

Georgia Emergency Management Agency / Homeland Security
Pre-Application
Generator Worksheet

This worksheet is for all Hazard Mitigation Assistance grant programs "Generator for Critical Facility" proposals. Please complete ALL sections and provide the documents requested. If you require technical assistance with this worksheet, please contact the Hazard Mitigation Division at (404)-635-7522 or 1-800-TRY-GEMA to have a Hazard Mitigation Program Specialist assigned to you.

A. Applicant Information

1. **Name of Applicant:** _____

2. **Applicant Type**

State Government **Local Government** **Private Non-Profit**

3. **Worksheet Prepared by:**

Ms. Mr. Mrs. **First Name** _____ **Last Name** _____

Title _____ **Telephone** _____

Address (City, State, Zip): _____

E-mail address: _____

4. **Authorized Applicant Agent** (An individual authorized to sign financial and legal documents on behalf of the local government (e.g., the Chairperson, Board of County Commissioners or the County Manager, etc.).

Ms. Mr. Mrs. **First Name** _____ **Last Name** _____

Title _____ **Telephone** _____

Address (City, State, Zip): _____

E-mail address: _____

Signature: _____ **Date Submitted:** _____

B. Project Information/Mitigation Plan

1. **Project Title:** _____

2. **Project Summary:** (Describe in detail what you are proposing to do.)

3. **Date of Hazard Mitigation Plan approval by FEMA:** _____

This project must be identified in your Hazard Mitigation Plan. Provide a copy of the goal, objective, and action step that supports your project application. Please attach a letter of endorsement for the project from your County's Emergency Management Agency (EMA) Director

Generators: Power loss is a common result of winter storms within the County. Generators should be considered for many critical facilities, including emergency response facilities and designated shelters. This can result in a continuation of services that would otherwise not be possible. An accurate accounting of existing generators should first be conducted, followed by recommendations for adding generators to critical facilities.

Georgia Emergency Management Agency / Homeland Security
Pre-Application
Generator Worksheet

For each fixed generator, please complete sections I through VII in its entirety.

I. **Project Description : Fixed Generator for** _____

II. **History of Hazards**

Provide a detailed power outage report for each critical facility which includes weather related events from a minimum of three different years. Indicate the cause of the power outage. This information should be obtained from your power provider. **The examples in bold qualify as weather related events.**

Date	Time of Outage	Duration (Minutes)	Outage Type	Description
Mon. Feb. 16, 2015	21:26:13 EST	623	Extreme Storm	Trees in Ice Storm
Tue. Jan. 07, 2014	17:41:34 EST	42	Lightning	Lines clear, fault on breaker
Tue. Jan. 07, 2014	06:37:00 EST	75	Equipment Fault	Cracked Insulator
Thu. Dec. 19, 2013	13:31:40 EST	47	Trees-Other	Lines down due to trees

III. **Fixed Generator Location**

1. **Name of facility, physical address (including city and zip code).**

Digital Latitude: _____ **Digital Longitude:** _____

***Digital Latitude and Digital Longitude coordinates need to be in Decimal Degrees. The coordinates should be for the fixed generator site not the facility.**

Facility Year Built: _____

2. **Flood Insurance Rate Map (FIRM) showing Generator Location**

<http://map.georgiadfirm.com/>

Attach a copy of the panel(s) from the FIRM.

- VE or V 1-30*
- AE or A 1-30*
- AO or AH*
- A (no base flood elevation given)*
- B or X (shaded)
- C or X (unshaded)

***If located in the above zones with an asterisk, the fixed generator and transfer switch must be elevated to the 500 year flood level.**

3. **Map and Photographs of Generator Location**

- Include Google map with the fixed generator site clearly marked.
- Provide high-resolution color photographs by email showing a front view, a side view, a back view and a street view of the structure with the fixed generator site clearly marked.

IV. **Structure Information**

1. **Critical Facility Type:**

- Police Station Fire Station Hospital Water Treatment Facility
- Wastewater Treatment Facility EOC Other _____

2. **Additional Data to Determine Cost Effectiveness**

Name of current electrical power provider: _____

Please include a power outage report for the critical facility which includes weather related events from a minimum of three different years, **refer to History of Hazards section.**

Power Outage Report Attached Yes No

V. Facility and Value of Service Data

1. For Water or Waste Water Services

Number of meters: _____

2. For Hospitals

Number of people served by this hospital: _____

What is the distance in miles between this hospital and the hospital that would treat these people in the event this hospital was inoperative: _____

Number of people served by the nearest hospital: _____

If service remained but displaced to new location, provide the number of days displaced _____ and costs _____

3. For Police Stations

Type of station Metropolitan City Rural

Number of people served by this police station: _____

Number of police officers who work at this location: _____

Number of police officers who would not work at this location in a power outage: _____

If service remained but displaced to new location, provide the number of days displaced _____ and costs _____

4. For Fire Stations

Type of station Urban Suburban Rural Wilderness (from USDA's Urban Influence Codes)

Number of people served by this fire station: _____

Distance in miles to next closest fire station that has backup power _____

Does Fire Station Provide EMS Yes No

If Fire Station provides EMS (Distance in miles to next closest fire station that could provide EMS service and has backup power): _____

5. For EOC

Type of EOC: Stand-alone structure Part of an existing structure

Use of existing structure: _____

Operation of EOC: Full time, daily Temporary, only upon activation

Annual Operating Budget: _____

Average Number of Days of Use per year: _____

6. For Other Facility _____

Annual budget(s) for the department(s) affected by loss of facility: _____

If service remained but displaced to new location, provide the number of days displaced _____ and costs _____

VI. Fixed Generator Budget

Do not include contingency costs in the budget. List all anticipated costs in detailed. Consider the potential future date of construction when compiling the cost estimate. **Please provide documentation for each budget item with detailed vendor(s) estimates.**

Site Location	Shipping and Installation	Generator	Fuel Tank	Concrete Pad for Generator (if needed)	Generator and Fuel Tank Elevation (if needed)	Facility Transfer Switch and connections (if needed)	Fuel for Initial Testing	Total Project Costs
Total	0	0	0	0	0	0	0	0

Annual Maintenance Cost: _____

Source of Maintenance Cost Estimate: _____

VII. GENERATOR DATA SHEET

1. Running Load (KW)	_____	Concrete Pad Dimensions			
2. Starting Load (KW)	_____	Length:	_____		
3. Is load being stepped in?	_____	Width:	_____		
4. Generator Specified (KW)	_____	Depth:	_____		
5. Generator Voltage	_____				
6. Single or Three Phase	_____				
7. Type of Controls	_____	_____			
	Automatic	Manual			
8. Type of Fuel	_____	_____	_____	_____	
	Gas	Diesel	Propane	Other	

Additional information/remarks (Select appropriately):

Generator Type: Fixed Portable

- Generator on slab, not in Special Flood Hazard Area- relevant codes and standards are stated in the application’s Scope of Work
- Generator on slab, in Special Flood Hazard Area- relevant codes and standards are stated in the application’s Scope of Work AND:
 - A letter provided by floodplain manager stating project complies with local floodplain ordinance
- Elevated generator, not in Special Flood Hazard Area- relevant codes and standards are stated in the application’s Scope of Work AND:
 - Certification from a Georgia registered engineer that the elevating structure is designed for the anticipated load to the structure including but not limited to wind, flood, snow, seismic
- Elevated generator, in Special Flood Hazard Area- relevant codes and standards are stated in the application’s Scope of Work AND:
 - A letter provided by the floodplain manager stating project complies with local floodplain ordinance
 - Certification from a Georgia registered engineer that the elevating structure is designed for the anticipated load to the structure including but not limited to wind, flood, snow, seismic

If portable, provide transport, hook up, and fuel supply and storage requirements at multiple facilities and how these will be executed.

I certify that I have visited the project site, performed all necessary tests, and have verified that the attached calculated loads and generator specifications will meet all requirements of this proposed installation as described in the Application’s description of work.

_____	_____	_____
Signature	Title	Date
_____	_____	_____
Print Name	Organization	Telephone Number

NOTES:

1. The generator must be installed in accordance with all applicable local and national building and electrical codes, in addition to the “Generator Codes and Standards”.
2. Please attach available information on proposed equipment, load and sizing data, etc.
3. The Applicant should develop and implement a generator maintenance plan which includes periodically exercising the generator under load.

THIS FORM MUST BE SIGNED BY A CERTIFIED ELECTRICIAN

Generator Codes and Standards

In accordance with the National Electrical Code

NOTE: Manufacturer's installation instructions will apply for all areas outside the flood hazard area. In the absence of manufacturer's instructions, the method of installation will be approved by the building official as related to the pad supporting the generator. Inside the flood area, a structure will be required for support of the generator to be designed by an engineer and approved by the building official and elevated 2 feet above base flood elevation.

430-14.*
17, 520,

530 and 665, shall also comply with the provisions of those Articles.

It is recommended that waterproof covers be provided for use in emergency.

445-2. Marking. Each generator shall be provided with a nameplate giving the maker's name, the rating in kilowatts or kilovolt-amperes, the normal volts and amperes corresponding to the rating, and the revolutions per minute.

445-3. Drip Pans. Generators shall be provided with suitable drip pans if required by the authority having jurisdiction.

445-4. Overcurrent Protection.

- (a) **Constant-Potential Generators.** Constant-potential generators, except alternating-current generators and their exciters, shall be protected from excessive current by circuit breakers or fuses.
- (b) **Two-Wire Generators.** Two-wire, direct-current generators may have overcurrent protection in one conductor only if the overcurrent device is actuated by the entire current generated, except that in the shunt field. The overcurrent device shall not open the shunt field.
- (c) **65 Volts of Less.** Generators operating at 65 volts or less and driven by individual motors shall be considered as protected by the overcurrent device protecting the motor if these devices will operate when the generators are delivering not more than 150 per cent of their full-load rated current.
- (d) **Balancer Sets.** Two-wire, direct-current generators used in conjunction with balancer sets to obtain neutrals for 3-wire systems shall be equipped with overcurrent devices which will disconnect the 3-wire system in the case of excessive unbalancing of voltages or currents.
- (e) **3-Wire, Direct-Current Generators.** Three-wire, direct-current generators, whether compound or shunt wound shall be equipped with overcurrent devices, one in each armature lead, and so connected as to be actuated by the entire current from the armature. Such overcurrent devices shall consist either of a double-coil circuit breaker, or of a 4-pole circuit breaker connected in the main and equalizer leads and tripped by two overcurrent devices, one in each armature lead. Such protective devices shall be so interlocked that no one pole can be opened without simultaneously disconnecting both leads of the armature from the system.

445-5. Size of Conductors. The conductors from the generator terminals to supplied equipment shall have an ampacity not less than 115 per cent of the nameplate current rating of the generator. Neutral conductors shall be the same size as the conductors of the outside legs.

445-6. Protection of Live Parts. Live parts of generators of more than 150 volts to ground shall not be exposed to accidental contact where accessible to unqualified persons.

445-7. Guards for Attendants. Where necessary for the safety of attendants the provisions of section 430-133 shall be complied with.

445-8. Grounding. If a generator operates at a terminal voltage in excess of 150 volts to ground, the frame shall be grounded in the manner specified in Article 250.* If the frame is not grounded, it shall be permanently and effectively insulated from the ground.

445-9. Bushings. Where wires pass through an opening in an enclosure, conduit box, or barrier, a bushing shall be used to protect the conductors from the edges of the opening having sharp edges. The bushing shall have smooth, well rounded surfaces where it may be in contact with conductors. If used where there may be a presence of oils, grease, or other contaminants, the bushing shall be made of a material not deleteriously affected.

*** 430.14. Location of Motors.**

- (A) **Ventilation and Maintenance.** Motors shall be located so that adequate ventilation is provided and so that maintenance, such as lubrication of bearings and replacing of brushes, can be readily accomplished.

Exception: Ventilation shall not be required for submersible types of motors.

- (B) **Open Motors.** Open motors that have commutators or collector rings shall be located or protected so that sparks cannot reach adjacent combustible material.

Exception: Installation of these motors on wooden floors or supports shall be permitted.

For each portable generator, please complete sections I through VIII in its entirety.

I. Project Description : Portable Generator for _____

II. History of Hazards

Provide a detailed power outage report for each critical facility that the portable generator will support. Include weather related events from a minimum of three different years. Indicate the cause of the power outage. This information should be obtained from your power provider. **The examples in bold qualify as weather related events.**

Date	Time of Outage	Duration (Minutes)	Outage Type	Description
Mon. Feb. 16, 2015	21:26:13 EST	623	Extreme Storm	Trees in Ice Storm
Tue. Jan. 07, 2014	17:41:34 EST	42	Lightning	Lines clear, fault on breaker
Tue. Jan. 07, 2014	06:37:00 EST	75	Equipment Fault	Cracked Insulator
Thu. Dec. 19, 2013	13:31:40 EST	47	Trees-Other	Lines down due to trees

III. Portable Generator Storage Location

1. Name of facility, physical address (including city and zip code).

Digital Latitude: _____ **Digital Longitude:** _____

***Digital Latitude and Digital Longitude coordinates need to be in Decimal Degrees. The coordinates should be for the storage unit, not the main building of the facility.**

Facility Year Built: _____

2. Flood Insurance Rate Map (FIRM) showing Portable Generator Storage Location. The portable generator storage location cannot be located in a special flood hazard area.

Attach a copy of the panel(s) from the FIRM.

- VE or V 1-30
- AE or A 1-30
- AO or AH
- A (no base flood elevation given)
- B or X (shaded)
- C or X (unshaded)

3. Map and Photographs of Portable Generator Storage Location

- Include Google map with the portable generator storage site clearly marked.
- Provide high-resolution color photographs by email showing a front view, a side view, a back view and a street view of the structure with the portable generator site clearly marked.

IV. Structure Information for Critical Facility that will be served by the Portable Generator

1. Critical Facility Type:

- Police Station Fire Station Hospital Water Treatment Facility
- Wastewater Treatment Facility EOC Other _____

2. Additional Data to Determine Cost Effectiveness

Name of current electrical power provider: _____

Please include a power outage report for the critical facility which includes weather related events from a minimum of three different years, **refer to History of Hazards section.**

Power Outage Report Attached Yes No

V. Facility and Value of Service Data (Provide information for each structure that will be served by the Portable Generator)

1. For Water or Waste Water Services

Number of meters: _____

2. For Hospitals

Number of people served by this hospital: _____

What is the distance in miles between this hospital and the hospital that would treat these people in the event this hospital was inoperative: _____

Number of people served by the nearest hospital: _____

If service remained but displaced to new location, provide the number of days displaced _____ and costs _____

3. For Police Stations

Type of station Metropolitan City Rural

Number of people served by this police station: _____

Number of police officers who work at this location: _____

Number of police officers who would not work at this location in a power outage: _____

If service remained but displaced to new location, provide the number of days displaced _____ and costs _____

4. For Fire Stations

Type of station Urban Suburban Rural Wilderness (from USDA's Urban Influence Codes)

Number of people served by this fire station: _____

Distance in miles to next closest fire station that has backup power _____

Does Fire Station Provide EMS Yes No

If Fire Station provides EMS (Distance in miles to next closest fire station that could provide EMS service and has backup power): _____

5. For EOC

Type of EOC: Stand-alone structure Part of an existing structure

Use of existing structure: _____

Operation of EOC: Full time, daily Temporary, only upon activation

Annual Operating Budget: _____

Average Number of Days of Use per year: _____

6. For Other Facility _____

Annual budget(s) for the department(s) affected by loss of facility: _____

If service remained but displaced to new location, provide the number of days displaced _____ and costs _____

VI. **Location of Structures that will be served by the Portable Generator**

Structure Name	Address	Zip Code	Year Built	Will Require Modification To Add Transfer Switch To Outside Of Structure (Yes or No)	Latitude/ Longitude

***Latitude and Longitude coordinates need to be in Decimal Degrees. The coordinates should be where the portable generator connects to each of the listed structure names.**

1. Include Flood Insurance Rate Map (FIRM) showing each structure

- Attach a copy of the panel(s) from the FIRM.
 - VE or V 1-30*
 - AE or A 1-30*
 - AO or AH*
 - A (no base flood elevation given)*
 - B or X (shaded)
 - C or X (unshaded)

***If located in the above zones with an asterisk, the transfer switch must be installed to the 500 year flood level.**

2. Map and Photographs showing each structure

- Include Google map with the structure clearly marked.
- Provide high-resolution color photographs by email showing a front view, a side view, a back view and a street view of the structure.

VII. Portable Generator Budget

Do not include contingency costs in the budget. List all anticipated costs in detailed. Consider the potential future date of construction when compiling the cost estimate. **Please provide documentation for each budget item with detailed vendor(s) estimates.**

Site Location	Shipping and Installation	Generator	Fuel Tank	Generator and Fuel Tank Elevation (if needed)	Facility Transfer Switch and connections (if needed)	Fuel for Initial Testing	Total Project Costs
Total	0	0	0	0	0	0	0

Annual Maintenance Cost: _____

Source of Maintenance Cost Estimate: _____

Generator Codes and Standards

In accordance with the National Electrical Code

NOTE: Manufacturer's installation instructions will apply for all areas outside the flood hazard area. In the absence of manufacturer's instructions, the method of installation will be approved by the building official as related to the pad supporting the generator. Inside the flood area, a structure will be required for support of the generator to be designed by an engineer and approved by the building official and elevated 2 feet above base flood elevation.

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comply with the provisions of those Articles.

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- (h) **65 Volts or Less.** Generators operating at 65 volts or less and driven by individual motors shall be considered as protected by the overcurrent device protecting the motor if these devices will operate when the generators are delivering not more than 150 per cent of their full-load rated current.
- (i) **Balancer Sets.** Two-wire, direct-current generators used in conjunction with balancer sets to obtain neutrals for 3-wire systems shall be equipped with overcurrent devices which will disconnect the 3-wire system in the case of excessive unbalancing of voltages or currents.
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Exception: Ventilation shall not be required for submersible types of motors.
- (D) Open Motors. Open motors that have commutators or collector rings shall be located or protected so that sparks cannot reach adjacent combustible material.
Exception: Installation of these motors on wooden floors or supports shall be permitted.