Utilizing Low-Carbon Materials in FEMA Projects

The Inflation Reduction Act (IRA) authorizes FEMA's Hazard Mitigation Assistance and Public Assistance programs to provide financial assistance to build cleaner, climate resilient infrastructure. This factsheet focuses on information and materials for FEMA applicants to exercise the new authority by considering low-carbon materials in hazard mitigation and recovery projects.

Overview

On Aug. 16, 2022, President Biden signed the IRA[1] into law, marking the largest clean energy investment in history. Through transformational funding in a new clean energy economy, the IRA is lowering energy costs, providing cleaner energy solutions, and reducing greenhouse gas emissions.

The IRA authorizes FEMA to provide financial assistance for costs associated with using low-carbon construction materials in projects. The utilization of this authority is for the following programs at FEMA:

- Building Resilient Infrastructure and Communities (BRIC)
- Hazard Mitigation Grant Program (HMGP)
- HMGP Post-Fire
- Pre-Disaster Mitigation Program (PDM)
- Public Assistance (PA)

Use of low-carbon materials in FEMA funded projects helps implement the agency's *2022-2026 Strategic Plan* goal of leading the "whole of community in climate resilience" and encourages state, local, tribal, and territorial applicants to make strategic investments to enable community resilience.

Low-Carbon Materials

The U.S. Environmental Protection Agency (EPA) defines low-carbon materials as construction materials and products that "have substantially lower levels of embodied greenhouse gas (GHG) emissions associated with all relevant stages of production, use, and disposal, as compared to estimated industry averages of similar materials or

[1] https://www.congress.gov/117/plaws/publ169/PLAW-117publ169.pdf

FEMA

products."[2] The low-carbon construction materials that may be eligible for FEMA funding include concrete, asphalt, glass, and steel that have a Global Warming Potential (GWP) lower than the estimated industry average for similar products made in North America, as demonstrated by their Environmental Product Declaration (EPD).

Additional Definitions and Descriptions

- **Greenhouse Gas (GHG):** The air pollutants carbon dioxide, hydrofluorocarbons, methane, nitrous oxide, perfluorocarbons, and sulfur hexafluoride
- **Environmental Product Declaration (EPD):** A transparent, third party, verified report used to communicate the environmental impact associated with the manufacture or production of construction materials.
- **Global Warming Potential (GWP):** An index measuring the radiative forcing following an emission of a unit mass of a given substance, accumulated over a chosen time horizon, relative to that of the reference substance, carbon dioxide (CO2). The GWP thus represents the combined effect of the differing times these substances remain in the atmosphere and their effectiveness in causing radiative forcing.
- **Substantially Lower:** Having a GWP that is at least less than the estimated North American industry average as demonstrated by their EPD.

Eligibility

PA projects utilizing low carbon materials must be connected to eligible PA work that addresses damage caused by a declared disaster. Projects utilizing low-carbon materials under HMA must have a tie to eligible hazard mitigation work that addresses risk and reduces suffering from disasters.

For PA, FEMA will reimburse any increased costs resulting from the use of low-carbon materials. Costs will be reimbursed at the applicable Federal cost-share for the disaster. For BRIC, PDM, HMGP and HMGP Post-Fire programs, projects utilizing low-carbon materials will be funded at the same cost-share as other hazard mitigation projects if the project is cost effective and all other eligibility criteria are met.

- For PA, applicants may use FEMA financial assistance for unobligated projects for any federal disaster declared between Aug. 16, 2022 and Sept. 30, 2026.
- For HMGP and HMGP Post-Fire, this is applicable for 1) major disaster declarations between Aug. 16, 2022 and Sept. 30, 2026, with open application periods as of the issuance of this fact sheet, or 2) for major disaster declarations declared after the issuance of this memorandum, provided all other program requirements are satisfied.

For the BRIC and PDM Programs, refer to Notices of Funding Opportunities for more information. Concrete, glass, asphalt, and steel are the four construction material categories selected by FEMA for prioritization as they have been found to contribute the greatest amount to global GHG emissions. By replacing conventional materials with low-carbon construction materials, FEMA applicants can reduce the carbon footprint of their construction projects.

[2] https://www.fema.gov/sites/default/files/documents/fema_inflation-reduction-act-implementation-memo_032023.pdf

FEMA encourages applicants to utilize low-carbon materials with EPDs for the following:

- Concrete
- Glass
- Asphalt
- Steel

Low-Carbon Construction Materials: Tools

The Embodied Carbon in Construction Calculator (EC3) is a free database of Environmental Product Declarations. The tool is no cost and provides a simplified method to quickly identify low-carbon materials that qualify for FEMA projects. Applicants must follow federal grants procurement regulations when selecting contractors to provide low-carbon materials.

Costs and Standards for Low-Carbon Materials

Costs for low-carbon materials can vary by size and complexity of the project, geographic location, and the experience of the project and construction team. Potential savings may come from de-materialization, using less material to achieve the same function, or from reducing the use of higher cost ingredients such as Portland cement. In some cases, low-carbon materials are cheaper than their conventional equivalent. Low-carbon materials meet the same performance standards and functional requirements as their competitors.

Low-Carbon Project Examples

FEMA hazard mitigation and recovery projects often include large amounts of concrete, steel, asphalt, and glass. Examples of these projects and opportunities to utilize low-carbon materials include:

Public Assistance	Hazard Mitigation Assistance
▪ Roadway surface restoration ▪ Roadwork with culverts ▪ Drainage structures ▪ General building and structure components ▪ Bridge repair and replacement ▪ Pipes and water/wastewater infrastructure ▪ Sidewalks and signage	▪ Hazard Mitigation Reconstruction ▪ Structure elevation ▪ Stormwater management projects including culverts, drainage pipes, floodgates, detention and retention basins and other stormwater management facilities ▪ Floodproofing such as the installation of impermeable walls ▪ Tsunami Vertical evacuation refuge, or saferooms

Learn More

For more information, please reach out to your state, tribal, or territorial emergency management agency or FEMA Regional PA or HMA point of contact. You can also find more information at: Building Clean, Climate-Resilient Communities through FEMA's Grant Programs | FEMA.gov or by emailing fema-climate@fema.dhs.gov.