Utility Outage Procedures

This EOP provides standard procedures for operational personnel to follow in the event of a utility power outage.

**Important:** Personal protective equipment (PPE) required is task and equipment specific based on completed Hazard Risk Analysis. Refer to the DCGS Safety Manager for more information.

**Important:** If a critical equipment failure occurs while you are performing this procedure, immediately stop all work and contact the onsite electrician.

# References

## Authorization

## Training/Certification

## Equipment/Information

## Policies

## Related Procedures

# Security Considerations

# Problem Indication

Perform the following procedures in the order shown below when the utility circuit breaker is tripped and the generator takes over the load:

1. Notify your team and management
2. Verify switchboard response
3. Follow lockout/tagout procedures
4. Verify electrical room equipment operation
5. Determine Catcher status
6. Verify pod operation
7. Verify mechanical operation
8. Check Building Management System (BMS) to ensure all systems are online
9. Check critical equipment alarms
10. Prepare an IR or COE

## Notify your team and management

1. Send outage status to your team.
2. Send outage status to management.

**Important:** In the following procedure, you will verify that the switchboard has correctly transferred the load to generator. If for any of the steps you are unable to verify normal operation with the load on the generator source, refer to the appropriate Switchboard Transfer EOP for your data center.

## Verify switchboard response

1. Verify that the generator main breaker has closed to ensure that the PLC program has automatically provided emergency generator power :
   * The red CLOSED indicator light is illuminated
   * The green OPEN indicator light is out
   * The breaker status window indicates CLOSED

**Important:** If the PLC is unavailable, refer to the appropriate switchboard transfer EOP for your data center.

1. Verify the generator is now carrying the load. The trip unit indicates it is carrying the switchboard’s normal operating load.

**Note:** If this is a mechanical switchboard (MSB), it may take several minutes for the load to return to pre-transfer levels.

1. Verify that downstream equipment is operating normally:
   1. Verify that the downstream UPSs are out of alarm.
   2. Verify that critical downstream equipment is running normally without interruption.

## Follow lockout/tagout procedures

* Follow lockout/tagout procedures when performing maintenance or services on electrical systems or configurations. For more information, refer to the following DCGS Administrative Practices document: Data Center Lockout/Tagout Rules

## Verify electrical room equipment operation

1. Verify that each UPS input breaker is carrying load (i.e. has amps).
2. For each UPS, verify that its associated Maintenance Bypass Panel (MBP) is operating normally.
3. For each UPS, verify that its associated power distribution unit (PDU) and other associated downstream equipment are operating normally.

## Determine Catcher status

1. Inspect the Catcher switchboard to verify that there is no load on the Catcher.
2. If the Catcher is drawing current, identify which pod has the problem and go to the Verify pod operation procedure.

**Important:** If the load was transferred to the Catcher, forcing the load back to the primary feed can result in multiple rack drops. This transfer back to the primary feed must be under Change Management (CM) control in cooperation with Technical Operations (TOS) to mitigate customer impact.

## Verify pod operation

1. Go to the affected pod and inspect the routers and associated devices to verify all power supplies are operating normally without any alarms.
2. Visually inspect each rack to ensure the rack is powered-up and that all switches and hosts are online.
3. If you encounter problems contact the data technicians and after you have performed the next procedure, Verify mechanical operation, be prepared to assist with the pod recovery effort.
4. If the ambient temperature in the pod is over 105º F, locate and push the EVAC Button to activate the free air cooling mode.
5. If you encounter further problems, contact the on-call DCE operations engineer by phone, pager, or email.

## Verify mechanical operation

1. At the mechanical room, ensure all chillers, cooling towers, pumps, and associated variable frequency drives (VFDs) are online and operating normally.

**Note:** At data centers with the mechanical ATS sequence of operations program, some of the CRAC units and pumps have been programmed to transfer to emergency power automatically; however, you must verify and reset failed equipment as necessary.

1. If you encounter problems contact the HVAC technicians.

## Check BMS to verify all systems are online

1. Log into the Power Logics for electrical events and verify that all systems are online and functioning properly.
2. If there are alarms and it’s determined that the alarms are the result of a controls device failure, contact the on-call DCE controls engineer by phone and assign an appropriate severity level trouble ticket for tracking.
3. Log into the BMS for mechanical and verify that all systems are online and functioning properly.
4. If there are alarms and it’s determined that the alarms are associated with a controller device failure, contact the on-call DCE controls engineer by phone and assign an appropriate severity level trouble ticket for tracking.

## Check critical equipment

1. Observe all critical equipment for abnormal alarms.
2. If there are alarms, contact the onsite electrician immediately.
3. Physically inspect each generator for faults.
4. Record generator fuel consumption readings hourly for the duration of the outage.

## Prepare an IR or COE

1. If a critical system was affected by the outage, complete an Incident Report (IR) or Correction of Errors (COE).
2. As necessary, open, update, or resolve any issues through the trouble ticketing process.

## Document Properties

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| --- | --- |
| **Property** | **Value (replace explanation text with info)** |
| Site Code | DCA |
| Filename | dca\_dceo\_eop\_utility |
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| Version number/Date version published | Draft |
| Doc Type | EOP |
| Zone | Region |
| Technical Owner | swilleys@ |
| Technical Writer | beelliot@ |
| Affected Equipment | All electrical |
| Sensitivity rating | Amazon Confidential |
| Origin | Commercial version |
| URL | TBD |
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| Audience | EOT |
| Renewal date | 1/1/15 |
| Special requirements | NA |
| Safety considerations | NA |
| Physical requirements | NA |

## Status

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| --- | --- | --- |
| **Status** | **Date mm/dd/yy** | **Approver/Reviewer Name** |
| Original filed |  | NA |
| Writer sent to SME for review |  | NA |
| SME sent to Writer |  | NA |
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