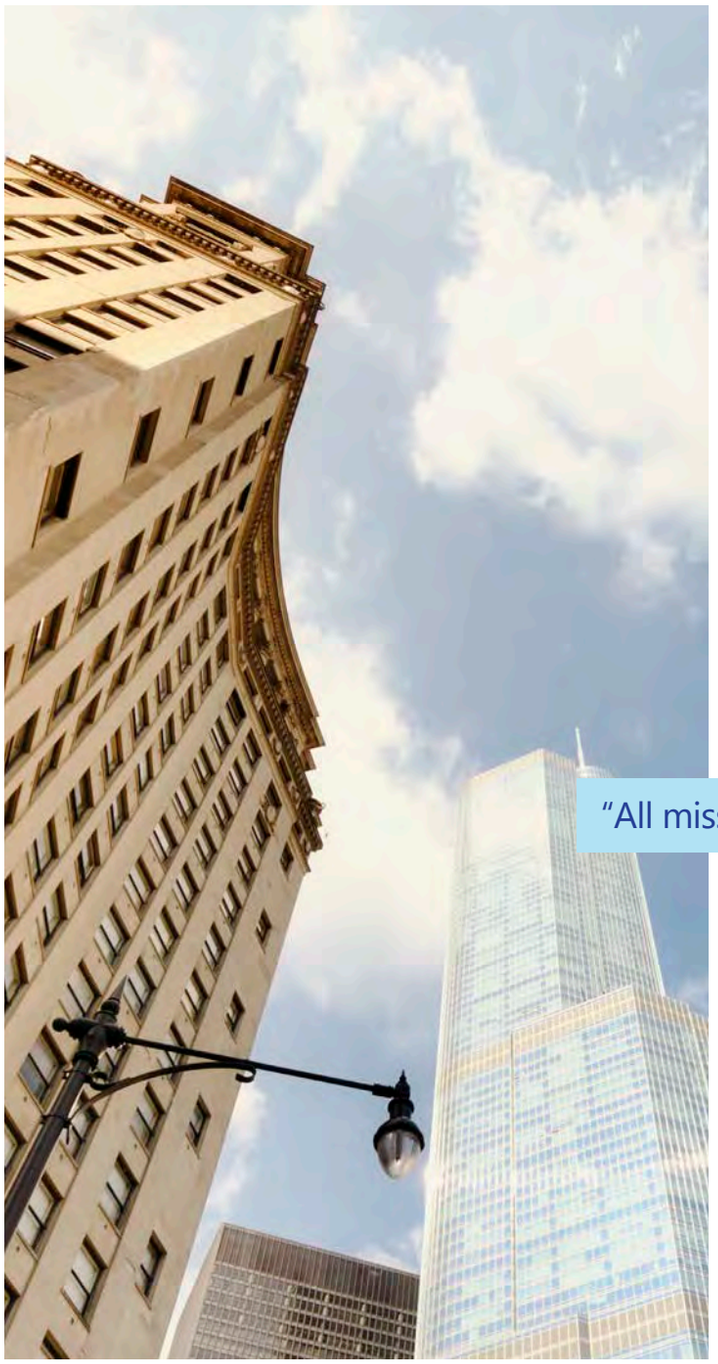
Over the last several months during which this work to advance green bank program development has been happening in the region, the marketplace around us has been transforming.

As 2023 has ended, the new and improved clean energy investment tax credit marketplace has become a multi-billion-dollar industry. We have just recently learned where $27B of green bank dollars are going, and multiple $100M+ CPRG applications have been submitted that serve our region. In the coming weeks and months, we will see SFA, NCIF and CCIA programs start to roll out, and CPRG funding announcements made, and $250M in home efficiency rebates made available in Ohio, offering new and unprecedented opportunities for our region to invest in decarbonizing homes, buildings, and vehicles with a mandate that a considerable portion of these investments focus on low-income and disadvantaged communities.

With all this to come, here are the recommended areas of focus to help drive future development of green bank programs in the region:

- Structure, governance, and funding to define and coordinate the collaborative roles that leading organizations in our region are taking on;
- Education and outreach campaign to deepen market knowledge of what these programs are and how they will work;
- Systematically leveraging grants and incentives at scale to help ensure that projects in need of financing are first able to maximize their use of available subsidy;
- Provide technical assistance to scope projects to help ensure project owners can overcome the soft predevelopment costs that often prevent a clean energy investment from happening;
- Build a project pipeline to maximize the region's competitiveness in deploying available funding, with a heavy focus on partnering with local organizations serving Cincinnati and Hamilton County that offer complimentary energy assistance programs to income-qualifying residents;
- Pursue funding partnerships with GGRF awardees and other partners so these programs do not pass over the Greater Cincinnati region;
- Define, design, and implement green bank solutions with priority around those that can make the biggest impact;
- Engage local partners to generate long-term revenue strategies with a focus on financial sustainability of new or expanded clean energy financing programs;
- Policy advancement to determine where local/state government action can further enhance the public/private clean energy financing marketplace; and,
- Support the advancement of a green workforce recognizing the considerable job creation impact of investment in clean energy infrastructure.

Conclusion



Our research and stakeholder engagement suggests a significant interest supporting the development of green bank programs in the region.

There are numerous projects on the drawing board right now to expand housing and to bring new community amenities to where they are needed, but there is a financing gap that needs to be filled to achieve this vision. This gap is attributable to macroeconomic factors unrelated to a green bank, though new or expanded clean energy financing programs can unquestionably be part of the solution. And of course, this is all bolstered by generational levels of funding coming from the federal government imminently that should be making impacts in climate lending for decades to come.

In closing, it seems appropriate to reference a recent challenge that Harold Pettigrew, President of Opportunity Finance Network, issued to their 400+ CDFI partners nationwide,

> "All mission lenders should adopt climate lending by 2028."

We have an opportunity now to build on more than a decade of successful clean energy finance innovation in our region and develop an ecosystem of green bank programs to meet Mr. Pettigrew's challenge. And, equally valuable, a coordinated investment in green bank programs will pay dividends in local and regional collaboration that can supercharge community and economic development across Greater Cincinnati for many years to come.

Appendices

The following Appendices are attached as separate files to facilitate the transfer of this valuable information in a format that is easier to manipulate or share.

Appendix A – Green Bank – Projects, Funding Sources, Policies, and Resource Map

Contains relevant information on potential funding sources, policies that could affect the viability or support a GB, existing local resources, suggested solutions to implement, an outline of projects to fill a GB pipeline, and a list of GGRF Applicants.

Appendix B – Green Bank – General Slide Deck

A broad deck that goes over the idea of a green bank in our region as well as possible funding sources and solutions.

Appendix C – Green Bank – Forum Slide Deck

This large deck is what was presented at the 6-hour Green Bank Forum

Appendix D – Green Bank – Developer Session Slide Deck

This deck was what was presented at the 2-hour Developer Session

Appendix E – Green Bank Hamilton County Built Environment TAM

Context, calculations, and assumptions for total addressable market data

References

Sources cited in the report. Additional references may be found in the appendices.

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CINCINNATI DEVELOPMENT FUND

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