FEMA Hazard Mitigation Assistance Generators

Introductory Workshop

Massachusetts Emergency Management Agency
May 2021

Objective for the Day

- COMFORTABILITY with HMA Generator application process
- UNDERSTANDING of how HMA can help your community
- KNOWING where to access information and resources

TAKE AWAY

Start with Massachusetts Emergency Management Agency (MEMA)

Agenda

- Regulation and Guidance
- Eligibilities and Requirements
- Obstacles to Approval
- Application Elements and Considerations
- Benefit-Cost Analysis for Generators

Opportunities for Questions and Discussion Between Every Section

FEMA Hazard Mitigation Assistance

"FEMA Hazard Mitigation Assistance grant programs provide funding for **eligible activities** that **reduce or eliminate long-term risk** to **people and property** from future disasters…Eligible applicants of these grants include **states, local, tribal and territorial governments**"

Guidance

2015: Hazard Mitigation Assistance Guidance

2015: Hazard Mitigation Assistance Guidance Addendum

Job Aid: Eligibility of Generators as a Fundable Project by the Hazard Mitigation Grant Program and Pre-Disaster Mitigation Program (2015)

Hazard Mitigation Assistance Programs

- **Hazard Mitigation Grant Program (HMGP)**
- Flood Mitigation Assistance (FMA)
- **Building Resilient Infrastructure and Communities (BRIC)**
  - Replaces Pre-Disaster Mitigation(PDM)
- Hazard Mitigation Grant Program Post Fire (HMGP Post Fire)

- *Rehabilitation of High Hazard Potential Dam (HHPD) Grant Program*

Hazard Mitigation Grant Program (HMGP)

- Funding to implement long-term hazard mitigation measures following a major disaster
- Submitted to FEMA Region Office
- Within 12 months of a Presidential Disaster Declaration

5% Program Initiative

- 5% HMGP set aside for projects difficult to evaluate using FEMA-approved cost-effectiveness methodologies (BCA)
- Comply with all applicable HMGP eligibility criteria as well as Federal, State, and local laws
- Consistent with goals and objectives of State local mitigation plans
- Submitted with narrative that indicates that there is a reasonable expectation that future damage, injury, and/or loss of life will be reduced/prevented

Building Resilient Infrastructure and Communities (BRIC)

- Hazard mitigation funding for states, tribal governments, and local communities
- Replaces Pre-Disaster Mitigation (PDM) Program
- Establishes an annual national competitive award
  - Qualitative and quantitative evaluation criteria
  - ~$500 Million in grant funding awarded annually
  - Funds projects up to $50 Million
  - Projects can be up to 36 (or 48) months
- Annual Notice of Funding Opportunity (NOFO)

Why BRIC

- Intended to create consistent predictable funding stream and promote local investment
- BRIC Priorities:
  - Public infrastructure projects
  - Projects that mitigate risk to one or more FEMA lifelines
  - Projects that incorporate nature-based approaches
- Reducing the risk to vulnerable populations
- Building code updates (2015/2018 IBC standards) and enforcement

MA Open/Rolling Statement of Interest (SOI) Period	Open and Ongoing
Sub-applicant Register with FEMA GO	Ongoing
Federal Notice of Funding Opportunity (NOFO)	August 2021
Federal Grant Application Period Opens	September 2021
Iterative State Pre-Application and Review	October - December 2021
Sub-application Final Submittal	Early December 2021
State Review Committee	December 2021 – January 2022
Submittal to FEMA for National Competitive Review	January 2022
Award Notification for FFY21 Cycle	Summer 2022
Project Initiation	~Spring 2023

Expected BRIC/FMA FFY21 Cycle

Technical Assistance

Direct Technical Assistance Available

Now - June 30th

Submit a Statement of Interest (SOI) For BRIC/FMA

on MEMAs Website

Questions on HMA Regulation, Guidance, and Programs

HMA Project Requirements

Mitigate a Natural Hazard

Improved Level of Protection (LOP)

Feasible to Implement

- Regulatory
- Design
- Construction

Cost Effective

Environmental and Historic Preservation (EHP)

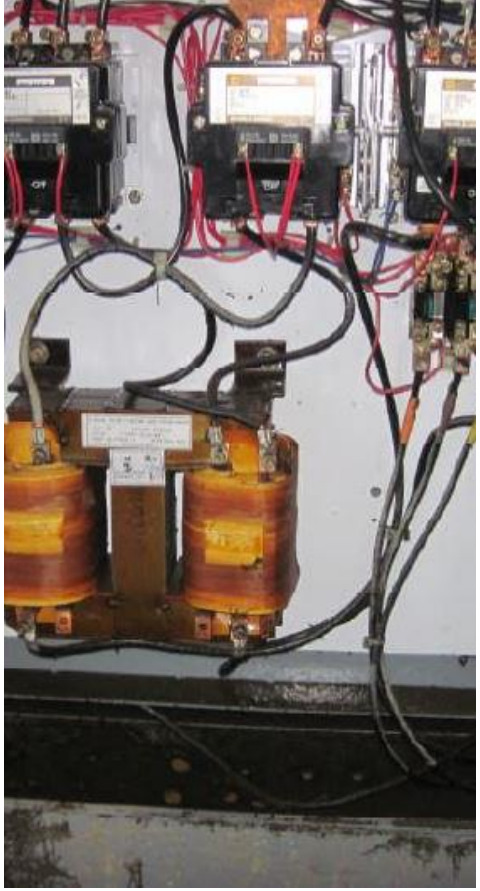
Generators as HMA Grants

Maintain Operation of Critical Facilities

Component of a Larger Project

Avoid Disruption To:

- Utility Services
- Public Safety Services (Police, Fire, EMS)
- Health Care Services
- Tornado and Hurricane Safe Rooms



Pump Station Electrical Controls Relocated:
Shelburne Falls

Pump station electrical controls were relocated and a new generator was installed.

Project was funded through the HMGP program. Fire District built new building to house controls out of harm's way.

Completed Fall 2018.

Generators: Tewksbury

Sewer pump station generators purchased and installed to ensure wastewater flow during power outages.

Project was funded through the HMGP program.

Project in process – to be completed in spring 2021.

What is not Eligible for HMA?

- Projects that do not reduce the risk to people, structures, or infrastructure.
- Projects that are dependent on another action to be effective.
- Projects which are considered repair, deferred maintenance, or replacement of existing infrastructure.
- Projects where actual physical work has already started.
- Purchase of equipment and/or emergency preparedness activities.
- Projects in residential structures.

Issues with Generators HMA Grants

- "Low Priority"
- Limited resilience
- Short term benefit
- Support for Non-critical functions
- Active maintenance
- Difficult to show value in FEMA Benefit Cost Analysis (BCA) software

Does Not Align with BRIC Priorities

Large “Infrastructure”

Nature Based Solutions

Whole Community/Comprehensive Resilience

Community Capability & Capacity Building

Flexibility

Promote Partnerships

FEMA Community Lifelines

Eligibility Gray Areas

Emergency Operations Centers (EOCs)

Shelters, cooling stations, vaccination sites

Private Sector or non-profit facilities

Regulatorily required backup power

Other part-time critical operations

Why Not Emergency Shelters

- Does not mitigate loss
- Facility must be hardened to argue loss of life
- Does not solve the problem

Questions on HMA Generator Requirements and Eligibility

Project Considerations

- Is there an alternative mitigation activity
- Is the generator need identified in the community hazard mitigation plan
- Has the facility been entered into the U.S. Army Corps of Engineers (USACE) Emergency Power Facility Assessment Tool (EPFAT) Program
- Is the facility that needs back-up power identified in the county or municipal Emergency Operations Plan as a “critical facility or business activity/function”
- Has the facility’s back-up generation needs been reviewed and identified in the Continuity of Operations Plan (COOP)
- Who will maintain the generator and what funds will be used to maintain the asset
- Who will ensure personnel are trained on the use of the generator

Application Development

- Define the hazard
- Identify the critical service/function
- Identify impact that hazard will have on your community
- Conduct specifications assessment
  - Sizing
  - System requirements/compatible
  - Operation and maintenance
  - Fuel types
  - Duration requirements
- Develop Maintenance/Fuel/Testing Plan

The Right Fit

- Generators that are too large may cause:
  - Damage to electrical systems
  - Unnecessary operational expenses
  - Inefficient power production
  - NO FUNDING

- Generators that are too small may cause:
  - Generator damage or overheating
  - Insufficient or unreliable power
  - Critical facilities and security system failures
  - NO FUNDING

Generator Needs Assessment

Identify Critical Systems

Isolated from Non-Critical Systems

Measure Capacity Requirements

- Real-Time Measurement – Ammeter
- Full Load Capacity by History
- Square Footage Measurement (Mostly retail)

Compliance

- National Electrical Code (NEC)
- National Fire Protection Association (NFPA) requirements

Generator Needs Assessment

- Voltage
- Start Load (kW)
- Running Load (kW)
- Load being stepped in?
- Single or Three Phase (Rotation)
- Automatic or manual controls
- Fuel type (gas, diesel, propane, Other)
- Noise rating

Specification Assessment Resources

- FEMA P-1019 Emergency Power Systems for Critical Facilities: A Best Practices Approach to Improving Reliability
- EPA Power Resilience Guide for Water and Wastewater Utilities
- USACE Emergency Power Facility Assessment Tool (EPFAT)
- IS-815 ABCs of Temporary Emergency Power
- Any Number of Vendors

Alternative to Gas/Diesel Generators

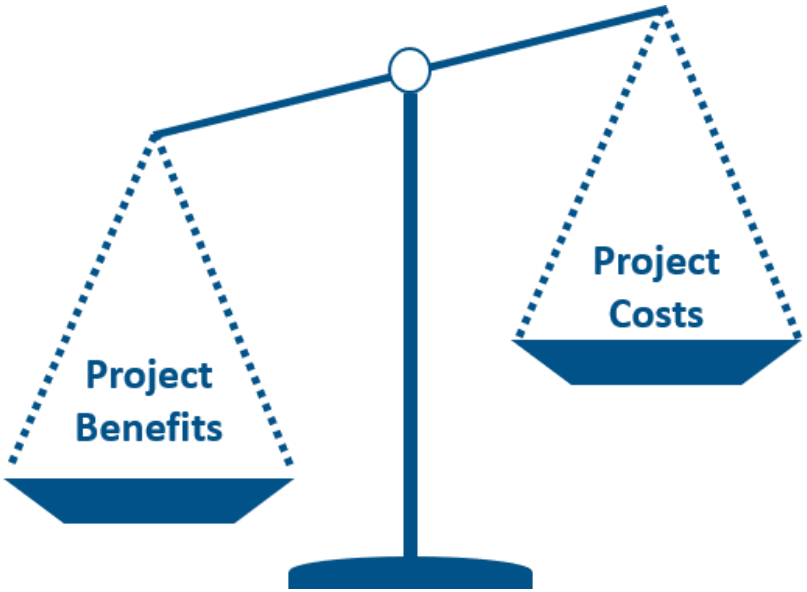
- Battery-stored backup power
- Solar/photovoltaic power
- Wind power
- Fuel cells
- Combination of sources

- Department of Energy Resources (DOER)
- Executive Office of Energy and Environmental Affairs (EEA)
- Massachusetts Clean Energy Center (CEC)

Questions on HMA Generator Project Considerations

Application Elements

Applicant Information	Hazard Mitigation Plan Information	Scope of Work
Project Schedule	Detailed Budget	Source of Local Cost Share
FEMA Benefit-Cost Analysis (BCA)	Environmental Considerations	Additional documentation may be required depending on the specific project type.



What is a Benefit Cost Analysis (BCA) ?

- Benefit-Cost Analysis (BCA) is a method that quantifies the benefits of a mitigation project compared to its costs.
- Establishes Cost Effectiveness

Goal: break the cycle of damage, reconstruction, and repeated damage

Generator BCA Resources

- BCA Reference Guide (June 2009)
- Supplement to the Benefit-Cost Analysis Reference Guide (June 2011) – Page 62
- FEMA Job Aid: Eligibility of Generators as a Fundable Project by the Hazard Mitigation Grant Program and Pre-Disaster Mitigation Program (2015)
- FEMA Benefit-Cost Helpline: bchelpline@fema.dhs.gov, (855) 540-6744
- MEMA Hazard Mitigation Team

Generator Benefit-Cost Analysis

Loss of Service: Utility/Public Safety

Hazard Type: Infrastructure Failure

Structure Type: Critical Facility or Utilities

Damage frequency relationship is either "Historical Damages" or "Professional Estimated Damages"

Mitigation Action: "Other"

Damage Frequency Assessment (DFA)

Services provided at the site

Frequency and duration of power outages at the site

BCA Considerations

- A series of at least two (2) relationships between the **frequency** of the disruption and the **damages** associated
  - In MOST cases use the BCA software to calculate **frequency**
  - Damages are losses of function for a public facility. The BCA software has default data for specific types of critical facilities – just need duration
- Data sources
  - Electric utility providers are often required to provide annual system reliability reports – System Average Interruption Frequency Index (SAIFI) and System Average Interruption Duration Index (SAIDI)
  - Facility operator record of utility loss
- Estimated effectiveness of the proposed generator
- Project installation and maintenance cost
- Benefits – Avoided losses of function/service (calculated be software)

Damage Frequency Assessment (Generator DFA Module)

- Two Examples of Disruptive Events
  - Frequency – input power loss occurrences and software calculate frequency
  - Damages – Software has preset damage calculations based on critical facility type
- Benefits: Reduction/avoided losses of function/service: BCA default values for services (utility, public safety, health)
  - Input number of customers served (utilities)
  - Area served and distance to the nearest analogous service (public safety)
- Cost: Equipment, installation, retrofit, estimated annual maintenance
- Project Useful Life: 19 years
- Project Effectiveness
  - Full power to facility or emergency minimal power
  - Duration of generator operation – usually a function of fuel source
- Multiple Hazards: Provide 2 points of disruption for each type

Value of Service Calculations

Water or Waste Water Services	Hospitals	Police Stations	Fire Stations
• Number of customers impacted by the power outage at the treatment plants • Cost of alternative service provision	• The number of people served by the hospital • The distance in miles between the hospital being analyzed and the hospital that would treat these people in the event the hospital was inoperative • How many people normally served by the alternate hospital	• Is the station Metropolitan, City or Rural • How many people are served by the police station • How many officers work at the station and would serve the same area if the station were shut down due to disaster	• How many people served by the station • The type of area served by the fire station (urban, suburban, rural, wilderness) • What is the distance in miles to nearest fire station that would provide protection for the area normally served by the fire station effected • Does the fire station provide Emergency Medical Services

Recurrence Interval Calculations

- Utility/Community Records and Documentation
- Advanced Technology Council (ATC) Wind Speed Tool
- National Weather Service (NWS) Precipitation Frequency Data Server
- US Geological Survey (USGS) StreamStats and Streamflow
- National Snow and Ice Data Center (NASA, NOAA, NSF)
- Insurance claims, BureauNet information, damage repair records, data from a State/local agency, or local government newspaper accounts citing credible sources (other than anecdotal accounts) could be used in conjunction with the DFA module's unknown frequency calculator.

- Refer to the FEMA Supplement to the Benefit-Cost Analysis Reference Guide (2011)

Questions on HMA Generator Benefit Cost Analysis

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MEMA Hazard Mitigation Website