Temporary Generator Connection

This EOP provides guidelines and a standard procedure for connecting a temporary generator to the Main Distribution Board (MDB) if the onsite generators are inoperative.

**Important**: Only qualified electricians are permitted to perform the electrical connections described in this procedure.

**Important**: This procedure only applies to Caterpillar (CAT) generators.

Use this EOP if the generator fails in an emergency situation, if the generator does not perform correctly during exercises, or if the generator must be offline for maintenance.

# References

## Authorization

## Training/Certification

## Equipment/Information

## Policies

## Related Procedures

# Security Considerations

# Connecting a Temporary Generator

Use the following procedures to connect a temporary generator:

A. Contact the vendor to dispatch a generator unit to your site

B. Prepare for the temporary generator connection

C. Connect a temporary generator to the MDB

D. Start the temporary generator

The Two-Man Rule applies to all the procedures in this EOP.

**Two-Man Rule:** Two people are required to perform any procedure that involves working on energized electrical equipment at 600 volts or greater. Both persons must understand the entire procedure before performing any step of the procedure. One person will read, observe, and verify the performance of each step; both persons must identify and agree which control will be manipulated before executing a change in state; the second person performs each step only when instructed to do so.

## Order a temporary generator

1. Contact the generator vendor to dispatch a temporary generator unit.
2. Provide/request the following information when you order the unit:
   * Sizing and capacity based on the load requirements
   * Information about whether the existing generator setup requires Neutral cables going into the building
   * Megaohm-testing certification of cabling, if possible
3. When the generator is delivered, verify that it starts.

## Prepare for the temporary generator connection

1. Inspect all cabling whips to ensure that they are visually inspected for:
   * Physical damage
   * Exposed wiring
   * Loose connections
   * Proper rating
   * Sufficient insulation to handle the temporary generator load (the general rule is 360 amps per 4/0 cable in free air)
2. Verify that the generator fuel level is greater than three-quarters (3/4) full before start-up.
3. Important: For the duration of the emergency, you must monitor and make sure that the level falls no lower than one-quarter (1/4) of a tank before refueling again.
4. Verify that the phasing is correct: A-to-A, B-to-B, and C-to-C phases are mapped correctly from source to generator.
5. Verify that the phase rotation matches the existing data center phase rotation–normally clockwise rotation. This information should be indicated at the switchboard.
6. Briefly check the cabling before connecting the generator to the MDB:
   * The proper cabling layout is flat on the ground.
   * No cables are stacked upon one another.
   * Cables must be free from potential hazards that might compromise the electrical safety or connectivity.1[[1]](#footnote-1)
   * The number of tails depends on the load that the generator supports.
   * Refer to DCGS\_Generator-Cabling-Requirements (.xls) for specific generator information by site.

## Connect the temporary generator to the MDB

1. Install the appropriate number per phase of 4/0 cables to the A phase or E1 terminal.
2. Verify the correct installation of the cables on the A phase.
3. Install the appropriate number per phase of 4/0 cables to the B phase or E2 terminal.
4. Verify the correct installation of the cables on the B phase.
5. Install the appropriate number per phase of 4/0 cables to the C phase or E3 terminal.
6. Verify the correct installation of the cables on the C phase.
7. Install the appropriate number of 4/0 cables to the Neutral or EN terminal, if necessary.
8. Verify the correct installation of the cables on the Neutral phase.
9. Install the appropriate number of 4/0 cables to the Ground terminal, if necessary.
10. Verify the correct installation of the cables on the Ground terminal.
11. Verify a source of 120/208 VAC is available for connecting Shore Power to the temporary generator.
12. Connect the start wires from the generator being taken out of service to the temporary generator.

## Start the temporary generator

1. Verify that the phasing and phase rotation are correct (see Connecting a Temporary Generator).
2. At the temporary generator (control panel), start the generator and verify the following :
   1. Generator is running and using the correct phase rotation (normally clockwise)
   2. Voltage levels are correct

## Document Properties

|  |  |
| --- | --- |
| **Property** | **Value** |
| Site Code | DCA |
| Filename | dca\_dceo\_eop\_temporaty-generator |
| Title | Temporary Generator Connection |
| Version number/Date version published | Draft |
| Doc Type | EOP |
| Zone | Region |
| Technical Owner | swilleye@ |
| Technical Writer | beelliot@ |
| Affected Equipment | Generator |
| Sensitivity rating | Amazon Confidential |
| Origin | Commercial version |
| URL | TBD |
| Physical location | TBD |
| Audience | EOT |
| Renewal date | 1/1/15 |
| Special requirements | NA |
| Safety considerations | NA |
| Physical requirements | NA |

## Status

|  |  |  |
| --- | --- | --- |
| **Status** | **Date mm/dd/yy** | **Approver/Reviewer Name** |
| Original filed |  | NA |
| Writer sent to SME for review |  | NA |
| SME sent to Writer |  | NA |
| Writer sent to SME for approval |  | NA |
| SME approved |  |  |
| Writer copy edited |  | NA |
| Site Manager approved |  |  |
| Regional Manager approved |  |  |
| Writer published |  | NA |

1. From the National Electrical Code, 2011 edition, Articles 520, 525, and 530. [↑](#footnote-ref-1)