

Financing Nature-Based Solutions via the Greenhouse Gas Reduction Fund

Nature-Based Solutions Financing Working Group

Background

For the past decade, state and local green banks have successfully accelerated private investment in renewable energy, energy efficiency, and environmental infrastructure projects in their specific geographies. While green banks have historically focused primarily on clean energy and renewable projects, there is a growing interest in using nature-based solutions (NBS), or *environmental infrastructure*, to meet the climate and community goals shared by many of these mission-oriented financial institutions. Community lenders may also be able to play a similar role. The \$27 billion Greenhouse Gas Reduction Fund (GGRF) in the Inflation Reduction Act (IRA)—particularly the \$14 billion National Clean Investment Fund and \$6 billion Clean Communities Investment Accelerator—represents a once-in-a-generation opportunity to leverage private capital for investments in environmental infrastructure and nature-based solutions, but the groundwork needs to be laid now. This document summarizes the relevant GGRF funds and their applicability for nature-based solutions.

	National Clean Investment Fund (NCIF Program Page)	Clean Communities Investment Accelerator (CCIA Program Page)		
Budget	\$14 billion	\$6 billion		
Funding Objective	To create national clean financing institutions capable of partnering with the private sector to provide accessible, affordable financing for tens of thousands of clean technology projects nationwide. These national nonprofits will provide financing to individuals and families, nonprofit organizations, for-profit businesses (especially small businesses), units of government, and others deploying these projects. These national nonprofit financing entities will mobilize private capital as they finance these projects.	Provide funding and technical assistance to specific industry networks of public, quasipublic, not-for-profit, and nonprofit community lenders. These community lenders could be community development financial institutions, credit unions, green banks, housing finance agencies, minority depository institutions, and others. As a result of this competition, hundreds of these community lenders will launch new or expand existing programs to provide low-income and disadvantaged communities much-needed capital to deploy projects.		
Important Dates	October 12, 2023: Application due date March 2024: Notification of selection July 2024: Start of performance period			
Number of Awards	2–3 national nonprofit financing entities	2–7 hub nonprofits		
Disadvantaged Communities	40% of funds must flow to disadvantaged communities	100% of funds must flow to disadvantaged communities		

Table 1. Summary of relevant GGRF programs

Investments in NBS can be targeted to under-served communities who are exposed to accelerating climate hazards. NBS projects can help to address past environmental injustices and build resilience against disasters, extreme heat, and pollution.

	National Clean Investment Fund (NCIF Program Page)		unities Investment CCIA Program Page)	
Priority Project Categories Project Eligibility	 Distributed energy generation Net-zero emissions bui Zero-emissions transport Regardless of priority project categories, any project that me the requirements of a qualified project is eligible for support competition. An eligible project, activity, or technology woul 	ildings ortation eets all six of t under this	While NBS are not listed as priority project categories, a project that meets a	
NBS can deliver on all six of these requirements. For eligibility criteria 8, NBS could deliver on climate change, work- orce training and de- velopment, remediation and reduction of legacy collution, and develop- nent of critical clean vater infrastructure For more detail on	 Reduce or avoid greenhouse gas (GHG) emissions, consi US climate goals Reduce or avoid emissions of other air pollutants Deliver additional benefits to American communities wi more of the following seven categories: (1) climate change (2) clean energy and energy efficiency, (3) clean transpot (4) affordable and sustainable housing, (5) training and v (6) remediation and reduction of legacy pollution, and (7) infrastructure May not have otherwise been financed Mobilize private capital. Support only commercial technologies, defined as technologies commercial purposes at least three times for a period of States 	istent with ithin one or ge, rtation, workforce develo 7) development o nologies that ha	t of critical clean water nave been deployed for	
these benefits, see Table 2.	Source: EPA Clean Communities Investment Accelerator and Nation Opportunities (EPA 2023a, 2023c)	nal Clean Investme	nt Fund Notices of Funding	

Table 1. Summary of relevant GGRF programs (continued)

Table 2. Relevant eligible project categories for the greenhouse gas reduction fund (NCIF + CCIA) with examples of NBS projects that could provide listed benefits in each category

Category	Relevant Benefits Shared in NCIF and CCIA Funding Notices Potentially Provided by NBS	Potential NBS Project Types That Could Meet Program Requirements and Provide a Listed Benefit
Climate change	 Reduction of GHG emissions and local air pollutants Creation of community resilience plans that specifically include addressing needs of disadvantaged communities Increased technical assistance and community engagement of disadvantaged communities Increased flood mitigation benefits Increased urban heat island effect mitigation benefits 	 Creating plans that explore and prioritize nature-based solutions actions across a region integrating the needs of disadvantaged communities that could be used to enhance community resilience and climate mitigation (e.g., Northampton Climate Resilience & Regeneration Plan, Charleston Climate Action Plan, Port Angeles Climate Resiliency Plan) Protection and restoration of coastal wetland habitats such as salt marsh that can reduce coastal flooding and storm surge during large storms while storing and sequestering carbon (e.g., Narayan et al. 2017) Planting urban trees to help cool cities and provide associated health benefits and energy cost savings while reducing GHG emissions and sequestering carbon (e.g., lungman et al. 2023)
Clean transportation	 Reduction of exposure to harmful transportation- related emissions Increased bicycle and walking paths 	 Planting urban trees to help remove air pollution in transportation corridors (e.g. Nowak et al. 2006)
Training and workforce development	 Increased participation in good job training programs that target participation from disadvantaged communities, including formerly incarcerated individuals and youth transitioning out of foster care Increased climate-smart training, including training to identify waste, efficiencies, and GHG inventories Increased percentage of good job training programs within energy communities, such as those that include paid employment and that measure and report participant outcomes 	 Creation of job training programs that instruct how to plan, install, and maintain different types of nature- based solutions projects (new federal jobs programs focused on climate often include funding for training on nature-based climate solutions [e.g., American Climate Corps, Climate-Ready Workforce for Coastal States, Tribes, and Territories Initiative)

Table 2. Relevant eligible project categories for the greenhouse gas reduction fund (NCIF + CCIA) with examples of NBS projects that could provide listed benefits in each category *(continued)*

Category	Relevant Benefits Shared in NCIF and CCIA Funding Notices Potentially Provided by NBS	Potential NBS Project Types That Could Meet Program Requirements and Provide a Listed Benefit
Remediation and reduction of legacy pollution	 Brownfield redevelopment Reclamation of abandoned mine lands and capping of orphan oil and gas wells 	 Using nature-based solutions such as phytoremediation, bioremediation, revegetation, and constructed wetlands to help redevelop and remediate brownfields and other contaminated lands (e.g. Song et al. 2019)
Development of critical clean water infrastructure	Reduction in the quantity of raw sewage discharged	 In locations with combined sewer systems that collect sewage and stormwater runoff in a single pipe, large rain events can result in combined sewage overflows. Urban nature-based solutions like rain gardens, green roofs, urban trees, and bioswales can reduce stormwater runoff, which in turn helps reduce combined sewer overflows during storm events (e.g., EPA 2023b). Green stormwater infrastructure can support gray infrastructure, reducing loads while also sequestering GHGs, improving local air quality, and providing numerous other benefits.

REFERENCES

- EPA. 2023a. Clean Communities Investment Accelerator. Notice of Funding Opportunity. Washington, DC: US Environmental Protection Agency. https:// www.grants.gov/search-results-detail/349233.
- EPA. 2023b. "Combined Sewer Overflow Green/Gray Infrastructure." Washington, DC: US Environmental Protection Agency. https://www.epa.gov/npdes/combinedsewer-overflow-greengray-infrastructure.
- EPA. 2023c. National Clean Investment Fund. Notice of Funding Opportunity. Washington, DC: US Environmental Protection Agency. https://www.grants. gov/search-results-detail/349234.
- Iungman, T., M. Cirach, F. Marando, E. Periera Barboza, S. Khomenko, P. Masselot, and M. Quijal-Zamorano, et al. 2023. "Cooling Cities Through Urban Green Infrastructure: A Health Impact Assessment of European Cities." The Lancet 401(10376): 577–89. doi:10.1016/S0140-6736(22)02585-5.
- Narayan, S., M. W. Beck, P. Wilson, C. J. Thomas, A. Guerrero, C. C. Shepard, and B. C. Reguero, et al. 2017. "The Value of Coastal Wetlands for Flood Damage Reduction in the Northeastern USA." Scientific Reports 7: 9463. doi:10.1038/ s41598-017-09269-z.
- Nowak, D. J., D. E. Crane, and J. C. Stevens. 2006. "Air Pollution Removal by Urban Trees and Shrubs in the United States." Urban Forestry & Urban Greening 4(3– 4): 115–23. doi:10.1016/j.ufug.2006.01.007.
- Song, Y., N. Kirkwood, Č. Maksimović, X. Zheng, D. O'Connor, Y. Jin, and D. Hou. 2019. "Nature Based Solutions for Contaminated Land Remediation and Brownfield Redevelopment in Cities: A Review." Science of the Total Environment 633: 568–79. doi:j.scitotenv.2019.01.347.

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