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Clean Energy as Economic Development: An Analysis of the Greenhouse Gas Reduction Fund

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Enacted by Congress in 2022, the first goal of the \$27 billion U.S. Environmental Protection Agency's (EPA) Greenhouse Gas Reduction Fund (GGRF) aligns with its name—reduce greenhouse gases and their negative impacts on America. However, the EPA also laid out two other equally important goals for GGRF, based on the statutory requirements—to mobilize private capital investment, and to “deliver the benefits of greenhouse gas reducing projects to American communities,” particularly low-income and disadvantaged communities.

These latter two goals cast the GGRF as not just a climate program, but an economic development program. Economic development, as traditionally understood, involves policies that increase employment, drive industrial competitiveness, and improve infrastructure. GGRF promotes investments in renewable energy, energy efficiency, and clean transportation to pursue this classic economic development agenda.

Econometric Modeling of the GGRF

New analysis by [Energy Innovation](#) (EI) has now estimated how far the GGRF will go toward its economic development goals. Their research uses the open-source [Energy Policy Simulator](#) (EPS) to model the economic impacts of the \$24 billion of GGRF funding that is targeted for project financial assistance. The modeling estimates that GGRF will generate:

- An average of 36,000 to 41,000 more jobs annually compared to current policies. Of these, 9,500–10,800 are manufacturing jobs and 7,700–8,800 are construction jobs, with the remainder falling into other service jobs. Note that not all of these jobs are multi-year positions.
- An additional \$21.3 to \$23.9 billion in wages earned between 2025 and 2031.¹
- Energy cost savings to consumers valued at \$52 billion over the next 20 years.²
- Enough power from new solar projects to power up to 2.2 million homes each year.
- Total investment in the U.S. economy of \$65.5 billion.

EI has posted a detailed description of its modeling methodology and results [here](#).

The Economic Development Framework of the GGRF

The GGRF pursues economic development at both a national and a local level. At the national level, GGRF is effectively a sectoral industrial policy for domestic clean tech—driving demand while supporting U.S. manufacturing and supply chain resilience. For example, by financing rooftop and community solar projects, the GGRF is investing in an industry that has reached nearly [280,000](#)

[jobs](#) and is growing at nearly 6 percent per year—while also requiring made-in-America materials and equipment to boost American manufacturing competitiveness.

Further, through its \$14 billion National Clean Investment Fund (NCIF), GGRF creates national-scale “Green Banks” capable of directly investing in large projects and setting up financial market infrastructure such as secondary markets to stimulate investment. The team members for the NCIF grantees include some of the largest actors in the community development finance field. For example, [Enterprise](#) and [LISC](#), two of the members of the Power Forward NCIF coalition, have invested over \$110 billion into low-income communities since their inception. The three core members of Climate United are also leaders in community economic development. [Calvert Impact Capital](#) has facilitated over \$2.5 billion of investment in 600 community and green finance providers since creating its Community Investment Note almost 30 years ago. In 2023 alone, [Community Preservation Corporation](#) lent or invested \$540 million to create or preserve 3,800 units of housing, while [Self Help](#) made \$490 million of investments including home loans, consumer loans, commercial loans, and real estate development loans. The Coalition for Green Capital, the third NCIF awardee, includes leading Green Banks such as the [Connecticut Green Bank](#), which has mobilized over \$2 billion in private investment since its inception, and supported over 23,000 job-years while reducing energy costs for low-income households.

At the state and local level, GGRF is focused on unleashing the capabilities of mission-driven, community-based lenders to drive investment. The \$7 billion GGRF Solar For All program funds 60 grantees, mostly at the state level, charged with financing low-income residential solar projects. The program requires every project funded to save consumers a minimum of 20 percent on their energy bills. The \$6 billion GGRF Clean Communities Investment Accelerator (CCIA) program will fund hundreds of local lenders, working through trade associations representing

community development [banks](#), [credit unions](#), [loan funds](#), [Minority Depository Institutions](#), and [Native CDFIs](#) as well as state and nonprofit green banks. Collectively, these lenders have originated hundreds of billions in loans for small businesses, homeownership, affordable housing, and community facilities such as schools and health centers. CCIA funding will help these lenders to incorporate clean energy lending into their book of business, enlisting a powerful force in the effort to promote American energy independence. Community Development Credit Unions, for example, manage [\\$318 billion](#) in assets and serve 22 million members, while community development banks manage \$124 billion in assets and loan funds over \$40 billion.

Early returns of GGRF activity are promising. NCIF and CCIA awardees [report](#) that more than \$4 billion in local investments is already on track across all 50 states. Examples of investments cited in this report include:

- A \$31.8 million investment to the largest commercial solar project in Arkansas, to be built with American-made solar panels. Project proponents estimate the project will generate 1,500 jobs and \$120 million of energy cost savings.
- \$39 million of investment in 194 units of green affordable housing, located in both Oregon and New York.
- Launch of a \$250 million program to provide affordable leasing of electric trucks for small commercial fleets and independent operators.

The economic development nature of GGRF programming is further emphasized by an emphasis on quality jobs; funding for most projects comes with [prevailing wage](#) requirements, and grantees must also demonstrate how they will promote workforce development goals.

Taken together, these results suggest that there is significant economic development potential for the GGRF, a factor that we hope both community developers and policymakers will take into consideration as they consider the program’s future.

Methods

Modeling was performed using EI's EPS. The EPS is an open-source climate and energy policy model built on a system dynamics framework that captures the interactive effects between policies and reports economy-wide emissions, energy use, economic, and other outputs. The EPS includes a fully integrated input-output model, which uses the direct changes in cash flows from energy, capital, and other spending due to policies to understand the impacts on other economic sectors and determine changes in output and jobs. The model's Current Policy forecast is built using publicly available government data, and the impact of policy scenarios is measured relative to this Current Policy baseline. The Current Policy scenario includes all current legislation and regulations, including the Inflation Reduction Act, Infrastructure Investment and Jobs Act, and U.S. EPA rules including oil and gas methane standards; tailpipe carbon dioxide (CO₂) standards for light-, medium-, and heavy-duty vehicles; and power plant CO₂ standards. It also includes any state-level renewable portfolio or clean energy standards, state carbon pricing schemes, and adoption of Advanced Clean Cars I and II and Advanced Clean Trucks. No changes to the Current Policies baseline have been made based on actions under the current administration.

The EPS is extensively [documented online](#) and available either for download or through an online user interface. This analysis uses a customized model version that pulls in a forthcoming update to add the ability to finance distributed solar and building retrofit investments, and it also removes the GGRF from the baseline in order to evaluate its impact through policy settings. The custom model and all policy settings used for this analysis are available through Zenodo at this [link](#).

The primary input needed for EPS modeling is the change in deployment of clean energy technologies, which can be calculated based on the total capital invested in each technology or activity. EI relied on information contained in the

detailed workplans of GGRF awardees, publicly available on EPA's website. EI first translated the amount of capital devoted to financial assistance investments (roughly \$24 billion) into total capital invested. Dollars devoted to predevelopment, market-building activities, and program administration (other eligible uses of GGRF dollars) were excluded, since they are outside the model's scope. Total capital mobilized was compiled from award amounts and each awardee's estimated leverage ratios. Each awardee's workplan also provides information on the types of anticipated activities, which have been mapped to the Solar for All program, Distributed Generation (additional to Solar for All), Zero-emissions Transport, Net-Zero Emissions Buildings, and other activities.

EI modeled two different policy scenarios—a base GGRF case that maps the Solar for All, Distributed Generation, Zero-emissions Transport, and Net-Zero Emissions Buildings financial assistance investments to the corresponding technologies in the EPS, and a sensitivity case that also added in the financial assistance to Other activities. The reported GGRF impacts represent the range between the two modeled scenarios. Additional information on how each category was modeled within the EPS is available on [Zenodo](#).

Endnotes

1. Analysis used a 3 percent discount rate to determine the Net Present Value of wages earned between 2025 and 2031.
2. Analysis used a discount rate equivalent to the 12-month average of the 20-year Treasury Bill to determine the Net Present Value of energy cost savings.

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