

Comments on EPA's [Request for Information: Greenhouse Gas Reduction Fund \(RFI GHGRF\)](#)

(Environmental Protection Agency Non-Rulemaking Docket ID No. EPA-HQ-OA-2022-0859)

December 5, 2022

These comments offer considerations for a Greenhouse Gas Reduction Fund (GHGRF) framework that will drive near-term investments to reduce pollution and improve quality of life while maximizing health, economic, and environmental benefits over the long-term. EPA's guidance to GHGRF applicants can establish such a framework by:

- Setting clear goals
- Identifying specific target technologies and markets, and provisionally excluding others
- Encouraging an integrated approach to providing technical assistance, grants and financing
- Setting rigorous performance standards
- Building on existing technical assistance infrastructure
- Setting rigorous governance and accountability standards

These comments build upon recent discussions among expert stakeholders with experience in and perspective from academia, NGOs, and the private and public sectors. This group was convened informally by Harvard's Environmental & Energy Law Program. While the stakeholders listed in the footnote¹ may not endorse each element of these comments, and many are offering additional comments individually, each was consulted in the development of these comments and support their submittal for EPA's consideration.

EPA's GHGRF Policy Goals

EPA should provide guidance to GHGRF applicants regarding the goals it seeks to achieve through fund-supported investments, and how to balance the inherent tension among some of those goals.

Reducing Greenhouse Gases and Air Pollution

- While the urgency of the climate crisis warrants deployment of resources into pollution-reducing investments as quickly as possible, the GHGRF will have a much greater impact if EPA deploys resources in ways that permanently transform the way that established lenders, affordable and low- and moderate income housing developers and owners, and others do business, for example by incorporating energy efficiency and electrification into standard lending products, so that investment does not dry up when funds are depleted.
- Demonstrating an economically achievable path to net zero buildings and bringing more and more developers and owners into the business of net zero buildings makes it possible to promulgate building performance standards that require net zero performance in the future.

¹ Betta Broad, Association for Energy Affordability; Susan Leeds, Garrison Associates; Emily Levin and Becky Schaaf, VEIC; Jessica Luk-Li, Climate Impact Advisors; Sadie McKeown, Community Preservation Corporation; Esther Toporovsky, NYC Housing Partnership. Please contact Dale Bryk, Harvard Environmental & Energy Law Program (dbryk@law.harvard.edu) for any questions or clarifications on these comments.

- Under the American Recovery and Reinvestment Act (ARRA), weatherization program administrators used federal funds to dramatically scale capacity, but they were unable to sustain that higher level of service when the funds were depleted. EPA guidance should encourage applicants to show how their deployment strategies incorporate the lessons of ARRA and are designed to maximize impact over the long term.

Equity

- Not every policy or program lends itself to directing 40% of benefits to low-income and disadvantaged communities. Since EPA has the flexibility in its administration of the GHGRF to do more, it is appropriate for the agency to use its discretion to direct applicants to deliver a much greater portion of benefits to disadvantaged communities, in service of the objectives of the Administration's Justice40 Initiative.
- Investments that benefit low-income and disadvantaged communities include energy efficiency and electrification of buildings and facilities that serve these sectors: affordable and low- and moderate-income housing, small and minority-held businesses, non-profits, community facilities, religious and educational institutions. Renewable energy, energy storage, and transportation infrastructure that is located in and serves such communities, and in which they have an equity stake, should also qualify. Such investments will help to alleviate the debilitating energy cost burdens these communities face, generate positive health benefits, build resilience, and create millions of quality jobs.
- To ensure benefits reach disadvantaged communities, EPA should prioritize applicants with strong relationships and an established track record of accountability to these communities. EPA should also consider applicants' history of compliance with federal civil rights protections, including Title VI of the Civil Rights Act. (For more, please see comments submitted by members of the Title VI Alliance).

Additionality

- Prioritizing investment in low-income and disadvantaged communities across the entire GHGRF portfolio will ensure that EPA will achieve the clear expectation for additionality established in the legislation – these are the communities that have lacked access to capital, and lag behind others in the adoption of clean energy and efficiency.
- EPA guidance should provide a simple way for GHGRF applicants to meet the additionality requirement, for example by expressly identifying technologies and market segments that are not adequately served by other policies and funding programs, and expressly excluding those that are, absent a specific showing to the contrary.
- EPA guidance should prioritize additionality over a narrow definition of leverage and revenue recycling. GHGRF goals are better served by investing in technical assistance and forgivable loans and providing a larger portion of financing to support deployment of resources in disadvantaged communities, than by investing in more profitable projects that enable higher leverage and recycle a greater percentage of funds. Leverage and revenue recycling are means to an end – greater and longer-term impact; they are not ends in themselves.

Governance

- EPA guidance should include eligibility requirements that ensure intermediaries and other recipients have the experience, skills and infrastructure needed to successfully deploy resources into projects that meet EPA's standards, and the governance and accountability infrastructure needed to manage risk and avoid conflicts of interest.

- Guidance should also include rigorous performance metrics that are relatively simple to administer, such as the number of heat pumps deployed, or the number households that have been upgraded to meet a specified efficiency performance standard. Simple, prescriptive metrics will ease compliance and make it less likely that recipients will be able to meet the letter of the GHGRF requirements without meeting the program's goals.

Technologies and Market Segments That GHGRF Should Address

Numerous policies and federal funding programs, including the Infrastructure Investment & Jobs Act (IIJA) and the many provisions of the Inflation Reduction Act (IRA) other than the GHGRF, serve a wide array of greenhouse gas-reducing technologies. To meet the GHGRF's additionality requirement, EPA guidance should expressly target the gaps – the technologies and market segments that these policies and funding programs do not adequately support.

Technology solutions: While there is some uncertainty at the margins, and around the pace and shape of technical innovation, in each sector of the economy, the primary technologies needed to reduce greenhouse gas and air pollution and improve quality of life are well understood.

Barriers to investment: The barriers that prevent widespread investment in these solutions are also well-understood. Only some of them relate to access to capital. For example, siting is a formidable challenge for large-scale renewables and transmission. Members of low-income and disadvantaged communities do require increased access to capital to invest in energy efficiency, electrification and solar and storage, but they also face market barriers such as the need to address non-energy-related problems (roof repair, mold abatement) before installing clean energy technologies, or the inability to make investment decisions as tenants rather than owners. Such barriers are one of the many reasons that technical assistance, discussed further below, is essential to GHGRF success.

Emissions Trajectory Under Current Policy: Recent analyses by [Rhodium Group](#) and others show that these policies and resources will meaningfully bend the emissions trajectory in the power and transportation sectors, but not in the buildings sector.

Technology and Market Segment Gaps That GHGRF Should Address

	Power	Transportation	Buildings	Industry
Technology Solutions	Renewables Net Zero Generation	Electrification Clean Fuels	Efficiency Electrification	Efficiency Electrification CCS Hydrogen
Barriers to Investment	Siting Transmission Peakers/Storage Retiring Uneconomic Plants	Upfront Cost Charging infrastructure	Upfront Costs Perceived Risk Unfamiliar Technologies	Demand
Emissions Trajectory Under Current Policy	<p>Source: Rhodium Group</p>			
Gaps that GGRF can Address	DAC Rooftop Solar + Storage; Community Solar	DAC access to existing incentives for EVs	DAC & LMI Efficiency & Electrification	N/A (IRA/IIJA covers)

Figure 1

Gaps that GHGRF should Address:

- Low-income and disadvantaged communities are underserved across the board; prioritizing *distributed technologies* (such as building energy efficiency and electrification) that benefit communities directly will maximize benefits while enabling leveraging and recycling of funds.
- Community Solar projects located in disadvantaged communities and including opportunities for community ownership are difficult to deploy and require access to low-cost capital.
- While the IIJA and IRA provide substantial resources for electric vehicles and charging infrastructure, disadvantaged communities may require assistance accessing those funds.
- Low- and moderate-income households, small business and community facilities face numerous market barriers to investment in energy efficiency and electrification, including access to low-cost capital.

Technology and Market Segment Gaps That GHGRF Should Address

Technology Sector	Rationale for Acceleration
Building Efficiency	<ul style="list-style-type: none"> Improved efficiency reduces energy bills and makes solar and electrification more cost-effective Improved efficiency increases comfort (temperature control, noise) Existing policies drive investment in only a fraction of cost-effective efficiency Market barriers (high up-front cost; split incentives) prevent widespread adoption of economic investments
Building Electrification	<ul style="list-style-type: none"> Electrification is the least-cost decarbonization strategy for overwhelming majority of buildings (90%) LMI customers at risk of being saddled with the cost of stranded fossil gas assets, as wealthy electrify Electric heat pumps provide air-conditioning, a life-saving measure for millions as summer heat intensifies Eliminating fossil fuel combustion in buildings improves air quality and human health Few policies require or drive investment in building electrification Familiar financial products (e.g., mortgage loans) do not require or encourage GHG reduction investments Owners and developers are unfamiliar with technologies, face risks and costs learning to deploy them
Solar + Storage	<ul style="list-style-type: none"> Existing incentives do not serve DAC, as most residents are renters Additional incentives are needed to drive investment in, and drive down the cost of storage Storage is critical to improving resiliency and providing emergency power during blackouts
EVs & Fleet Electrification	<ul style="list-style-type: none"> Existing policies and incentives are not adequately serve DAC Fleet conversions can get diesel trucks out of poor neighborhoods improving health outcomes

Figure 2

Technologies and Market Segments that Do NOT Require GHGRF Support

- Utility-scale renewables, transmission, investments that extend reliance on fossil-fuels in power plants (e.g., carbon capture and storage) and buildings (e.g., combined heat and power, renewable natural gas) do not warrant GHGRF support for a variety of reasons: access to capital is not a barrier; existing policies and programs provide sufficient funding; funding does not address barriers and will not drive additional investment; extended reliance on fossil fuels is in conflict with GHGRF goals.
- A presumption of exclusion should also apply to market segments for which access to capital is not a barrier: for-profit corporations, large commercial and industrial customers, and affluent consumers.

What it Will Take to Deliver Priority Technologies to Target Markets

Financing alone will not unlock investment in priority technologies for low- and moderate-income households and disadvantaged communities. To overcome persistent market barriers, the GHGRF must support a mix of technical assistance, grants, and below-market-rate financing. EPA guidance should direct applicants to describe how they intend to bring these resources together for end-users of the technologies, and which organizations will partner to deliver that comprehensive package.

What it Will Take to Deliver Priority Technologies to Target Markets

	Low-income/Disadvantaged Communities	Moderate Income
Technical Assistance (via Clean Energy Hubs)	<ul style="list-style-type: none"> • Education, awareness & marketing • Community & customer engagement • One-stop shopping for programs, funding, certified contractors 	<ul style="list-style-type: none"> • Education, awareness & marketing • Community & customer engagement • One-stop shopping for programs, funding, certified contractors
Finance (via CDFIs, Credit Unions, HFAs, Green Banks)	<ul style="list-style-type: none"> • To support economic investments for households, small businesses and community facilities that lack access to capital • Deep concessionary rates • Favorable Terms 	<ul style="list-style-type: none"> • To support economic investments for households, small businesses and community facilities that lack access to capital • Attractive rates • Favorable Terms
Grants (via Clean Energy Hubs)	<ul style="list-style-type: none"> • To cover non-financeable upfront costs (e.g., health and safety, electrical panel upgrades) 	<ul style="list-style-type: none"> • Not required for most buildings

Figure 3

For affordable housing in particular, different blends of grants and financing are required to drive the investments that will achieve different levels of building performance:

What it Will Take to Decarbonize Affordable Housing

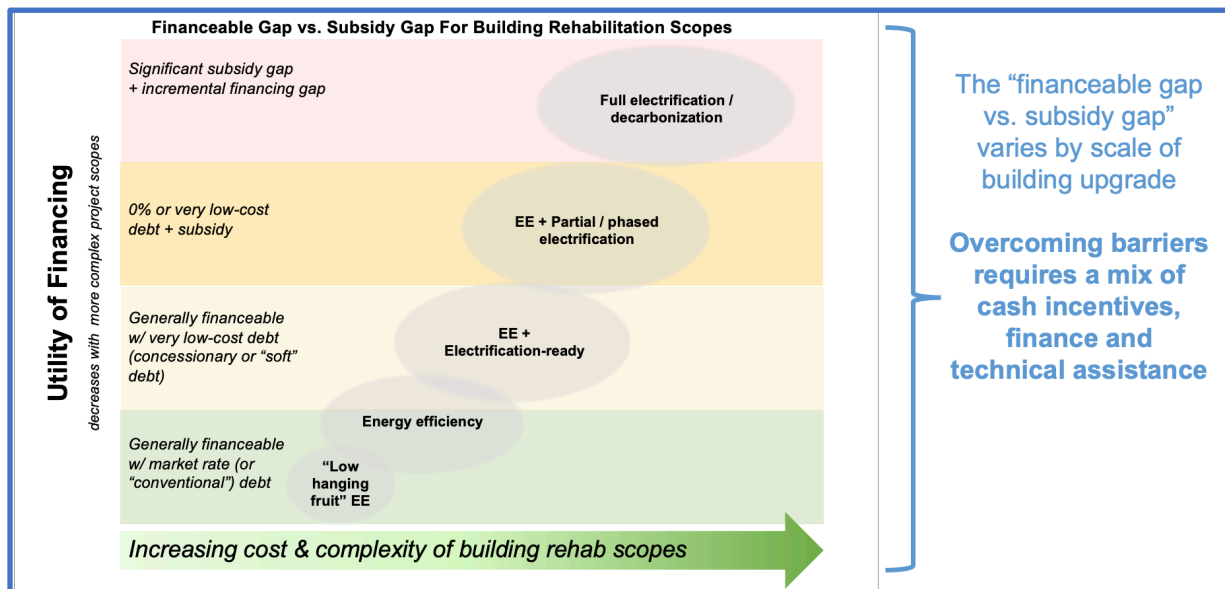


Figure 4

Technical Assistance

Clean Energy Hubs (discussed further below) can provide essential technical assistance at several stages:

- To build the capacity of lenders to develop the products and services needed to drive investments that will meet GHGRF performance standards;
- To create or enhance the clean energy ecosystem by supporting a network of one-stop-shop technical assistance providers that help building owners and developers complete clean energy projects that meet such standards;
- To engage communities, build trusted relationships, and proactively support large-scale, efficient community decarbonization projects with expert advice, information and easy access to the full suite of existing programs and funding.

Technical Assistance and Grants Required to Deploy GHGRF

TA Beneficiaries	Clean Energy Hubs Can Provide TA & Grants
Lender	<ul style="list-style-type: none">• Building performance standards• Least-cost mix of grant and financing• Project pipeline• 3rd party certification infrastructure
Real Estate Developers & Owners	<ul style="list-style-type: none">• Scoping & Engineering• Trained Contractors• Skilled Workforce• Certified Technology
Community Households & Small Business	<ul style="list-style-type: none">• Community & customer engagement• Community project development• One-stop shopping to connect to clean energy programs, funding resources (grants & financing), certified contractors

Figure 5

Financing

Established lenders are well suited to distribute GHGRF resources quickly, provided they partner on the ground with technical service providers who can help them develop the appropriate performance standards and ensure a steady flow of projects that qualify for investment. Such collaboration, and the experience of successfully deploying GHGRF resources, has the potential to transform the business of lending itself, for example to permanently enable the financing of net-zero building investments.

New and emerging green banks can play a critical role facilitating both individual project investments and the transformation of the lending industry, for example by helping to standardize products and services, providing bridge financing and taking on risk that is beyond what established lenders can bear.

Financing Required to Deploy GHGRF

	Benefits	Considerations
Established Lenders CDFIs, Credit Unions, Community Banks, HFAs	<ul style="list-style-type: none"> • Existing lending platforms have the infrastructure required to deploy the bulk of GGRF resources: <ul style="list-style-type: none"> ○ Track record ○ Knowledgeable & experienced staff ○ Customer pipeline ○ Community relationships ○ Existing products can be enhanced to support GHG-reducing technologies (e.g., construction and refinancing loans) <ul style="list-style-type: none"> ▪ Forgivable loans ▪ Reduced rates ▪ Longer term ▪ Subordinate 	<ul style="list-style-type: none"> • Require significant technical capacity-building around clean energy finance lending • Existing policies can hamstring some transactions (hence the need for bridge loans, credit enhancement)
Green Banks Existing & New	<ul style="list-style-type: none"> • Green banks support established lenders with specialized products and services to address persistent gaps: <ul style="list-style-type: none"> ○ Bridge financing ○ Credit enhancement ○ ESA and PPA loans ○ Lending partnerships (e.g., co-lending on individual projects, programmatic lending with HFAs) 	<ul style="list-style-type: none"> • Low market penetration especially in DAC • Few green banks have significant loan volume in affordable housing • Significant challenges acquiring customers

Figure 6

GHGRF Deployment Scenarios and the Role of Intermediaries

In making allocation decisions, EPA should consider the capacity of technical assistance providers and lenders to fulfill their respective responsibilities and scale operations. EPA should allocate resources taking into account the scale and track record of each applicant and the downstream lenders or lending industry they represent, the capacity of these lenders to successfully deploy GHGRF in financing products, the strength of the applicant's proposed deployment strategy, and the transparency and robustness of existing or proposed governance and accountability infrastructure. See Lenders: Current Landscape (Appendix, Figure 17).

EPA guidance should prioritize applications that present an integrated approach to delivering technical assistance, grants and financing and specifically require applicants to:

- Describe the roles and responsibilities of intermediaries, direct lenders and technical assistance providers, and how they intend to fulfill them;
- Identify best practices and programs, or frameworks for lending, including partnerships that show capacity to expand into the clean energy lending market;
- Illustrate with specificity how dollars will flow to end-use projects and what they will do to build demand for qualifying investments;
- Include pro forma budgets that show flow of funds, operating expenses for intermediaries and direct lenders, revenue recycling and technical assistance.

In addition to specifying technical assistance partnerships with specific organizations, lender applications should include information about the specific technical services to be provided and

greenhouse gas-reducing technologies and project types supported, how such assistance will be funded and delivered efficiently in collaboration with multiple lenders, and a budget (or external funding source, or both, as applicable) for technical assistance, including anticipated outcomes in terms of qualified projects financed with such technical support. Applications should include a formal written commitment of participation and support from technical assistance partners.

EPA allocation decisions should be informed by each applicant’s description of how the funds it seeks to deploy fit into an effective, efficient and coherent system that includes other GHGRF recipients and other federal, state and local programs and sources of funding. The below scenarios are illustrative and designed to assist EPA in the development of guidance and the assessment of applications in context.

GHGRF Deployment Scenario A

Under GHGRF Deployment Scenario A, the bulk of funds flow through established lenders (CDFIs, Credit Unions and mortgage lenders), with resources also going to new and existing green banks for co-lending and complementary services, and to clean energy hubs to provide technical assistance. With funds flowing discretely, it is critical for intermediaries to demonstrate specific commitments to partnerships and collaboration that will deliver an integrated package of products and services at the community level.

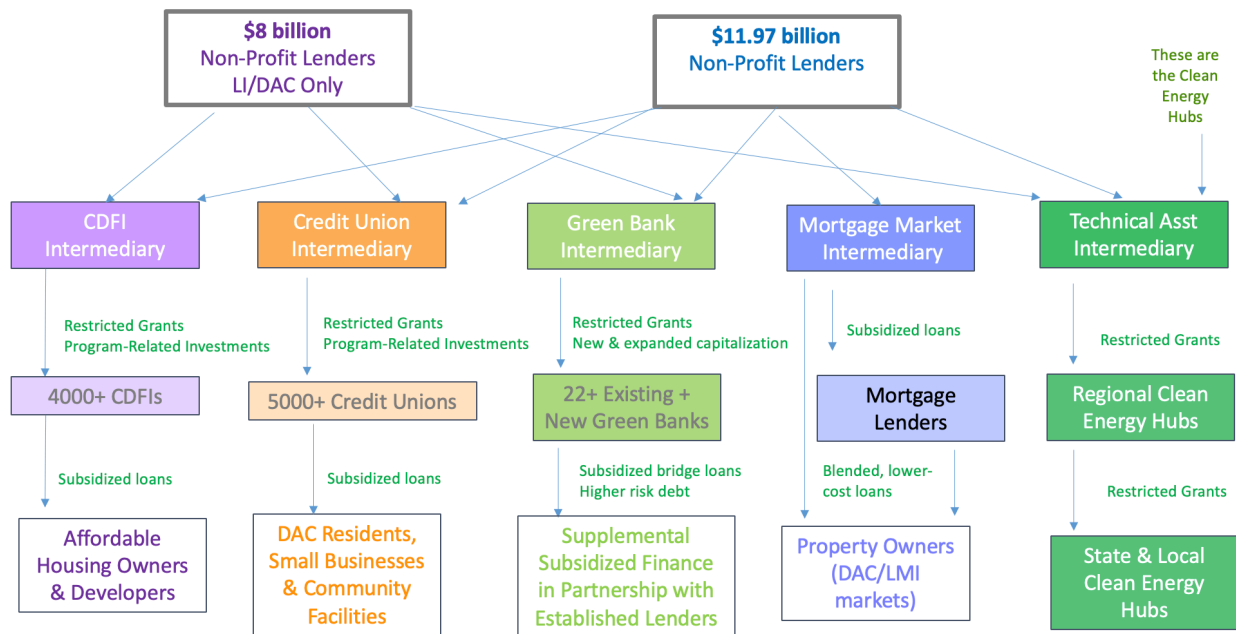


Figure 7

GHGRF Deployment Scenario B

Under GHGRF Deployment Scenario B, the bulk of funds also flow through established lenders, with complementary resources to green banks, but funds flow to clean energy hubs through lender intermediaries. In this situation, each lender intermediary would partner with the technical assistance intermediary in what is essentially a joint proposal, which would stipulate the flow of funds to the technical assistance intermediary and reflect more detailed underlying agreements regarding collaboration.

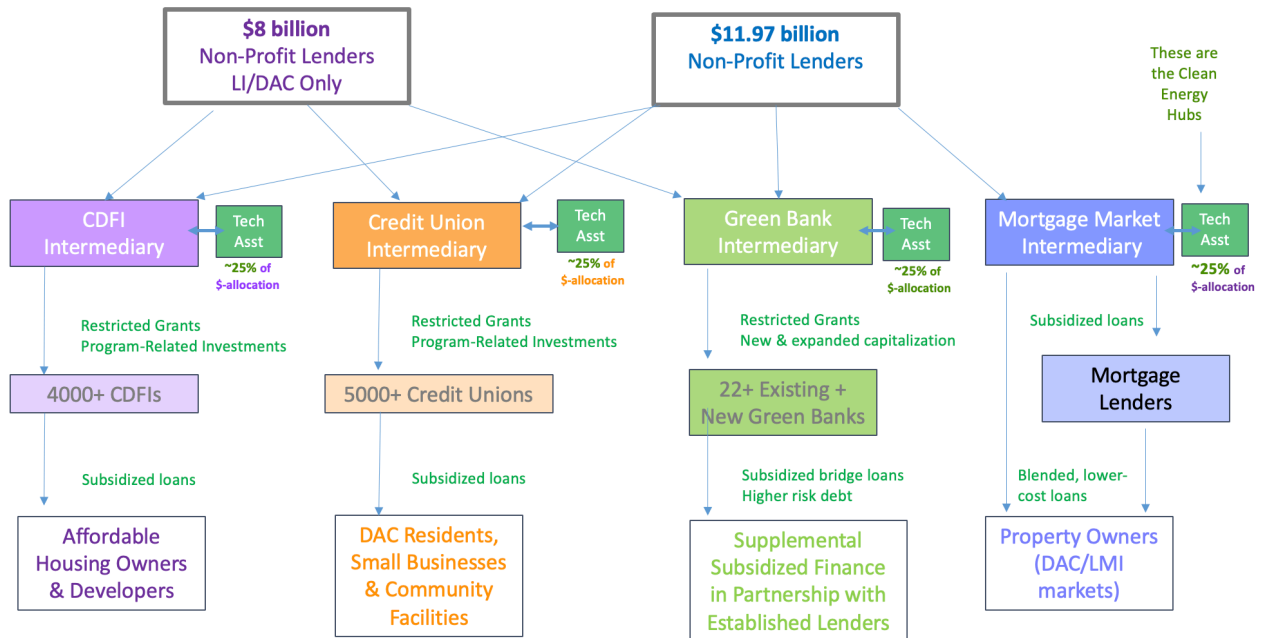


Figure 8

GHGRF Deployment Scenario C

Deployment Scenario C is provided to emphasize that EPA guidance should promote transparency and coordination across the three tranches of funding, as GHGRF resources could flow to the same direct lenders and end-users through different channels, and the need for coordination with existing clean energy policy and programming, which in some states is quite extensive, to avoid duplication of effort and market confusion.

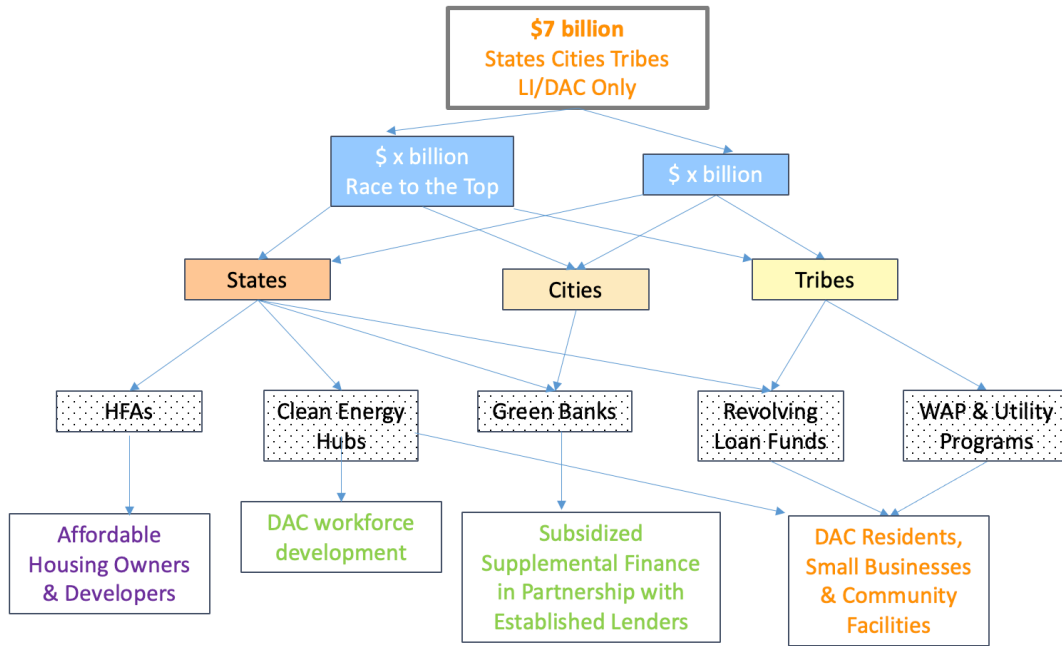


Figure 9

GHGRF Deployment Scenario D

Deployment Scenario D illustrates how technical assistance funds could flow to provide community-level support, whether secured directly from EPA through a technical assistance intermediary or via one or more lender intermediaries.

Technical assistance could be provided through “Clean Energy Hubs,” such as the [Relay Network](#). Hubs are comprised of mission-driven organizations staffed by expert practitioners with the skills and experience to provide support to lenders, building owners and developers, and community households and small businesses. Hub organizations coordinate at the state, regional and national level to share lessons learned, build on one another’s experience, make efficient use of resources and avoid duplication of effort.

More detail on the role of Clean Energy Hubs vis-à-vis lenders and end-use beneficiaries is provided below in Figure 12.

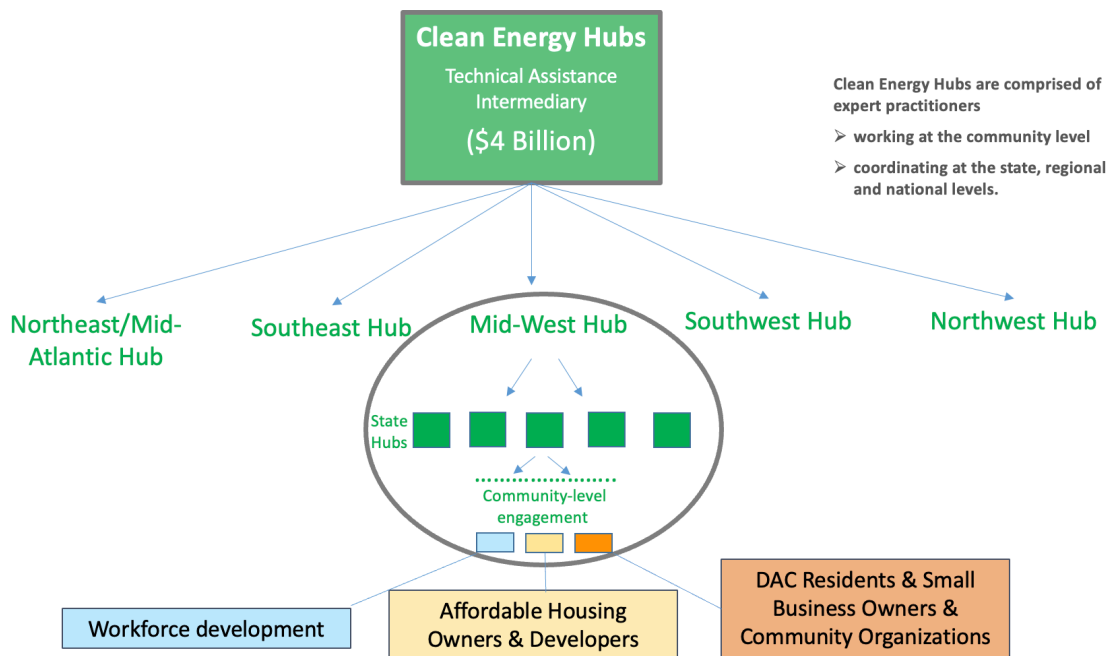


Figure 10

Intermediaries

EPA guidance should set out the roles and responsibilities for any applicant that proposes to act as an intermediary. Such entities must institutionalize robust and transparent governance and accountability structures to manage risk, avoid conflicts of interest and ensure performance. And they must be capable of expeditiously deploying GHGRF resources to maximize investment in qualifying projects and market segments while meeting longer-term market transformation goals.

Intermediaries Must Be Capable of Deploying GHGRF Resources

Intermediary Requirements	
Essential Capabilities (Today)	<ul style="list-style-type: none">• Robust and transparent governance & accountability• Track record as an intermediary lender & federal grant manager• Collaboration with Technical Assistance Providers/Clean Energy Hubs (e.g., Relay Network)• Skilled & experienced personnel<ul style="list-style-type: none">○ Lending○ Tracking performance○ Recapture & redeployment of resources• Support standardization of products & services, shared learning• Disadvantaged community knowledge & relationships• Industry knowledge & relationships• Business plan aligns with performance metrics• Right-sized to serve target market segments• Minimal overhead
Secondary Considerations (long-term)	<ul style="list-style-type: none">• Aggregating debt for sale to secondary markets• Attracting investment from capital markets

Figure 1.1

Building on Existing Technical Assistance Infrastructure

Mission-driven organizations are already working to deliver clean energy technologies to low- and moderate-income households and to residents, small business and community facilities in disadvantaged communities. EPA guidance should encourage applicants to build on this experience and put forth innovative strategies to replicate and scale what already works.

Figure 12 illustrates technical assistance needs at three levels:

- Collaboration with lenders to set and meet performance standards and to develop the least-cost mix of grants and finance to support investments, such as high-efficiency and electrification, in a variety of building types. While established lenders are already connected to customers in disadvantaged communities, clean energy hubs engage with those customers to develop a steady pipeline of demand for investment in qualifying projects.
- Hubs also work with manufacturers, architects, engineers, contractors and workforce development providers to ensure availability of products and services and provide training to ensure the needed workforce is available to install clean technologies such as heat pumps.
- Hubs support a network of one-stop-shop technical assistance providers who engage directly with communities to identify needs, develop projects and provide a user-friendly one-stop-shop with access to the full suite of programmatic and funding resources to support projects as well as job opportunities.

Clean Energy Hub & Lender Collaboration

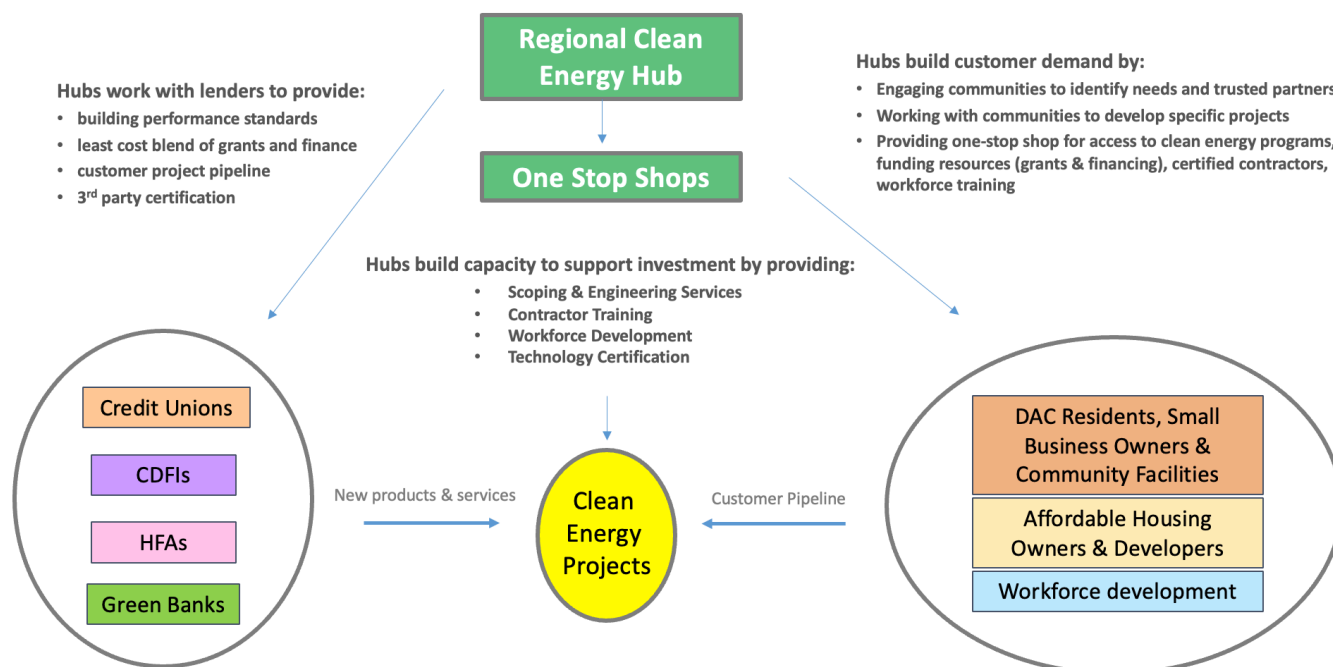


Figure 12

EPA’s guidance should encourage applicants to identify specific examples of programs and projects that reflect this type of collaboration and explain how they plan to scale or replicate them. Here are a few for consideration:

Scalable Clean Energy Hub Example

Chicago’s [Energy Savers](#) program, a collaboration between [Elevate Energy](#) and the [Community Investment Corporation](#), provides a one-stop-shop to help multifamily building owner improve efficiency and reduce tenant energy costs. The program includes a free energy assessment, access to utility rebates and incentives, support finding skilled contractors, construction oversight and assistance with equipment maintenance. Owners can provide better comfort and value to tenants (and reduce vacancies), lower utility bills, and increase both rental and net operating income.

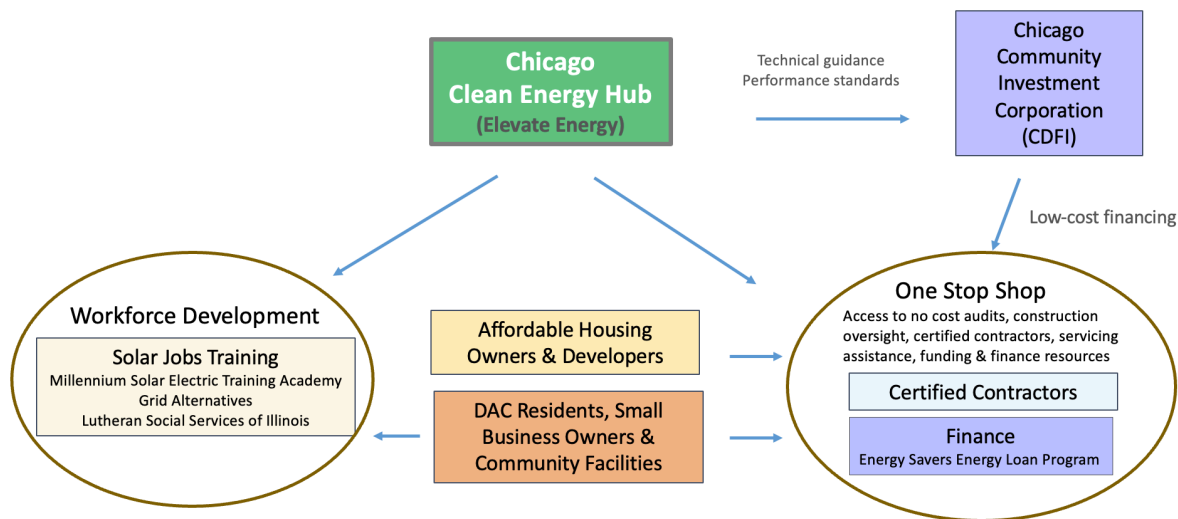


Figure 13

Replicable Technical Assistance Hub – HFA Partnership Example

Vermont and New York have launched programs designed to drive efficiency and electrification as part of the normal building upgrades that owners regularly make in connection with periodic refinancing. State housing finance authorities (HFAs) can require building owners to comply with high-efficiency, electrification-ready or net-zero emission building performance standards as a condition of refinancing. The HFAs work with their expert technical assistance partners to develop the standards, and to provide the incentive, finance and technical assistance packages that will enable owners to comply with them.

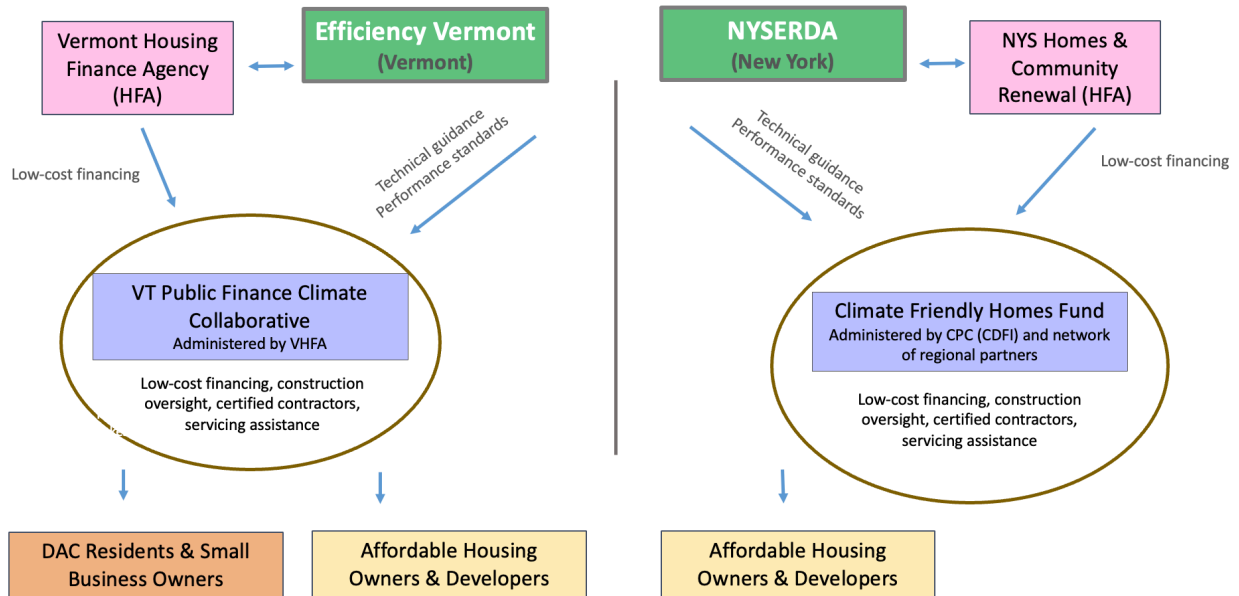


Figure 14

Mortgage Market Transformation Example

A mortgage market intermediary could provide subsidized debt, either directly to a building owner, or through a private mortgage lender, to create a below-market blended rate sufficient to support investments in efficiency, electrification and other technologies needed to meet a net-zero emission standard without increasing the annual debt burden. This example could be replicated across the mortgage market, with the intermediary recycling revenue to sustain the blended offerings indefinitely, while technical assistance providers both support individual projects and bring learning to new owners and developers to speed execution and drive down costs over time.

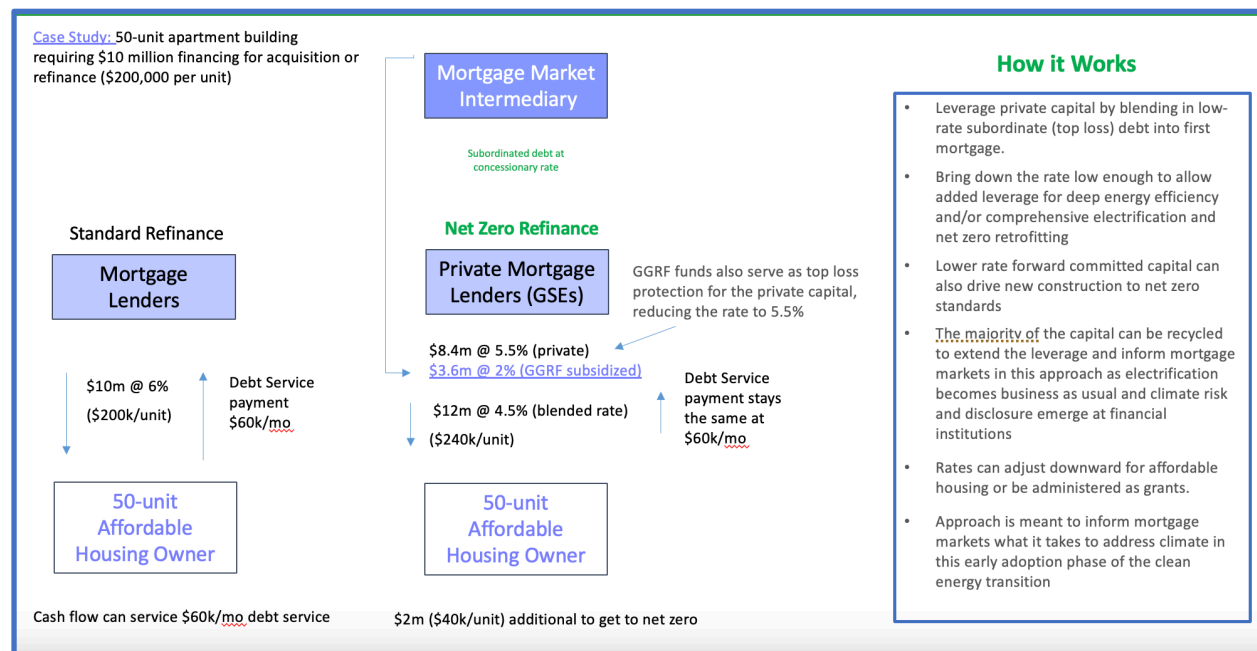


Figure 15

Governance & Accountability

EPA's guidance should include objective criteria that will promote good governance and accountability on three levels: the organizational operation of intermediaries, the flow of funds, and the funded activities.

Intermediary Governance & Accountability. Intermediaries should have a well-established track record that reflects organizational governance best practices, including rigorous and transparent policies and procedures to manage risk and avoid conflicts of interest for staff and board members, industry-appropriate compensation standards and protections against private enrichment. Governance structures should demonstrate an organization's commitment to equity and accountability to the communities in which it operates, including a board of directors and/or advisory boards that are representative of those communities.

EPA should require intermediaries to commission third-party evaluations by well-established firms, a standard practice for energy efficiency program administrators. Such evaluations should assess:

- GHG reduction and air pollution reduction impacts

- Quality of life, health and other benefits for low-income and disadvantaged communities
- Additionality
- Leverage and recycling achieved in quantitative terms
- Market transformation advances in qualitative terms

Flow of Funds. Intermediary applications should propose, and EPA's grant contracts should enshrine, strict standards for investment and reinvestment of funds that ensure grantees will be strong stewards of public capital. Contractual arrangements should set out eligible activities and investments, disbursement features, investment policies and safeguards for funds not yet disbursed, and require frequent periodic reporting to support active oversight.

Intermediaries will have significant power over the impact, reach and success of the GHGRF and will be responsible for attracting other entities to participate in the deployment of resources. The downstream lenders and technical assistance providers have the most labor-intensive roles in the ecosystem. Getting projects and technologies "over the finish line" – providing the financial and technical assistance needed at the borrower and community level – is the hard work of this program. The more that Intermediaries seek to earn revenue by flowing funding to downstream program participants in the form of interest-bearing debt products and financing arrangements, the more financial burden will be placed on those participants. EPA guidance should incentivize prospective intermediaries – through both scoring and sizing of awards – to flow funds to other program participants in the form of grants and very low-cost financing arrangements akin to philanthropic Program Related Investments.

Performance Metrics and Downstream Accountability. Intermediaries must ensure good governance and accountability of all entities to whom they distribute GHGRF resources. EPA must hold intermediaries responsible for setting the terms, conditions and costs under which funds will flow to other entities within the ecosystem of lenders and technical assistance providers.

Intermediaries should have flexibility to allocate and reallocate funds as needed based on actual deployment success. For example, if an Intermediary has \$1 billion in funds to allocate across 50 small business lenders for the purpose of financing the decarbonization of small business real estate and operations in their markets, instead of allocating \$20 million to each lender on day one, the intermediary can allocate \$5 million to each lender and then track progress and deployment, to ensure they allocate remaining funds to the lenders in the strongest position to succeed. This will create a beneficial, race-to-the-top dynamic among participating lenders.

Intermediaries must also establish quality control measures to ensure that all projects financed by downstream lenders meet GHGRF and EPA requirements. Grant contracts should articulate clear milestones, goals and objectives, eligible activities and ineligible activities. Milestones should be objective and quantitative whenever possible, e.g., number of loans closed and funded.

EPA should set performance standards and issue approved methodologies for calculating the greenhouse gas and air pollution emissions avoided per unit of a specific technology installed. Direct lenders should report to intermediaries on deployment (not commitment) of both capital and technology, e.g., the number of heat pumps deployed, the number of households or small businesses served. The intermediary should be responsible for aggregating and digesting that data, using EPA-approved methodologies, and reporting on the full suite of benefits that GHGRF is designed to deliver: greenhouse gas and air pollution reductions, energy bill savings, health benefits, jobs and new businesses created.

APPENDIX

Technology and Market Segment Gaps that GHGRF Should Address: Prioritization Detail

Technology	Zero-emission technologies LI/DAC	Qualified Projects other than LI/DAC	Qualified Projects LI/DAC beneficiaries (communities and/or households)
Building Decarbonization			
Pre-weatherization ²	Yes	No	Yes
Energy efficiency <25%	No	No	No
Energy efficiency >=25%	Yes	Yes	Yes
Deep EE >60%	Prioritize	Prioritize	Prioritize
Passive house	Prioritize	Prioritize	Prioritize
Efficient all-electric new construction ³	Prioritize	Prioritize	Prioritize
Heat pumps	Prioritize	Prioritize	Prioritize
Other electrification ⁴	Prioritize	Prioritize	Prioritize
Projects that comply with BPS ⁵	Prioritize	Yes	Prioritize

Distributed solar plus storage			
Solar PV	Yes	No	Yes
Solar PV + storage	Prioritize	Prioritize	Prioritize
Community solar	Yes	No	Yes
Community solar + storage	Prioritize	Yes	Prioritize

Transportation			
Electric vehicles	Yes	No	Yes
EV charging infrastructure	Yes	No	Yes
Fleet electrification	Yes	Yes	Yes

² Pre-weatherization addresses severe conditions that cause a home to be deferred from DOE's Weatherization Assistance Program (WAP), a holistic energy efficiency program. Examples include moisture/standing water, electrical issues, environmental contaminants, structural deficiencies.

³ Highly efficient construction that excludes all fossil fuels from the building systems and equipment, i.e., HVAC, DHW, kitchen, laundry, and other appliances.

⁴ Includes electric DHW, cooking, other household equipment and appliances and measures that enable future electrification, such as electrical system upgrades.

⁵ In states and local jurisdictions that have implemented a building energy performance standard or stretch code designed to reduce GHG emissions and reliance on fossil fuels, any building project using GHGRF funds must meet any such applicable standard. Compliance should "look forward" five years.

Other			
Food loss and waste prevention technologies ⁶	Yes	Yes	Yes
Composting infrastructure ⁷	Yes	Yes	Yes
Anaerobic digestion ⁸	Yes	Yes	Yes
Farm equipment and processes for small family farms and IRA 22007 eligible recipients	Yes	No	Yes
Small industry processes			Yes
Low carbon concrete & materials	Yes	Yes	Yes

Figure 16

Lenders: Current Landscape

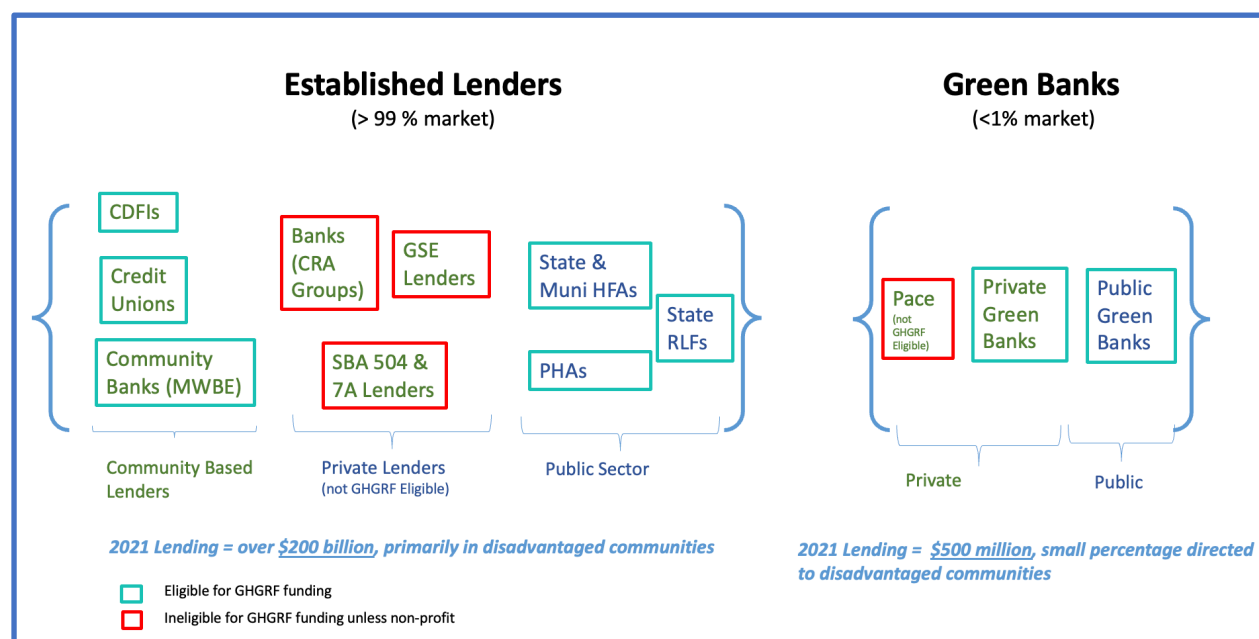


Figure 17

⁶ Preventing food from becoming waste in the first place ultimately leads to the most GHG savings. Technologies such as sales forecasting software, technology to reduce fertilizer inputs or limit overproduction, and upcycling foods would help reduce wasted food and associated GHGs.

⁷ Methane emissions from landfills are responsible for 17% of overall U.S. methane emissions and food in landfills is the leading cause of those emissions. Increasing communities' ability to compost, at all scales, will help properly manage food scraps and reduce methane emissions. Composting can also create twice as many jobs as landfilling, with less exposure to hazards.

⁸ Anaerobic digestion (AD) can be an effective approach to extracting energy from food waste before disposing of it. However, it also has potential pitfalls that any AD project should address in order to receive funding. See Appendix C of NRDC's *Wasted* (2017) report.