

***OPERATING PROCEDURE***

***MANUAL***

**Shift Supervisor**

**Desk**

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# 1. Introduction

## 1.1 Purpose

This Manual provides the Shift Supervisor with information to assist in addressing technical and operational issues, disturbances, system performance, and reports. This procedure guides the Shift Supervisor in addressing responsibilities to supervise system operators working on each of the desks in the control room: Reliability Unit Commitment, Reliability Risk, Transmission and Security, DC-Tie, Real-Time, and Resource Desks.

This procedure also instructs performance on several tasks specific to the Shift Supervisor.

## 1.2 Scope

This procedure governs tasks assigned to the Shift Supervisor. These include oversight of control room operations, personnel, and response on grid issues. It also includes specific guidance on processing dispatching complaints, creating, and reviewing NERC reports, and assessing resource performance in relation to the provision of ancillary services.

Although the steps within the procedures are numbered, the numbering is for indexing purposes and are not sequential in nature.  The system operator will determine the sequence of steps, exclude steps, or take any additional actions required to ensure system security based on the information and situational awareness available during both normal and emergency conditions.

## 1.3 Roles/Responsibilities

Shift Supervisor

The Shift Supervisor is responsible for carrying out the procedures contained in this manual and the supervision of all the Control Centers’ positions.

The Shift Supervisor’s primary responsibility will be to provide support to the System Operators in performing their daily tasks. The Shift Supervisor is expected to understand the processes and procedures behind the Control Center to coordinate the efforts of the different desks and improve the quality of output produced each day by the System Operators. Therefore, the Shift Supervisor will be responsible for understanding the roles, duties, and tasks performed at each of the system operations’ desks.

For more information on these roles, duties, and tasks, please reference the Operating Procedure Manuals for each of the System Operator Desks:

* Reliability Unit Commitment (RUC)
* Reliability Risk
* Transmission and Security
* Real-Time
* Resource
* DC-Tie

# 2. General

## 2.1 System Operator Responsibility and Authority

**Procedure Purpose:** To ensure the System Operators know their roles, responsibility and authority.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** | **6.5.1.1** | **6.5.1.2(3)** | **6.5.2** | **6.5.3(1)** |
| **Guide Reference** | **4.5.2(1)** |  |  |  |
| **NERC Standard** |  |  |  |  |

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ERCOT ISO as a Transmission Operator (TOP), the single Balancing Authority (BA), and only Reliability Coordinator (RC) registered within the ERCOT Interconnection shares all information between these roles simultaneously and acts concurrently as a single entity, satisfying coordination between the TOP, BA, and RC.

The System Operator (SO) shall, in accordance with NERC Reliability Standards and ERCOT Protocols, have clear decision-making authority to act to address the reliability of its Reliability Coordinator Area by direct actions or by issuing Operating Instructions during both normal and emergency conditions. These actions shall be taken without delay and may include shedding of firm load without obtaining approval from higher-level personnel.

The SO on duty is, in accordance with the ERCOT Protocols, Operating Guides, and NERC Reliability Standards, and acting as the Balancing Authority, Transmission Operator, and Reliability Coordinator shall request and receive information required to continually monitor the operating conditions which will assure security and reliability of the ERCOT system.

The SO issues Dispatch Instructions / Operating Instructions for the Real-Time operation of Transmission Facilities to a TO, and to a QSE for the Real-Time operation of a Resource.

The SO shall, on an ERCOT-wide basis, coordinate the ERCOT System Restoration (Black Start) Plan. The SO shall implement the Black Start Plan and shall direct the reconnection efforts of the islands, established by restoration activities.

The SO shall consider all equipment operating limits when issuing Dispatch Instructions / Operating Instructions. During Emergency Conditions, the SO may verbally request QSEs to operate its Resources outside normal operating parameters. If a Dispatch Instruction conflicts with a restriction placed on equipment by a TO or QSE to protect the integrity of equipment, ERCOT shall honor the restriction.

The SO performs security analyses on a Day Ahead and real-time basis and ensures all Forced Outages are entered into the Outage Scheduler. The SO shall obtain or arrange to provide emergency energy over the DC Tie(s) on behalf of ERCOT.

The SO shall issue appropriate OCNs, AAN’s, Advisories, Watches, and Emergency Notices, and coordinate the reduction or cancellation of clearances, re-dispatch of generation, and request, order, or take other action(s) that the SO determines is necessary to maintain safe and reliable operating conditions on the ERCOT system in accordance with ERCOT Protocols, Operating Guides, and NERC Reliability Standards. The SO will implement and terminate ERCOT Time Corrections, and will determine the need for and implement the operation of a Qualified Scheduling Entity (QSE) on Constant Frequency Control for loss of ERCOT’s load frequency control system.

The SPP DC-Tie processes, procedures, or plans that support or affect SPP shall be reviewed at least once every 3 years and updated if needed. These would include any DC-Tie procedures, inadvertent energy procedures, and emergency procedures.

## 2.2 Communication

**Procedure Purpose:** To ensure proper communication is used to reduce the possibility of miscommunications that could lead to action or inaction harmful to the reliability of the grid.

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| **Protocol Reference** | **6.5.7.8** |  |  |  |
| **Guide Reference** | **3.1.3** |  |  |  |
| **NERC Standard** | **COM-002-4**  **R5, R7** |  |  |  |

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| **Step** | **Action** |
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| Three-Part Communication | |
| **Note** | * Operating Instruction and Dispatch Instructions are synonymous * Refer to the Communications Protocols document for requirements. |
| **1** | When issuing Operating Instructions, use three-part communication:   * Issue the Operating Instruction * Receive a correct repeat back * Give an acknowledgement |
| **2** | Many scripts have been placed throughout the procedures as a reminder for the three-part communication. However, a script cannot be provided for every scenario. Effective three-part communication skills are mandatory. |
| Hotline Call Communication | |
| **1** | When making Hotline calls, ensure one every repeats back the message.  **IF:**   * Time and circumstances allow;   **THEN:**   * Review the Consortium hotline attendance report to verify all TOs or QSEs were in attendance * Contact the TO or QSE using their OPX line or LD line to provide them with the message * Inquire why they were not on the Hotline call * Open a Help ticket if ERCOT’s Telecommunications department is needed to investigate. |
| Master QSE | |
| **1** | Issue the VDI to the Master QSE of a Generation Resource that has been split to function as two or more Split Generation Resources as deemed necessary by ERCOT to effectuate actions for the total Generation Resource for instances when electronic Dispatch Instructions are not feasible. |
| **Log** | Log all actions. |

# 3. Review and Analyze System Security

## 3.1 Review Load Forecast

**Procedure Purpose:** Load forecast should be as accurate as possible.

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| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** |
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| **Note** | The EMMS systems provide two places where Mid-term Load Forecasts can be reviewed:   * The EMS Load Forecast (LF) application provides an online load forecast. * The MMS replicates the load forecast information in the daily operating plan display summaries.   The EMS online Load Forecast is considered the primary source for the mid-term Load Forecast information. The MMS load forecast summaries contained in the daily operating plan contain the same information however it depends on updates from the EMS LF tool to have current data. Therefore the MMS daily operating plan load forecast summary may contain older data than the EMS LF application.  The MMS LF information should only be used during the day in case the EMS LF function is temporarily un-available. |
| **1** | Navigate to the EMS online load forecast study results and history displays.  **REVIEW REFERENCE DISPLAY:**  EMS Applications>Load Forecast>Related Displays>Mid-Term Forecasts (MLTF)>Load Forecast and Select the Day   * Data – All current forecasts displayed * Chart – Current graph |
| **2** | IF the EMS online load forecast application is unavailable, REPORT failure to Service Desk and go to step 5. OTHERWISE, go to step 3. |
| **3** | Review the mid-term load forecast for each hour shown. |

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| **4** | IF any anomalies are detected, consult with the control room staff. |
| **5** | Navigate to the MMS daily operation plan displays.  **REVIEW REFERENCE DISPLAY:**  Market Operation>Reliability Unit Commitment>HRUC Displays>UC Displays>Output Display Menu>System Outputs>Summary  **VERIFY:**   * Input data * Updated Time * Results are reasonable |

## 3.2 Capacity and Reserve Monitoring

**Procedure Purpose:** To monitor capacity for SCED dispatch and total system capacity for providing Ancillary Services.

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| **Protocol Reference** | **3.1.6.9(8)** | **6.5.9.1(1)(a)** | **6.5.7.6.2.3(1)** |  |
| **Guide Reference** | **2.2.1(3)(a)** |  |  |  |
| **NERC Standard** | **EOP-011-4 R2, R2.1** |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| Capacity Monitoring | |
| **1** | Monitor the PUCT lookahead Margin:  **IF:**   * Load forecast is reasonable AND “Committed Capacity Margin” shows < 6,500MW Committed Capacity Margin;   **THEN:**   * Verify that HRUC has identified the insufficient capacity situation. |
| **2** | Monitor the 7-Day Load and Capacity Outlook:  **IF:**   * Load forecast is reasonable AND Load Forecast exceeds Committed Capacity;   **THEN:**   * Verify that HRUC has identified the insufficient capacity situation. |
| **3** | **IF:**   * HRUC has not identified the insufficient capacity;   **THEN:**   * Discuss with the RUC Operator and verify that HRUC is using a reasonable forecast AND update if necessary, * Ensure Resource commitments are being made, if needed. |
| **4** | **Triggers to deploy Non-Spin**  **MONITOR:**  The Generation Area Status Page and the Non-Spin Deployment Trigger display  **WHEN:**   * PRC < 3200 MW and not expected to recover within 30 minutes without deploying reserves   **THEN:**   * Verify that the Resource Desk Operator has deployed a group(s) or all of the available Non-Spin capacity.   **IF:**   * Projected Ramp Available in 30min < -300;   **THEN:**   * Verify that the Resource Desk Operator has deployed half of the available groups of Non-Spin.   **IF:**   * Projected Ramp Available in 30min < -500, OR * PRC is < 3000 MW;   **THEN:**   * Verify that the Resource Operator has deployed the available groups of Non-Spin, as needed.   **IF:**   * Additional capacity is required,   **THEN:**   * Verify the RUC Operator is aware of the requirement to RUC commit additional Resources for the next hour. |
| **5** | During periods of low load and excess generation:  **PERIODICALLY REVIEW:**   * Splunk Dashboard Viewer under the MOS\_Dev folder:   + “Last Approved HRUC Capacity” which is based on the last ran HRUC solution   **IF:**   * Load forecast is reasonable AND the decision needs to be made in the near future,   **THEN:**   * Decommit generation from the HRUC next study,   + Priority should be on Resources that resolve congestion;   **IF:**   * The decision needs to be made immediately,   **THEN:**   * Request RUC Operator to issue electronic Dispatch Instruction confirmation. |
| **Log** | Log all actions. |
| Large Load Curtailment Program | |
| **ERCOT Large Load Curtailment Requested** | **WHEN:**   * PRC < 3200 MW and not expected to recover within 30 minutes without deploying reserves AND; * All Non-Spin has been deployed AND; * Available ERCOT Large Load Voluntary Curtailment Program Participants   **THEN:**   * Initiate X-Matters notification to all ERCOT Large Load Voluntary Curtailment Program Participants ERCOT is requesting to curtail consumption OR: * Request Director Control Room Operations and/or Designee to make notification. * Ensure Real Time Desk, Resource Desk, and Transmission & Security Desk make postings and Hotline Call Notifications. |
| **ERCOT Large Load Curtailment Request Ended** | **WHEN:**   * ERCOT Large Load Voluntary Curtailment Program Participants are no longer needed   **THEN:**   * Initiate X-Matters notification to all ERCOT Large Load Voluntary Curtailment Program Participants that request to curtail consumption ended OR: * Request Director Control Room Operations and/or Designee to make notification. * Ensure Real Time Desk, Resource Desk, and Transmission & Security Desk make postings and Hotline Call Notifications. |
| **Log** | Log all actions. |
| Advance Action Notice (AAN) | |
| **Definition** | An Advance Action Notice (AAN) is a type of Operating Condition Notice (OCN) that identifies a possible future Emergency Condition and describes future action ERCOT expects to take to address that condition unless the need for ERCOT action is alleviated by Qualified Scheduling Entity (QSE) and/or Transmission Service Provider (TSP) actions or by other system developments |
| **Note** | ERCOT may issue an (AAN) in anticipation of a possible Emergency Condition. Any AAN will identify actions ERCOT expects to take to address the possible Emergency Condition unless the need for ERCOT action is alleviated by QSE and/or TSP actions taken, or by other system developments that occur, before a time stated in the AAN. |
| **Time Periods** | ERCOT shall issue the AAN a minimum of 24 hours prior to performing an Outage Adjustment Evaluation (OAE). Additionally, unless impracticable, the OAE should not be performed until eight Business Hours have elapsed following issuance of the AAN. ERCOT shall not issue an Outage Scheduler Adjustment (OSA) under this section unless it has first completed an OAE. |
| **1** | **IF:**   * While reviewing the 7-Day Load and Capacity Outlook or when notified by System Operations Management, Outage Coordination Management or Operations Support Management, ERCOT forecasts an inability to meet applicable transmission reliability standards and has exercised all other reasonable options AND; * There are Resources with approved or accepted Resource Outages, whose approval or acceptance could be withdrawn to meet the applicable transmission reliability standards   **THEN:**   * In coordination with System Operations Management, Outage Coordination Management and Operations Support Management, issue an Advance Action Notice (AAN) |
| **2** | As conditions change, ERCOT shall, to the extent practicable, update the AAN in order to provide simultaneous notice to Market Participants.  **IF:**   * Conditions change;   **THEN:**   * In coordination with System Operations Management, Outage Coordination Management and Operations Support Management. Update the AAN. |
| **3** | **IF:**   * Planned Resource Outages which can feasibly be returned to service;   **THEN:**   * In coordination with System Operations Management, Outage Coordination Management and Operations Support Management. Instruct QSEs to restore Planned Resource Outages which can feasibly be returned to service. |
| **4** | **IF:**   * In coordination with System Operations Management, Outage Coordination Management and Operations Support Management, the OSA process has executed.   **THEN:**   * Notify QSEs of executing the OSA process |
| **5** | **WHEN:**   * ERCOT determines that the possible Emergency Condition has been alleviated by QSE or TSP action, by ERCOT action, or by other system developments;   **THEN:**   * In coordination with System Operations Management, Outage Coordination Management and Operations Support Management, cancel the Advance Action Notice (AAN) AND; * Cancel ERCOT Website message(s). |
| **Log** | Log all actions. |

## 

## 3.3 Disseminating Information to System Security Response Group (SSRG)

**Procedure Purpose:** To communicate information concerning disturbances or unusual occurrences to appropriate parties in the Interconnection.

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| **Protocol Reference** |  |  |  |  |
| **Guide Reference** | **3.8(4)** |  |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** |
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| **Note** | Threat alerts can be viewed at either of the following links:  <https://www.eisac.com/>, OR  <http://www.dhs.gov/files/programs/ntas.shtm>  The definitions for the threat alert levels are listed in the Security Alert Plan which can be found in the Operating Procedure Manual.  Reference the ERCOT Cyber Response Plan and the Cyber Intrusion Guide for System Operators located in the System Operator Procedure Books for additional information. |
| **Note** | * The SSRG e-mail exploder list is used to disseminate information to the SSRG members of the ERCOT Region when an SSRG conference call is not necessary. * This information is intended for use within the industry and not for public release. * At the beginning of each e-mail state the follow **“This information is intended for use within the industry and not for public release”** * At the bottom of each e-mail, be sure to include a Confidentiality Notice and your signature. * The Reliability Coordinator Information System (RCIS) is used to disseminate information to other RCs in other Interconnections. * **Do not** list the entity name on the SSRG e-mails or on the RCIS. |
| Events not Considered an Act of Suspected Sabotage | |
| **1** | **IF:**   * A TO or QSE reports an event that is not considered an act of suspected sabotage, such as the following:   + Copper thefts   + Substation break-in   + Vandalism   + Malicious mischief   + Suspicious photos   **THEN:**   * Disseminate this information using the ‘SSRG’ distribution list:   + State in the e-mail that the event is “*currently not considered as an act of suspected sabotage”*.   + State the county of the event |
| **2** | **MONITOR:**   * The RCIS (CIP Free Form) for ERCOT events which meet the criteria in step 1 that should be disseminated to SSRG;   **THEN:**   * Follow instructions in step 1 to disseminate the information |
| **Log** | Log all actions. |
| Suspected Sabotage or Sabotage Events | |
| **Physical** | When notified by Physical Security of an actual or suspected physical sabotage at the ERCOT facilities, refer to section 6.1 for reporting requirements. An RCIS posting and SSRG email may also be required. |
| **Cyber** | When notified by Cyber Security of an actual or suspected event at ERCOT, coordinate reporting responsibilities (Refer to section 6.1 for reporting requirements). An RCIS posting (CIP Free Form) and SSRG email may also be required. |
| **ERCOT**  **Event** | **Refer to Cyber Intrusion Guide and Cyber Security Incident Response Plan located in procedure binder.**  **IF:**   * Unusual system behavior is observed;   **THEN:**   * Contact Service Desk to notify Cyber Security team and follow their instructions. When describing the issue, include details on the observed and potential impacts of the situation. * If the Cyber Security Incident response plan has been initiated, the reporting instruction of the plan will be followed. * Send an email to “SysOpsMgrs” when a NERC or DOE reporting event occurs or if suspected to occur and verify it was received due to potential time constraints on report submissions |
| **Entity**  **Event** | **IF:**   * A TO or QSE reports an act of suspected sabotage or a sabotage event, including cyber;   **THEN:**   * Verify that entity notified law enforcement and/or the FBI, * Disseminate the information using the ‘SSRG’ distribution list:   + State in the e-mail that the event is considered “*an act of suspected sabotage* OR *further investigation/information is needed to determine if event is an act of suspected sabotage,”*   + State the county the event occurred   **ONCE:**   * Enough information has been received;   **NOTIFY:**   * TOs and QSEs via Hotline with information you have, * Post on the RCIS using “CIP Free Form”, * Coordinate with the Director Control Room Operations and/or send an email to “SysOpsMgrs” when an event occurs or if suspected to occur and verify it was received due to potential time constraints on report submissions. Designee can help determine if procedure 3.4 SSRG Conference Calls is necessary and for any NERC and DOE reporting requirements.   **Typical Hotline Script:** “This is ERCOT operator [first and last name], \*\*\*This call contains Privileged Information and/or Critical Energy infrastructure Information and is Not to be released to the Public\*\*\* at [xx:xx], ERCOT notified the System Security Response Group (SSRG) of a suspected sabotage event [give information]. Please notify your SSRG representative.”  [TO/QSE] please repeat this back to me.”  If repeat back is **Correct**, “That is correct, thank you”  If **INCORRECT**, repeat the process until the repeat back is correct. |
| **2** | **WHEN:**   * Updates are received;   **THEN:**   * Send an updated e-mail to the ‘SSRG’ distribution list, * Update RCIS posting as needed |
| **Log** | Log all actions. |

## 3.4 SSRG Conference Calls

**Procedure Purpose:** To communicate information concerning disturbances or unusual occurrences to appropriate parties in the ERCOT Region by making a SSRG conference call.

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| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** |
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| **Note** | The SSRG conference call will be used to inform the SSRG members of suspected sabotage or sabotage events, including multi-site sabotage events affecting larger portions of the Interconnection. The SSRG conference call will also be used for the following:   * When the Threat Alert Level has increased, * To disseminate information and develop plans related to system emergencies and business continuity threats, * To conduct quarterly tests with the minimum objective of reviewing and updating the contact list (test to be conducted in February, May, August and November); AND * For any other events as warranted by the Director Control Room Operations and/or Designee   Refer to Hotline and email scripts below for notifications. |
| **Threat & Emergency Classifications** | **Threats and emergencies can be classified as, but are not limited to, the following four SSRG event-types:**  **1. Internal to ERCOT ISO:**  **Physical Security:**  Verifiable attacks or sabotage, or threats of attacks or sabotage that could jeopardize the operation of physical equipment within the electrical boundaries of the ERCOT grid that have a direct effect on the reliability of the ERCOT grid. This could be, but is not limited to, generation equipment, transmission equipment, and communication equipment.  **b. Cyber Security:**  Verifiable loss of control of the ERCOT EMS or MMS that is identified by GMS Support as an actual or probable act of sabotage or the loss of control by any TOs or QSEs EMS Systems that is reported to ERCOT as an act of sabotage.  **2. External to ERCOT ISO:**  **a. Physical Security:**  Verifiable attacks or sabotage, or threats of attacks or sabotage that could jeopardize the operation of physical equipment in any electrical sector outside of the boundaries of ERCOT.  **b. Cyber Security:**  Verifiable loss of control over the EMS System of any participant in the electrical sector outside of the boundaries of ERCOT that is identified as an actual or probable act of sabotage.  **3. Pandemic**  **4. Other unforeseen business continuity events** (not to include grid instability) |
| **QSE Notification** | Using the Hotline, notify the QSEs of the SSRG conference call:  **Typical Hotline Script:**  “This is [first and last name] at ERCOT. There will be an SSRG conference call today at [time] Central Prevailing Time. The topic will be [quarterly test call, physical security, cyber security, pandemic or other topic]. Please notify your SSRG representative. The conference call number is 1-877-304-9269. Participants pass code is [code]. Any questions? Thank you.” |
| **TO Notification** | Using the Hotline, notify the TOs of the SSRG conference call:  **Typical Hotline Script:**  “This is [first and last name] at ERCOT. There will be an SSRG conference call today at [time] Central Prevailing Time. The topic will be [quarterly test call, physical security, cyber security, pandemic or other topic]. Please notify your SSRG representative. The conference call number is 1-877-304-9269. Participants pass code is [code]. Any questions? Thank you.” |
| **Send**  **E-mail** | Send an e-mail to “1 SSRG” to make notification of the SSRG conference call.  **Typical Subject line for e-mail:**  SSRG conference call  **Typical Script for e-mail:**  An SSRG conference call has been scheduled for today at [time] Central Prevailing Time (CPT). The topic will be [quarterly test call, physical security, cyber security, pandemic or other topic]. The conference call number is 1-877-304-9269. Participant pass code is [code]. Participation is mandatory.  Include signature on email. |
| **Log** | Log all actions. |

## 3.5 Review Outage List

**Procedure Purpose:** Verify known outages for the current day.

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| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** |
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| **1** | Navigate to the Outage Scheduler or associated RUC displays in the MMS.  Outage Scheduler>Outage Overview>OS Today’s Outages  Market Operation>Reliability Unit Commitment>\*RUC Displays>NDP Displays>Outaged Equipment Summary  Alternatively, navigate to the Transmission Outages on the ERCOT Website.   * *ERCOT Website; Data Products; Grid; Transmission; Transmission Outages; Consolidated Transmission Outage* Report |
| **2** | Open OS Today’s Outages |
| **3** | Review the list of generation and transmission outages schedule for the current operating day. |
| **4** | Using the Outage Scheduler, verify if resources or facilities reported as Forced Outages are included in the outage list. |
| **5** | If Forced Outages are not listed, notify the Transmission and Security Operator. |
| **6** | Verify with the Transmission and Security and RUC Operator the results of studies for the hours and nodes where these resources and facilities are scheduled to be out of service. |
| **7** | If errors or problems are detected, consult with the Outage Coordinator. |

## 3.6 Monitoring IROL’s

**Procedure Purpose:** To collect data on the IROL’s stability limits for the NERC Reliability Metric. The actual flow should not be allowed to exceed the limit. If necessary, the System Operator has the authority to instruct load shedding or removing generation before this IROL has been exceeded.

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| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** | **IRO-002-7**  **R5** | **TOP-001-6**  **R12** |  |  |

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| **Step** | **Action** |
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| **IROL**  **Comms** | **WHEN:**   * A TOs ICCP status indicates both links are down.   **ENSURE:**   * All appropriate steps are being conducted for manual communications as required in T/S procedure, section 3.8, “SOL Exceedance Communications, TO ICCP Links Down”. |
| North-Houston Import IROL | |
| **IROL** | The North to Houston Import stability limit is an IROL; the actual flow ***MUST NOT*** be allowed to exceed its limit.. This is a violation of the NERC Reliability Standards. |
| **NERC** | Ensure that the transmission system is operated so that instability, uncontrolled separation, or cascading outages will not occur as a result of the most severe single Contingency and specified multiple Contingencies. |
| **1** | Monitor N-H voltage limits. |
| **2** | If the N-H Import voltage stability exceeds the limit at any time:   * Log it under log type “Exceeding Limits”.   + Include the date and time of the violation   + The system conditions that caused the violation. * Select and save theReal Time Snapshot case near the highest exceedance percentage. (request the Operations Support Engineer to select and save the case) * Save the snapshot in the STNET directory.   If the N-H voltage stability limit is exceeded, notify the Director Control Room Operations and/or Designee immediately. |
| **3** | Notify by e-mail (including data from step 2)   * Shift Supervisors * Ops Support Engineering * Operations Analysis |

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| Valley Import IROL | |
| **IROL** | The Valley Import is an IROL; the actual flow ***MUST NOT*** be allowed to exceed its limit.. This is a violation of the NERC Reliability Standards. |
| **NERC** | Ensure that the transmission system is operated so that instability, uncontrolled separation, or cascading outages will not occur as a result of the most severe single Contingency and specified multiple Contingencies. |
| **1** | Monitor Valley Import limits. |
| **2** | If the Valley Import stability exceeds the limit at any time:   * Log it under log type “Exceeding Limits”.   + Include the date and time of the violation   + The system conditions that caused the violation. * Select and save the Real Time Snapshot case near the highest exceedance percentage. (request the Operations Support Engineer to select and save) * Save the snapshot in the STNET directory.   If the Valley Import stability limit is exceeded, notify the Director Control Room Operations and/or Designee immediately. |
| **3** | Notify by e-mail (including data from step 2)   * Shift Supervisors * Ops Support Engineering * Operations Analysis |

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| West Texas Export IROL | |
| **IROL** | The West Texas Export is an IROL; the actual flow ***MUST NOT*** be allowed to exceed its limit. This is a violation of the NERC Reliability Standards. |
| **NERC** | Ensure that the transmission system is operated so that instability, uncontrolled separation, or cascading outages will not occur as a result of the most severe single Contingency and specified multiple Contingencies. |
| **1** | Monitor West Texas Export limits. |
| **2** | If the West Texas Export stability exceeds the limit at any time:   * Log it under log type “Exceeding Limits”.   + Include the date and time of the violation   + The system conditions that caused the violation. * Select and save the Real Time Snapshot case near the highest exceedance percentage. (request the Operations Support Engineer to select and save the case) * Save the snapshot in the STNET directory.   If the West Texas Export stability limit is exceeded, notify the Director Control Room Operations and/or Designee immediately. |
| **3** | Notify by e-mail (including data from step 2)   * Shift Supervisors * Ops Support Engineering * Operations Analysis |

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| Panhandle Export IROL | |
| **IROL** | The Panhandle Export is an IROL; the actual flow ***MUST NOT*** be allowed to exceed its limit. This is a violation of the NERC Reliability Standards. |
| **NERC** | Ensure that the transmission system is operated so that instability, uncontrolled separation, or cascading outages will not occur as a result of the most severe single Contingency and specified multiple Contingencies. |
| **1** | Monitor Panhandle Export limits. |
| **2** | If the Panhandle Export stability exceeds the limit at any time:   * Log it under log type “Exceeding Limits”.   + Include the date and time of the violation   + The system conditions that caused the violation. * Select and save the Real Time Snapshot case near the highest exceedance percentage. (request the Operations Support Engineer to select and save the case) * Save the snapshot in the STNET directory.   If the Panhandle Export stability limit is exceeded, notify the Director Control Room Operations and/or Designee immediately. |
| **3** | Notify by e-mail (including data from step 2)   * Shift Supervisors * Ops Support Engineering * Operations Analysis |
| McCamey Export IROL | |
| **IROL** | The McCamey Export is an IROL; the actual flow ***MUST NOT*** be allowed to exceed its limit. This is a violation of the NERC Reliability Standards. |
| **NERC** | Ensure that the transmission system is operated so that instability, uncontrolled separation, or cascading outages will not occur as a result of the most severe single Contingency and specified multiple Contingencies. |
| **1** | Monitor McCamey Export limits. |
| **2** | If the McCamey Export stability exceeds the limit at any time:   * Log it under log type “Exceeding Limits”.   + Include the date and time of the violation   + The system conditions that caused the violation. * Select and save the Real Time Snapshot case near the highest exceedance percentage. (request the Operations Support Engineer to select and save the case) * Save the snapshot in the STNET directory.   If the McCamey Export stability limit is exceeded, notify the Director Control Room Operations and/or Designee immediately. |
| **3** | Notify by e-mail (including data from step 2)   * Shift Supervisors * Ops Support Engineering * Operations Analysis |

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| South Texas Export IROL | |
| **IROL** | The South Texas Export is an IROL; the actual flow ***MUST NOT*** be allowed to exceed its limit. This is a violation of the NERC Reliability Standards. |
| **NERC** | Ensure that the transmission system is operated so that instability, uncontrolled separation, or cascading outages will not occur as a result of the most severe single Contingency and specified multiple Contingencies. |
| **1** | Monitor South Texas Export limits. |
| **2** | If the South Texas Export stability exceeds the limit at any time:   * Log it under log type “Exceeding Limits”.   + Include the date and time of the violation   + The system conditions that caused the violation. * Select and save the Real Time Snapshot case near the highest exceedance percentage. (request the Operations Support Engineer to select and save the case) * Save the snapshot in the STNET directory.   If the South Texas Export stability limit is exceeded, notify the Director Control Room Operations and/or Designee immediately. |
| **3** | Notify by e-mail (including data from step 2)   * Shift Supervisors * Ops Support Engineering * Operations Analysis |
| South Texas Import IROL | |
| **IROL** | The South Texas Import is an IROL; the actual flow ***MUST NOT*** be allowed to exceed its limit. This is a violation of the NERC Reliability Standards. |
| **NERC** | Ensure that the transmission system is operated so that instability, uncontrolled separation, or cascading outages will not occur as a result of the most severe single Contingency and specified multiple Contingencies. |
| **1** | Monitor South Texas Import limits. |
| **2** | If the South Texas Import stability exceeds the limit at any time:   * Log it under log type “Exceeding Limits”.   + Include the date and time of the violation   + The system conditions that caused the violation. * Real Time Snapshot case near the highest exceedance percentage. (request the Operations Support Engineer to select and save the case) * Save the snapshot in the STNET directory.   If the South Texas Import stability limit is exceeded, notify the Director Control Room Operations and/or Designee immediately. |
| **3** | Notify by e-mail (including data from step 2)   * Shift Supervisors * Ops Support Engineering * Operations Analysis |

## 3.7 Monitoring Transmission Congestion

**Procedure Purpose:** Monitoring transmission congestion to ensure ERCOT remains in a secure state.

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| **Protocol Reference** | **6.3(3)** |  |  |  |
| **Guide Reference** | **3.7 (2)** |  |  |  |
| **NERC Standard** | **IRO-008-3**  **R5, R6** |  |  |  |

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| **Step** | **Action** |
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| **TCM** | **VERIFY:**   * Constraints with a 2% shift factor or greater are activated at 98%.   **IF:**   * A constraint is unsolved in SCED;   **ENSURE:**   * All appropriate steps have been taken to resolve (T/S desk section 4.1 Managing Constraints in SCED step 2)   **IF:**   * Constraint remains unsolved in SCED;   **ENSURE:**   * The Operations Support Engineer is developing a TOAP or MP.   **IF:**   * A post-contingency overload reaches 125%;   **ENSURE:**   * The Operations Support Engineer has validated whether it is an IROL. |
| **RTMONI** | **VERIFY:**   * The GTLs in RTMONI are being updated in a timely manner. * Assign this task to another desk if needed |
| **LMP Map** | Monitor the real-time LMP map:  **IF:**   * Any LMP appears unreasonable;   **THEN:**   * Notify Director Control Room Operations or Designee, and * Ensure transmission congestion is solvable and not being over-constrained. |
| **South DC Ties** | Ensure all available generation has been RUC committed and the constraint binding before curtailing any South DC-Ties. Curtail only enough to maximize the flow across the South DC-Ties at all times. |
| **SOL**  **Comms** | Monitor the SOL Exceedance tool:  **WHEN:**   * Notified the MIS Posting of System Limit Exceedances **AND** Grid Geo are unavailable;   **ENSURE:**   * All appropriate steps are being conducted for manual communications as required in T/S procedure, section 3.8, “SOL Exceedance Communications, Both Methods of Electronic Communication are unavailable”.   **WHEN:**   * A TO reports both its MIS Posting of System Limit Exceedances **AND** Grid Geo are unavailable;   **AND:**   * The MIS Posting of System Limit Exceedances AND Grid Geo are available on the ERCOT side;   **ENSURE:**   * All appropriate steps are being conducted for manual communications as required in T/S procedure, section 3.8, “SOL Exceedance Communication Thresholds”, when a TO reports both methods of System Limit Exceedances are unavailable”.   **IF:**   * Manual communications are required during a declared Watch or Emergency, or when there are multiple high priority tasks; an exception to the timeframe of SOL exceedance communication may be utilized if needed;   **THEN:**   * Log the exception, and why it is being used;   **ENSURE:**   * Manual communications are made as required in the T/S procedure, section 3.8, “SOL Exceedance Communications Thresholds”, as timely as possible. |

# 4. Resource Testing and In-Service Approvals

## 4.1 Resource Testing and In-Service Approvals

**Procedure Purpose:** This procedure provides direction and guidelines for conducting various testing and approval processes for resources and transmission elements.

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| --- | --- | --- | --- | --- |
| **Protocol Reference** | **3.3.1** | **6.5.7.8(1)** | **8.5.1.1** | **8.5.1.2** |
| **Guide Reference** | **3.3.2.2** |  |  |  |
| **NERC Standard** |  |  |  |  |

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|  |  | |  | |  |
| **Step** | | **Action** | | | | | |
| Unit Testing | | | | | | | |
| **Note** | | QSEs will submit test requests through NDCRC. As requests for unit tests are received, make every reasonable effort to accommodate testing.  ERCOT will communicate with the QSE if a request is rejected or canceled. All rejections will be coordinated with the Shift Supervisor. | | | | | |
| **1** | | As requests for unit tests are received, make every reasonable effort to accommodate testing.  Reasons for not accommodating testing:   * Unit has best shift factor to manage congestion for an outage (Planned or Forced). * If the Unit is creating unjustified congestion under normal conditions. * Without unit, contingency may reach max shadow price and become unsolvable, * If a pattern of repeated requests for the same unit(s) indicate that abuse of the testing privilege may be taking place. Verify the rejection with the Shift Supervisor and if the rejection is approved, the Shift Supervisor will notify Control Room Operations management. | | | | | |
| **Caution** | | The rejection of a testing unit is necessary to maintain system security, instruct the test be canceled and deploy as needed. | | | | | |
| **Note** | | The tests mentioned below are not an exhausted list, they are tests that required coordination with other ERCOT departments. | | | | | |
| Approved Resources to be ONTEST | | | | | | | |
| **Approval** | | * As Resource tests are submitted into NDCRC, Review the request and Approve the test if there are no reliability concerns. * All operators will be able to view NDCRC to determine which resources are approved to use the status of ONTEST. | | | | | |
| In Service Approval (or Approval to Energize) | | | | | | | |
| **1** | | **IF:**   * A TO or QSE makes a request to energize new or relocated equipment;   **THEN:**   * Review notification provided by Operations Support Engineering, * Approve the request if notification has been provided;   **IF:**   * The equipment has not been approved by Operations Support Engineering,   **THEN:**   * Delay the request and notify Operations Support Engineer. | | | | | |
| Ancillary Service Testing Coordination | | | | | | | |
| **1** | | Ancillary Service Qualification Testing will be done in coordination with Operations Analysis and GMS Support.  **IF:**   * A QSE requests an Ancillary Service Qualification Test;   **VERIFY:**   * A Wholesale Account Manager is in the notification or instruct the QSE representative to notify their Wholesale Account Manager to start the process. | | | | | |
| **2** | | The coordination of the testing times will be between System Operations, Operations Analysis and GMS Support.  When contacted by Operations Analysis:   * Wholesale Account Manager will notify QSE of scheduled test, * Ensure reliable conditions exist at all times. | | | | | |
| **Log** | | Log all actions. | | | | | |
| Coordinated Reactive Tests | | | | | | | |
| **Note** | | The Resource Entity requesting to perform a Coordinated Test will provide ERCOT Operations and the TO with notice of the proposed test date before 1500 on the day prior to the day of the test. Requests shall be made between 0800 and 1700 on Business Days. Upon receipt of a request for test, ERCOT Operations and the TO will evaluate the expected conditions and determine whether ERCOT System conditions are conducive to a valid test can be created through coordinated network switching, modification of the generation reactive dispatch of nearby Generation Resources, or by some other means. Having established that suitable ERCOT System conditions exist or can be created, ERCOT Operations, and the TO shall confirm with the Resource Entity and the QSE the agreed upon test time and date or a rejection of the test time and date before 1700 on the day prior to the day of the test. | | | | | |
| **1** | | Coordinated Reactive Tests will be done in coordination with System Operations, Resource Integration Department, the Transmission Operator (TO), and the Qualified Scheduling Entity (QSE).  **WHEN:**   * A QSE makes a request for a Coordinate Reactive Test;   **VERIFY:**   * Date/Time of Testing * MVAR Leading and/or Lagging expected during the test * CURL/D-Curve is attached * Estimated MW output   If all information is included in the test request, proceed to step 2. If not, reply to e-mail from QSE and request the missing information. | | | | | |
| **2** | | The coordination of the testing times will be between System Operations, Resource Integration Department and the Transmission Operator (TO).  **WHEN:**   * All information above is received;   **VERIFY:**   * TO has approved the test,   + TO can approve verbally on a recorded line or by email   Once the TO has approved and all information is accurate, approve the QSE test request. There will be a email automatically generated with the approval to the following:   * Resource Integration Department * 1Ercot System Operators | | | | | |
| **Not OK**  **to Test** | | If the request cannot be accommodated, Instruct the Reliability Risk Desk Operator to reject the test with the reasons why and follow up a call with the QSE:  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **(Shift Supervisor)** | | | | | |
| **Approval** | | * All operators will be able to view NDCRC to determine which resources are approved to be ONTEST. | | | | | |
| **Log** | | Log all actions. | | | | | |

# 5. Providing Technical and Operational Support

## 5.1 Providing Technical and Operational Support

**Procedure Purpose:** Technical and operational support duties for the Shift Supervisor

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** |  |  |  |  |

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The Shift Supervisor is responsible for ensuring operations are in compliance with ERCOT Protocols, NERC Reliability Standards, Operating Guides, and Operating Procedures. The Shift Supervisor must have a very good understanding of the ERCOT Protocols, Operating Guides, and NERC Reliability Standards.

The Shift Supervisor may consult with Operations Support, Operations Analysis, Market Operations, or any resource he deems necessary to resolve and clarify market related issues. She/he will assist the System Operators in resolving market issues.

The Shift Supervisor also monitors and ensures that adequate coordination between the ERCOT Region, MISO, SPP and CENACE is maintained. To this effect the Shift Supervisor monitors the communications and coordination between the DC-Tie Operator, MISO, SPP and CENACE.

The Shift Supervisor is responsible for running primary operations from the Alternate Control Center once per month. This is to ensure all desks are functional in the case of an emergency.

The Shift Supervisor has the authority to coordinate additional support to assist during emergencies, system and weather related disturbances, and high demand periods as deemed necessary. Support may be required from Operations Support, Operations Analysis, Market Operations, Outage Coordinators, and System Operators assigned to the Alternate Control Center. The Shift Supervisor also has the authority to assign temporary duties to this additional support staff.

Finally, other Shift Supervisor duties may require the on-shift Shift Supervisor to leave the Control Center from time to time. On these occasions, the Shift Supervisor may delegate his duties to another system operator on a temporary basis. The Shift Supervisor shall remain in contact and accessible to the control center via available communication means.

## 5.2 Ancillary Service Requirements

**Procedure Purpose:** To ensure A/S is posted by 0600.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** | **4.2.1.1** |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| **Note** | The Shift Supervisor must verify the posted ancillary service requirements for the 1st day of the month are correct. This should be verified before the Day-ahead Operator posts the new requirements. |
| **1** | Market Participation>Physical Market>AS Market>AS Plan  Ensure the Ancillary Service Requirement and Load Forecast is posted prior to 0600. |
| **Last**  **Day of**  **Month** | Before 04:00 on the last day of the month, ensure the A/S requirements for the next month have been updated into the AS Plan. |

## 5.3 Notification of Protective Relay or Equipment Failures and Updates

**Procedure Purpose:** Be aware and respond if needed to protective relay system failures when notified by a QSE or TO.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** |  |  |  |  |
| **Guide Reference** | **6.2.3** | **6.2.4** |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| Protective Relay or Equipment Failure | |
| **Note** | Protective relay systems include: relays, associated communications systems, voltage and current sensing devices, station batteries, and DC control circuitry |
| **1** | When notified by a QSE or TO that a protective relay or equipment failure reduces system reliability:   * Ask the QSE or TO how it reduces ERCOT Grid system reliability and if any corrective actions have been taken, * Ask the QSE or TO if notifications have been made to any other affected TOs, * Notify the Operations Support Engineer to verify that system reliability has been affected. If so, a corrective action must be taken within 30 minutes, * Determine if other TOs are affected by this failure and make notification by phone. |
| **2** | * After notification from a TO or QSE, NOTIFY by e-mail: * OPS Support Engineering * Operations Analysis * TransRep * Shift Supervisors   The subject line of the e-mail should read “Protective Relay”, “Equipment Failure”, or “Equipment Updates”.  Include in the e-mail:   * Entity Name * Brief description * Contact information * Any significant information |
| **3** | If a TO or QSE e-mails a – “Mis-Operation Relay report, forward to the above identified e-mail address. |
| **4** | Log all actions. |
| Protective Relay Outages | |
| **Note** | Protective relay maintenance that ERCOT ISO has been made aware of can be found on the Outage Calendar located on the System Operations SharePoint. |
| **Planned**  **Outage** | **IF:**   * Notified that a relay is going to be removed from service (Planned);   **THEN:**   * Verify or enter information on the Outage Calendar located on the System Operations SharePoint Site, * The relay can’t be removed from service unless there are secondary/back up relays that will be functional and no system degradation will occur;   **IF:**   * Secondary/back up relays in place;   **THEN:**   * Notify the TO or QSE they can proceed with work. |
| **Forced**  **Outage** | **IF:**   * Notified that a primary relay has been removed from service (forced);   **THEN:**   * Ask if the secondary/back up relay is functional;   **IF:**   * There is no secondary/back up relay;   **THEN:**   * The equipment will need to be removed from service since it is no longer protected. |
| **Log** | Log all actions. |
| Protection System Setting Notifications | |
|  | **WHEN:**   * Protection system setting notifications are received   **FORWARD TO:**   * OPS Support Engineering * Operations Analysis * TransRep * Shift Supervisors |

## 5.4 Outage Coordination

**Procedure Purpose:** Ensure Protocols are followed for Outage Coordination.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** | **3.1** |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| **Note** | * Real-time functional desks are not authorized to approve outages outside the timelines * The Transmission Outage Approval process has been specifically designed to allow the market time to respond and achieve a market solution. Therefore, outages cannot be moved forward from one day to the next out of the approved timeframe without impacting the market solution * The ERCOT Protocols clearly define the timelines for outage approval. At this time, no one (Outage Coordinator, System Operator, or Engineer) can approve a Planned Transmission Outage for the next day * The only outages that are allowed for the next day are Level 1 outages and Remedial Switching Actions reported by the Transmission Operator |
| **1** | Direct any questions about scheduling of transmission outages and generation outages to the Outage Coordination personnel. |
| **Note** | Under extreme emergencies the Shift Supervisor may enter a Forced Outage for a TO or QSE. |
| **2** | Navigate to the market Outage Scheduler on the ERCOT Website.   * *ERCOT Website; Applications; Outage Scheduler* |
| **3** | Open Outage Scheduler |
| **4** | Select a Category of outage:   * Transmission * Generation |
| **5** | Select the TO or QSE Name: |
| **6** | Select Change User to access the TO or QSE data |
| **7** | Select Create New Outage:   * Choose Forced |
| **8** | Select Actual Start:   * Enter Date and Time |
| **9** | Select Planned End:   * Enter Date and Time |
| **10** | Enter the Emergency Restoration in HRS   * Must be = or < than outage duration |
| **11** | Select the Nature of work:   * Choose a description from the dropdown |
| **12** | Select a Station Name:   * Choose a station from the dropdown |
| **13** | Select the Equipment Type:   * Choose the Equipment Type from the dropdown |
| **14** | Select the Equipment:   * Choose a piece of equipment from the dropdown |
| **15** | If known:   * Enter Supporting Information for outage |
| **16** | Select the Submit button. |
| **17** | If errors or problems are detected, consult with the Outage Coordinator. |
| **Log** | Log all actions. |

## 5.5 Supervise Coordination with SPP, MISO and CENACE

**Procedure Purpose:** To ensure proper notification and coordination takes place.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** | **EOP-011-4 R2, R2.1** |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| **Note** | The ERCOT ISO is only connected to another RC through asynchronous ties. The coordination and communication that must take place with SPP, MISO and CENACE is outlined below. It is the responsibility of the Shift Supervisor to ensure this coordination takes place.   * DC-Tie Tagging Activities * EEA Levels * Outages on DC-Ties * BLT’s * Switchable Generation * ERCOT System Blackout   Communications with CENACE will be coordinated through AEP Corpus for the Laredo DC-Tie and ONCOR DC Tie Desk for the Railroad DC-Tie. |
| **DC-Ties** | Confirm that the DC Tie schedules and E-Tags were properly verified. Ensure that the “after-the-fact checkout” is performed each night and e-mailed to the appropriate entities as outlined in the DC-Tie Procedures. |
| **EEA** | ERCOT’s EEA status must be communicated to the SPP Reliability Coordinator (Turret phone button labeled **SPP RC**) as outlined in the DC-Tie procedures. ERCOT may notify the SPP Reliability Coordinator (Turret phone button labeled **SPP RC**) and/or MISO Reliability Coordinator (Turret phone button labeled **MISO RC**) when there is an increased risk of entering into an EEA. Refer to Switchable Generation Resource (SWGR) procedure below and the Reliability Unit Commitment (RUC) Desk Procedure SWGRs using EMR Status. |
| **Outages** | All planned and forced outages that affect the DC-Ties shall be coordinated with the Tie Operator(s) and SPP (if SPP DC-Ties affected). A message must also be posted on the ERCOT Website using Grid Conditions Communications (GCC) Notices for planned outages on any commercial DC-Ties. |
| **BLT** | Notify the SPP or MISO Reliability Coordinator when a BLT is initiated between ERCOT and SPP or MISO, as outlined in the Transmission & Security procedures. |
| Switchable Generation Resource | |
| **Note** | Switchable Generation Resource (SWGR) can be connected to either the ERCOT grid or MISO or SPP. ERCOT has coordination agreements with both SPP and MISO, if any entity enters or foresees entering into an emergency, the RC with the emergency can request help to mitigate the emergency. This help will consist of requesting one or more SWGRs to switch into the grid with the emergency. |
| **Primary System Operator / Secondary System Operator** | Primary System Operator is the System Operator to which the capacity of the SWGR is included for the purposes of supply adequacy/capacity planning. The Secondary System Operator is the System Operator to which the capacity of the SWGR is not included for the purposes of supply adequacy/capacity planning. The Primary System Operator may recall the SWGR in the event the Primary System Operator experiences an Emergency Condition. The Secondary System Operator will release the SWGR as soon as possible, even if doing so would require controlled load shed. |
| **ERCOT Request Switch of SWGR** | **IF:**   * ERCOT notifies MISO or SPP to request one or more SWGRs be switched into ERCOT and MISO or SPP releases the SWGR to ERCOT;   **THEN:**   * Coordinate with the RC and the QSE for the SWGR to become available to the ERCOT Grid.   **Typical Script to RC:**  “This is ERCOT Operator [first and last name].  At [xx:xx], ERCOT declared [EEA 1 / anticipated Emergency Condition], ERCOT requests [specific SWGR] to be released for operations into ERCOT.  ERCOT anticipates the Emergency Condition to last approximately [time].”  [RC] please repeat this back to me.”  If repeat back is CORRECT, “That is correct, thank you.”  If INCORRECT, repeat the process until the repeat back is correct. |
| **ERCOT is the Controlling Party** | **IF:**   * MISO or SPP call to request one or more SWGR be switched into them;   **THEN:**   * Within one hour, determine that releasing the SWGRs does not cause an Adverse Reliability Impact for ERCOT.   **Typical Script for Adverse Reliability Impact for ERCOT:**  “This is ERCOT Operator [first and last name].  At [xx:xx], ERCOT determined the release of [specific SWGR] would cause an [Adverse Reliability Impact] for ERCOT.  ERCOT denies the release of [specific SWGR] for operations into [RC region].”  [RC] please repeat this back to me.”  If repeat back is CORRECT, “That is correct, thank you.”  If INCORRECT, repeat the process until the repeat back is correct.  **IF:**   * No Adverse Reliability Impacts;   **THEN:**   * Notify the RC and the QSE for the SWGR that the SWGR is released to switch to the other RC Area for purposes of addressing an actual or anticipated emergency identified by the other RC.   **Typical Script for release:**  “ERCOT approves [specific SWGR] to be released for operations into [RC region].  ERCOT will notify the [specific SWGR] they are now under the operational control of the [RC region].”  [RC] please repeat this back to me.”  If repeat back is CORRECT, “That is correct, thank you.”  If INCORRECT, repeat the process until the repeat back is correct. |
| **Primary Party Switch request / Recall** | **IF:**   * MISO or SPP calls to request the switch of one or more SWGR’s in which they are identified as the Primary Party. * Or when the Primary Party makes notification of an existing or anticipated Emergency Condition and recalls the SWGR’s;   **THEN:**   * The Secondary System Operator will release the SWGR as soon as possible, even if doing so would require controlled load shed.   **Typical Script for Release for ERCOT:**  “This is ERCOT Operator [first and last name].  At [xx:xx], ERCOT will implement actions to manage transmission congestion and capacity without the [specific SWGR] and release the Primary System Operator SWGRs at [xx:xx].”  [RC] please repeat this back to me.”  If repeat back is CORRECT, “That is correct, thank you.”  If INCORRECT, repeat the process until the repeat back is correct. |

## 5.6 Equipment Limitation and Rating Changes

**Procedure Purpose:** To ensure line rating changes are documented and correct.

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| **Protocol Reference** | **6.5.3(2)** |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| Line Rating Changes | |
| **Note** | Normally line rating changes can only be changed when a NOMCR is received. |
| **1** | **IF:**   * Notified by a TO of an incorrect line rating;   **THEN:**   * Notify the Operations Support Engineer. |
| **Log** | Log all actions. |
| TO Temporary Equipment Limitation Notifications | |
| **1** | **IF:**   * Notified by a TO of any limitations on the Transmission Facilities that may affect Dispatch Instructions / Operating Instructions;   **THEN:**   * Notify the Operations Support Engineer. |
| **2** | **IF:**   * The Operations Support Engineer confirmed the Temporary Equipment Limitation Notifications may affect Dispatch Instructions / Operating Instructions;   **THEN:**   * Notify the Director Control Room Operations and/or Designee to post on the MIS Secure Area the Transmission Facility limitations that may affect Dispatch Instructions / Operating Instructions. |
| **Log** | Log all actions. |

## 5.7 TO or QSE Backup Control Center Transfer

**Procedure Purpose: To provide internal notification**.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| **1** | If notified by a QSE or TO that they will be transferring to their backup control center, or from their backup to primary,   * Send e-mail to 1 ERCOT System Operators |
| **2** | * If experiencing issues with communications, ICCP, etc. contact the Service Desk. |
| **Log** | Log all actions. |

## 5.8 Monitor Peaker Net Margin

**Procedure Purpose: Monitor Peaker Net Margin (PNM) and re-set System-Wide offer cap (SWCAP), if needed**. The PNM is calculated in dollars per MW on a cumulative basis for all past intervals in the annual resource adequacy cycle.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** | **4.4.11.1** |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| **1** | ERCOT-MA>Market Participation>Physical Market>Market Operator Data>System-Wide Offer Cap  Before midnight, check the PNM:  **IF:**   * PNM has exceeded $315,000;   **THEN:**   * Send e-mail to “1 ERCOT Market Operations Support” and “Shift Supervisors” and confirm notification. |
| **2** | A Market Notice needs to be prepared due to the SWCAP needs to be coordinated to re-set to the Low System-Wide Offer Cap (LCAP) for the remainder of that year. Any offers that exceed the current SWCAP shall be rejected by ERCOT. |

## 5.9 Approval for Telecommunication and EMMS Outages and Maintenance

**Procedure Purpose: To provide System Operators with the authority to approve planned outages and maintenance of its telecommunication, monitoring and analysis capabilities.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** | **IRO-002-7**  **R4** | **TOP-001-6**  **R9, R16, R17** |  |  |

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| **Step** | **Action** |
| --- | --- |
| **Note** | System Operators have the authority to approve planned outages and maintenance of its telecommunication, monitoring and analysis capabilities. This includes providing approval for planned maintenance such as database loads, site failovers, ICCP links, etc. This authority applies to TOs and QSEs planned outages of telemetering, control equipment, and associated communication channels when reliability of the grid is in jeopardy.  Market Participants must be notified of any planned outages, and unplanned outages of **30 minutes or more,** of telemetering, monitoring and assessment capabilities, and associated communication channels between affected entities. |
| **1** | **WHEN:**   * Notified by the Telecommunication group or GMS Support to approve a planned outage or maintenance of any telecommunication, monitoring or analysis capability;   **THEN:**   * Provide approval only if it won’t impede with the reliability of the grid.   **IF:**   * It is anticipated that an outage will last at least 30 minutes, instruct Transmission & Security and Real-time Operators to notify MPs via Hotline call. * Approval cannot be granted at the time request, suggest another time that may be more suitable. |
| **Log** | Log all actions. |

# 6. Reporting and Posting Requirements

## 6.1 Reports

**Procedure Purpose:** Providereporting criteria and instructions for the daily reports sent to the PUC, the process to report certain events to the Texas Reliability Entity, posting EEA notices to RCIS and the process for reporting system disturbances to NERC and DOE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** | **22 (B)** | **6.5.1.2 (4)** |  |  |
| **Guide Reference** | **3.2.3** | **4.7** |  |  |
| **NERC Standard** | **EOP-004-4**  **R1, R2** | **EOP-010-1**  **R1, R1.1, R2** | **EOP-011-4**  **R2, R2.1, R2.2, R2.2.3, R2.2.3.2, R2.2.3.3, R2.2.5** |  |

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| **Step** | | **Action** | | |
| --- | --- | --- | --- | --- |
| PUCT Daily Report | | | | |
| **Note** | | The PUCT Daily Report is automatically sent at 0530 and again at 1430 each day during the summer. During the Fall, Winter and Spring the PUCT Daily Report is automatically sent at 0230 and again at 1430 each day. Notify Grid Applications Development if the report fails to automatically send. | | |
| **Prepare Report** | | During the Summer prepare the PUCT Daily Report between 0530 – 0600 and again between 1430 – 1500 each day. During the Fall, Winter and Spring prepare the PUCT Daily Report between 0230 – 0300 and again between 1430 – 1500 each day. Management will coordinate the transition of reports so that everyone knows the appropriate times that the report should be sent. | | |
| **Review Report** | | Open up the PUCT Report site and review at any time. If required to send out the report manually, Refer to Desktop Guide Shift Supervisor **section 2.7**. | | |
| **E-Mail**  **Report** | | E-mail the report to the distribution list entitled “PUC-Available Generating Resources.”  **Subject line example:** 0600 PUCT Report June 1, 2019 | | |
| Unit Trip Posting | | | | |
| **Report** | | Complete the Unit Trip posting for the previous day between 0000 – 0800 each day of the week. | | |
| **Analyze** | | **Review:**   * Any unit trips from the previous day, * Post an Operational Information message, low priority, on the ERCOT Website | | |
| **<450 MW** | | **IF:**   * No trips are greater than 450 MW, * Post the following message example on the ERCOT Website | | |
| **Post** | | No sudden loss of generation greater than 450 MW occurred on <Date>. | | |
| **≥450 MW** | | **IF:**   * A trip was 450 MW or more, * Post the following message example on the ERCOT Website | | |
| **Post** | | On <Date>, a sudden loss of generation occurred at <Time> totaling \*\*\* MW. Frequency declined to \*\*.\*\*\* Hz, ERCOT load was \*\*,\*\*\* MW. | | |
| **Multiple Trip Example** | | On <Date>, a sudden loss of generation occurred at <Time> totaling \*\*\* MW. Frequency declined to \*\*.\*\*\* Hz, ERCOT load was \*\*,\*\*\* MW. Another sudden loss of generation occurred at <Time> totaling \*\*\* MW. Frequency declined to \*\*.\*\*\* Hz, ERCOT load was \*\*,\*\*\* MW. | | |
| Load Curtailment due to Transmission Problem Posting | | | | |
| **Note** | | | If the Emergency Condition is the result of a transmission problem, ERCOT shall act immediately to return the ERCOT System to a reliable condition, including instructing any QSE representing a Resource to change the Resource’s output, curtailing any remaining DC Tie Load, and instructing TSPs or DSPs to drop Load. In addition, ERCOT may instruct any QSE representing an ESR to suspend ESR charging if ERCOT determines that a Load reduction by the ESR is capable of mitigating the transmission problem. An ESR co-located behind a POI with onsite generation that is incapable of exporting additional power to the ERCOT System may continue to charge as long as maximum output to the ERCOT System is maintained | |
| **Analyze** | | | **REVIEW:**   * Any instructed Load Curtailment, Load Resource Deployment, ERS Resource Deployment, or DC Tie curtailments from the current day;   **IF:**   * An event occurred during the current day;   **THEN:**   * Complete the Load Curtailment due to Transmission Problem posting prior to midnight on the day of the event if Resources output is curtailed, any remaining DC Tie load is curtailed, TSPs and DSPs instructed load is curtailed, ESR has been instructed to suspend charging, or Load Resource(s) or ERS Resource(s) are deployed due to a transmission problem;   **POST:**   * An Operational Information message, low priority, on the ERCOT Website. | |
| **ERCOT Website Posting Example** | | | **Typical ERCOT Website posting:**  On <Date>, at <Time>, ERCOT instructed a(n) <Load Curtailment/Load Resource Deployment/ERS Resource Deployment/DC Tie Curtailment> totaling \*\*\* MW in the <substation(s) or geographic area>. All < Load/Load Resources/ERS Resources/DC Tie Curtailments> were restored at <Time>. | |
| Event Analysis Reporting | | | | |
| **1** | | WHEN an event occurs that is listed on the “event list” below, **before shift is over**:   * E-mail information to Director Control Room Operations and Designee   + The subject line of the e-mail should read “TRE Event.” | | |
| **Event**  **List** | | For purposes of the event analysis program, brief reports must be completed with 10 days (Responsibility of Grid Analysis group). Most events listed are either DOE-417 or EOP-004 reportable, those timelines and forms will be used in place of the EA brief report.  **Category 1 Events:**   1. An outage, contrary to design, of three or more BES Facilities caused by an event:    1. The outage of a combination of three or more BES Facilities (excluding successful automatic reclosing)    2. The outage of an entire generation station of three or more generators (aggregate generation of 500 MW to 1,999 MW); each combined cycle unit is counted as one generator 2. *Retired on January 1, 2024* 3. Failure or misoperation of a BES RAS 4. *Retired on January 1, 2024* 5. BES system separation contrary to design results in an island of 100 MW to 999 MW. This excludes BES radial connections, and non-BES (distribution) level islanding 6. *Retired on January 1, 2016* 7. The loss of generation of 1,400 MW to 1,999 MW 8. Loss of monitoring and/or control, at a Control Center, such that it degrades the entity’s ability to make Real-time operating decisions that are necessary to maintain reliability of the BES in the entity’s footprint for 30 continuous minutes or more   *Some examples that should be considered include, but are not limited to the following:*   * 1. Loss of operator ability to remotely monitor or control BES elements   2. Loss of communications from SCADA RTU   3. Unavailability of ICCP links reducing BES visibility   4. Loss of the ability to remotely monitor and control generating units via AGC   5. Unacceptable state estimator or contingency analysis solutions  1. A non-consequential interruption of inverter type resources aggregated to 500 MW or more not caused by a fault on its inverters, or its AC terminal equipment 2. A non-consequential interruption of a DC tie, between two separate asynchronous systems, loaded at 500 MW or more, when the outage is not caused by a fault on the DC tie, its inverters, or its AC terminal equipment.   **Category 2 Events:**   1. Complete loss of Interpersonal Communication and Alternative Interpersonal Communication capability affecting its staffed BES control center for 30 continuous minutes or more 2. *Retired on January 1, 2016 refer to Category 1h* 3. BES Emergency resulting in a voltage deviation of equal to or greater than 10% difference of nominal voltage sustained for 15 continuous minutes 4. Complete loss of off-site power (LOOP) to a nuclear generating station per the Nuclear Plant Interface Requirement 5. System separation contrary to design, that results in an island of 1,000 MW to 4,999 MW 6. Simultaneous loss of 300 MW or more of firm load due to a BES event, contrary to design, for more than 15 minutes 7. IROL exceedance for greater than 30 minutes.   **Category 3 Events:**   1. Loss of firm load, contrary to design, of 2,000 MW or more 2. System separation contrary to design, that results in an island of 5,000 MW or more 3. *Not applicable to ERCOT* 4. Loss of 2,000 MW or more provided by DC ties(s) connected to asynchronous resources  * Loss of generation (including inverter-based resources) of 2,000 MW or more. This excludes RAS action that performed as designed. | | |
| NERC and DOE Reporting Operating Plan | | | | |
| **Note** | | * Send an email to “SysOpsMgrs” when a NERC or DOE reporting event occurs or if suspected to occur and verify it was received due to potential time constraints on report submissions * Within 72 hours of incident a Final Report must be filed unless an interim update has been provided | | |
| **DOE-417**  **Reporting**  **Events** | | DOE-417 forms can be downloaded at: <https://doe417.pnnl.gov/report>  **The events listed below must be reported within 1 hour of the incident:**   * Physical attack that causes major interruptions or impacts to critical infrastructure facilities or to operations * Reportable Cyber Security Incident * Cyber event that is not a Reportable Cyber Security Incident that causes interruptions of electrical system operations * Complete operational failure or shut-down of the transmission and/or distribution electrical system * Electrical System separation (Islanding) where part or parts of a power grid remain(s) operational in an otherwise blacked out area or within the partial failure of an integrated electrical system * Uncontrolled loss of 300 MW or more of firm system loads for more than 15 minutes from a single incident * Firm Load shedding of 100 MW or more implemented under emergency operational policy * System-wide voltage reduction of 3% or more * Public appeal to reduce the use of electricity for purpose of maintaining the continuity of the electric power system   **The events listed below must be reported within 6 hours of the incident:**   * Physical attack that could potentially impact electric power system adequacy or reliability; or vandalism which target components of any security systems * Cyber event that could potentially impact electric power system adequacy or reliability * Loss of electric service to more than 50,000 customers for 1 hour or more * Fuel supply emergencies that could impact electric power system adequacy or reliability   **The events listed below must be reported by the later of 24 hours of recognition of meeting an event threshold for reporting or by the end of the next business day (4 p.m. local time will be considered the end of the business day):**   * Damage or destruction of a Facility that results in action(s) to avoid a Bulk Electric System Emergency * Damage or destruction of its Facility that results from actual or suspected intentional human action * Physical threat to its Facility excluding weather or natural disaster related threats, which has the potential to degrade the normal operation of the Facility. Or suspicious device or activity at its Facility * Physical threat to its Bulk Electric System control center, excluding weather or natural disaster related threats, which has the potential to degrade the normal operation of the control center. Or suspicious device or activity at its Bulk Electric System control center * Bulk Electric System Emergency resulting in voltage deviation on a Facility; A voltage deviation equal to or greater than 10% of nominal voltage sustained for greater than or equal to 15 continuous minutes * Uncontrolled loss of 200 Megawatts or more of firm system loads for 15 minutes or more from a single incident for entities with previous year’s peak demand less than or equal to 3,000 Megawatts * Total generation loss, within one minute of: greater than or equal to 1,400 Megawatts in the ERCOT Interconnection * Complete loss of off-site power (LOOP) affecting a nuclear generating station per the Nuclear Plant Interface Requirements * Unexpected Transmission loss within its area, contrary to design, of three or more Bulk Electric System Facilities caused by a common disturbance (excluding successful automatic reclosing) * Unplanned evacuation from its Bulk Electric System control center facility for 30 continuous minutes or more * Complete loss of Interpersonal Communication and Alternative Interpersonal Communication capability affecting its staffed Bulk Electric System control center for 30 continuous minutes or more * Complete loss of monitoring or control capability at its staffed Bulk Electric System control center for 30 continuous minutes or more * Uncontrolled loss of a total of 500 MW or more from inverter-based resources(s) for greater than 30 minutes at a common point of interconnection to the bulk electric system   **Attempted Cyber Compromise: Within 1 calendar day of determination of the attempted cyber compromise:**   * Cyber Security Incident that was an attempt to compromise High or Medium Impact Bulk Electric System Cyber Systems or their associated Electronic Access Control or Monitoring Systems | | |
| **Event**  **Reporting**  **EOP-004-4** | | If an EOP-004 reportable event is also a reportable event under the DOE-417 requirements, the DOE-417 form can be used to report to NERC and DOE.  **The events listed below must be reported by the later of 24 hours of recognition of meeting an event threshold for reporting or by the end of the next business day (4 p.m. local time will be considered the end of the business day).**     * Damage or destruction of a Facility that results in actions to avoid a BES Emergency * Damage or destruction of a Facility that results from actual or suspected intentional human action * Physical threats to a Facility excluding weather or natural disaster related threats, which has the potential to degrade the normal operation of the Facility or suspicious device or activity at aFacility * Physical threats to its BES control center, excluding weather or natural disaster related threats, which has the potential to degrade the normal operation of the control center or suspicious device or activity at its BES control center * Public appeal for load reduction to maintain continuity of the BES * System wide voltage reduction of 3% or more * Firm load shedding ≥ 100 MW (manual or automatic) * Voltage deviation of =/> 10% of nominal voltage sustained for ≥ 15 continuous minutes * Uncontrolled loss of firm load for greater than 15 minutes from a single incident:   + ≥ 300 MW for entities with a previous year’s demand of ≥ 3,000 MW OR   + ≥ 200 MW for all other entities * Each system separation resulting in an island ≥ 100 MW * Loss of generation of ≥ 1,400 MW * Complete loss of off-site power affecting a nuclear generating station per the Nuclear Plant Interface Requirement * Unexpected loss within its area, contrary to design, of three or more BES Elements caused by a common disturbance (excluding successful automatic reclosing) * Unplanned evacuation from BES control center facility for 30 continuous minutes or more * Complete loss of Interpersonal Communication and Alternative Interpersonal Communication capability affecting its staffed BES control center for 30 continuous minutes or more * Complete loss of monitoring or control capability at its staffed BES control center for 30 continuous minutes or more | | |
| **Reporting**  **To**  **Entities** | | When required to file or forward a report from other entities, the Director Control Room Operations or the Designee will be responsible.  File or forward the disturbance report to the following entities:   * NERC System Awareness ([systemawareness@nerc.net](mailto:systemawareness@nerc.net)) * NERC ([operations@eisac.com](mailto:operations@eisac.com)), requirement for cyber and courtesy copy for all other reports   + Fax (404) 446-9770, if internet down   + Phone (404) 446-9780 * DOE when required above ([doehqeoc@hq.doe.gov](mailto:doehqeoc@hq.doe.gov))   + Fax (202) 586-8485, if internet down   + Phone (202) 586-8100 * NERC and DOE Disturbance Reporting distribution list   In the body of the e-mail, type the following:   * "Contains Privileged Information and/or Critical Energy Infrastructure Information - Do Not Release". | | |
| **Note** | | * If adverse conditions prevent reporting the damage caused by an event and issuing a written Event Report within the timing of the Standard, notify NERC and Texas RE and provided as much information as is available at the time of the notification. * Please be aware that for phone calls to NERC, you will be prompted by a computerized auto-attendant to press 1 for operational issues or 2 for cyber-security issues. | | |
| RCIS Reporting | | | | |
| **EEA**  **Postings** | | There are four levels of Emergency Energy Alert (EEA). As ERCOT enters each level, postings must be made on the RCIS under “Energy Emergency Alert”:   * “ERCOT is declaring EEA 1” * “ERCOT is declaring EEA 2” * “ERCOT is declaring EEA 3” * “ERCOT is in EEA 0 and back to normal operations.” | | |
| NXT Notification Requirements | | | | |
| **Beginning**  **of each**  **Shift** | | | Log into the NXT Communicator at the beginning of each shift in order to make the required notification quickly.   * If issues arise and you are unable to log into the NXT Communicator with your user name, notify the helpdesk and request immediate assistance. | |
| **Note** | | | NXT notification should be coordinated with the Shift Engineer. | |
| **Watch** | | | **IF:**   * A Watch for Physical Responsive Capability is initiated,   **THEN:**   * Select the “SO Watch PRC below 3000” Scenario and activate notification,   **WHEN:**   * A Watch for Physical Responsive Capability has been cancelled,   **THEN:**   * Select the “SO Watch for PRC Cancelled” Scenario and activate notification. | |
| **EEA**  **Implementation Levels** | | | **IF:**   * ERCOT initiates EEA Level 1,   **THEN:**   * Select the “SO EEA Level 1” Scenario and activate notification,   **IF:**   * ERCOT initiates EEA Level 2,   **THEN:**   * Select the “SO EEA Level 2” Scenario and activate notification,   **IF:**   * ERCOT initiates EEA Level 3 with Load Shed,   **THEN:**   * Select the “SO EEA Level 3, WITH Load Shed” Scenario and activate notification. | |
| **EEA**  **Termination Levels** | | | **WHEN:**   * EEA Level 3 is terminated,   **THEN:**   * Select the “SO EEA Level 3 to EEA Level 2” Scenario and activate notification,   **WHEN:**   * EEA Level 2 is terminated,   **THEN:**   * Select the “SO EEA Level 2 to EEA Level 1” Scenario and activate notification,   **WHEN:**   * EEA Level 1 is terminated,   **THEN:**   * Select the “SO EEA Level 1 Cancellation” Scenario and activate notification. | |
| **Loss of**  **Firm**  **Load** | | | **IF:**   * An Operator (ERCOT or TO) has issued a request for firm load shed of ≤ 100 MW,   **THEN:**   * Notify the Director Control Room Operations and/or Designee immediately.   **WHEN:**   * An Operator (ERCOT or TO) has issued a request for firm load shed of ≥ 100 MW,   **THEN:**   * Notify the Director Control Room Operations and/or Designee immediately, * Select the “SO Request Firm Load Shed” Scenario and activate notification. | |
| **NXT Testing** | | | **WHEN:**   * Performing Shift Supervisor Procedure 9.2 Monthly Testing of Non-Routinely used Telecommunications Facilities,   **THEN:**   * Select the “SO ENS Test” Scenario and activate notification. | |
| ERCOT Morning Report | | | | |
| **Note** | | * This report is currently only required Monday – Friday. * The Morning Report form is located on the \_Operations Official Spreadsheets folder | | |
| **1** | | Weather Information:   * The temperatures are automatically pulled from the EMS, however please verify temperatures from a National or Local Weather Service for each city listed and adjust as necessary. * Enter the current day forecast conditions for each city listed. | | |
| **2** | | Load Data:   * The All-Time Peak MW and Seasonal Peak MW will be provided as needed. * Verify the Projected Peak MW and peak hour for the current day. Use the most reasonable forecast, which may not be the highest. * Verify the Previous Day Actual MW. | | |
| **3** | | Interchange:   * Verify the net flow across the DC-Ties for the peak hour. This can be obtained from the MOI under “DC Tie Scheduling” or from the Excel MAI. | | |
| **4** | | Transmission Line Outages:   * Verify the number of 345 kV line segment outages for the peak hour. | | |
| **5** | | Generation MW Totals:   * Verify the Generation scheduled outage MW total. * Verify the Generation forced outage MW total. | | |
| **6** | | Projected MW Reserves:   * Verify the Responsive Reserve requirement at the Project Peak. * Verify the anticipated operating reserves available at time of peak.   + - * + The anticipated operating reserves can be found by adding the “Max Cap. Room” and Responsive Reserve requirement. | | |
| **7** | | Recent ERCOT Congestion Activity:   * + - * No action needed | | |
| **8** | | Comments:   * + - * List any active OCNs, Advisories, Watches or Emergency notices. | | |
| **9** | | Select:   * + - * Create Report | | |
| **Email** | | The file is transferred to P:\SYSTEM OPERATIONS drive in the NERC Morning Report Folder. This report should be sent as an attachment by 0700 using the e-mail distribution list entitled “ERCOT Morning Report.”  The subject line of the e-mail should read “ERCOT Morning Report for <date>” | | |
| RMR Unexcused Misconduct Events | | | | |
| **Note** | | * + - * For a RMR unit, a “Misconduct Event” means any hour or hours during which Participant is requested to, but does not; deliver the energy at a level of at least 98% on each hour of the level shown in the Availability Plan.       * For a Synchronous Condenser Unit, a “Misconduct Event” means any hour or hours during which Participant is requested to, but does not, synchronize the Unit to the ERCOT Transmission Grid during any hour in which the Unit is shown in the Availability Plan | | |
| **1** | | **IF:**   * An RMR or Synchronous Condenser fail to deliver the energy when requested to;   **THEN:**   * Notify the Director Control Room Operations and/or Designee.   + The management will gather the detailed information and send an e-mail to “Nodal Settlements and Billing” with the subject line “Action Required – RMR Unexcused Misconduct Event”. | | |
| Shift Schedule | | | | |
| **Note** | | * Operations Shift Schedules will be posted to the ERCOT Website under Data Products>Grid on the Transmission Page in the Reports & Extracts section. * The posting of the schedule will be current at all time to be compliant with the Protocols. | | |
| Geomagnetic Disturbance (GMD) | | | | |
| **Note** | | Solar storms or Geomagnetic disturbances (GMDs) are caused by the interaction of coronal mass ejections (solar flares) with the Earth’s Ionosphere. This interaction produces ionospheric currents in the magnitude of millions of amperes which disturb Earth’s magnetic field. This disturbance induces voltage potential at Earth’s surface which results in geomagnetically induced currents (GICs) in conducting paths such as long transmission lines, pipelines, cables etc. GICs are low frequency or quasi-DC currents which enter and exit the power system at transformer groundings and grounded transmission lines. GICs of 100’s of amperes in magnitude have been recorded. Hence the GICs have the potential to disrupt the normal operation of power system and may damage transformers. GICs may also lead to the loss of reactive power support and hence may cause voltage instabilities. | | |
| **Monitor** | | **Monitor forecasted and current space weather:**   * Reliability Coordinator Information System (RCIS) at <https://www.oatihub.oati.com/Hub/login> * NOAA’s Space Weather Prediction Center   http://www.swpc.noaa.gov/ | | |
| **Warning**  **(Forecasted)** | | **WHEN:**   * A forecasted GMD Warning is issued for K-7 and greater or G3 and greater;   **THEN:**   * Post message on the ERCOT Website * Notice Type: Operational Information * Notice Priority: Low   **Typical ERCOT Website Posting:**  The Space Weather Prediction Center has issued a GMD Warning of [state level] until [date and time].  Notify Operations Support to run power flow studies to identify 345kV transformers loaded above 70% and develop a mitigation plan if needed. | | |
| **Extend** | | **IF:**   * The Warning is extended or K level increases/decreases;   **THEN:**   * Post new message on the ERCOT Website and * Cancel the older message   **Typical ERCOT Website Posting:**  The Space Weather Prediction Center has extended the GMD Warning of [state level] until [date and time]. | | |
| **Cancel** | | **WHEN:**   * The Warning is no longer valid;   **THEN:**   * Cancel the ERCOT Website posting. | | |
| **Alert**  **(Current)** | | **WHEN:**   * An Alert for a GMD is issued for K-7 and greater or G3 and greater, or the K level increases/decreases;   **THEN:**   * Instruct the Transmission & Security and Real-Time Operators to implement their GMD procedures to make additional postings and Hotline calls. | | |
| **Extend** | | **IF:**   * The Alert is extended or the K level is increased/decreases;   **THEN:**   * Instruct the Operators to extend the Alert and/or make notifications regarding storm severity. | | |
| **Cancel** | | **WHEN:**   * K levels drop below K7 or when the Warning is no longer valid;   **THEN:**   * Instruct the Operators to cancel the Advisory for the Alert. | | |
| **Issues** | | **IF:**   * Any TO reports an issue due to the GMD event;   **THEN:**   * Send e-mail to the following with the details   + Operations Analysis   + Operations Support   + Shiftsupv | | |
| Gas Restrictions | | | | |
| **1** | | Once notified by a QSE of gas restrictions   * Send an e-mail to “Gas Company Notifications”. This will notify all appropriate ERCOT staff. | | |
| **2** | | **Determine:**   * If the gas restriction could impact electric power system adequacy or reliability,   **THEN:**   * Proceed to “Reports” procedure for NERC/DOE reporting requirements, **AND** * Consider discussing fuel switching with affected QSE for the generation that has this capability   This data can be viewed at ERCOT SharePoint > System Operations – Control Center > Quick Links > Fuel Oil Capability | | |
| FFSSR Restocking Request | | | | |
| **Initial Request** | | **IF:**   * During or following the deployment of FFSS, the QSE for an FFSSR may request an approval from ERCOT to restock their fuel reserve to restore their FFSS capability.   **THEN:**   * Request the QSE to submit a written request to the ERCOT Shift Supervisors email. | | |
| **Request Received** | | **IF:**   * An email request is received;   **THEN:**   * Notify the Director Control Room Operations and/or Designee to help coordinate other departments with process. | | |
| **Review Request** | | **IF:**   * A request has been received;   **DETERMINE:**   * If the entity can still meet their 48-hour FFSS capacity requirement, * How long until the end of the Contract period, * Risks of cold weather impacting the region, and   Any other conditions or impacts that need to be considered. | | |
| **Response**  **Provided** | | **THEN:**   * Within 48 business hours an emailed response is required to the entity,   **EXAMPLE:**   * ERCOT confirms instructions have been made to [RESOURCE NAME(s)] to restore fuel reserves so [QSE] can meet their 48-hour obligation per the FFSS VDI dispatch instructions, OR   ERCOT denies the request to [RESOURCE NAME(s)] to restore fuel reserves. | | |
| **Log** | | Log all actions. | | |
| Remedial Action Schemes (RAS) | | | | |
| **1** | | **IF:**   * A Monthly RAS report is received by e-mail;   **THEN:**   * Forward reports to: * OPS Support Engineering * Operations Analysis * Shift Supervisors | | |

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## 6.2 Requests for Public Appeal

**Procedure Purpose:** Provide instructions to initiate public appeals to conserve electricity when needed.

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| --- | --- | --- | --- | --- |
| **Protocol Reference** | **6.5.9.4(5)** | **6.5.9.4.2** |  |  |
| **Guide Reference** | **3.2.3** |  |  |  |
| **NERC Standard** | **EOP-011-4**  **R2, R2.1, R2.2, R2.2.4** | **DOE-417** |  |  |

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| **Step** | **Action** |
| --- | --- |
| **1** | An ERCOT-wide appeal through the public news media for voluntary energy conservation can be made at any time. However, if ERCOT enters Level 2 of an EEA, an appeal must be issued. This can be coordinated with the Director Control Room Operations and/or Designee. | |
| **2** | When notified by the Director Control Room Operations and/or Designee that an appeal through the public news media has been made, ensure the Transmission and Real-Time Operators make a Hotline call to notify TOs and QSEs. | |
| **3** | The Director Control Room Operations and/or Designee will coordinate the recall of the media appeal with Manager of Communications. | |
| **4** | This is an event that will trigger a DOE-417 Report. Coordinate with Director Control Room Operations and/or Designee to verify the report will be submitted, see section 6.1 “NERC and DOE Reporting Operating Plan”. | |

# 7. Responding to System Disturbances

## 7.1 Abnormal Events

**Procedure Purpose:** To provide guidance for those events outside normal operating parameters.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** |  |  |  |  |
| **Guide Reference** | **4.2.4** |  |  |  |
| **NERC Standard** | **EOP-011-4**  **R1, R1.1, R1.2, R1.2.2, R1.2.6, R1.2.6.2, R2, R2.1, R2.2, R2.2.10, R2.2.10.2** |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| **Note** | * The ERCOT Shift Supervisor will act as the main contact and answer inquiries between the control room and other ERCOT operations groups during abnormal events * Refer to section 2.4 as needed in the Shift Supervisor’s Desktop Reference Guide. |
| System Disturbance | |
| **NERC** | Following a Reportable Balancing Contingency Event, restore the Contingency Reserve to at least the Most Severe Single Contingency (1430 MW) before the end of the Contingency Reserve Restoration Period (90 minutes). |
| **1** | **IF:**   * ERCOT is considered to be in an insecure state when the Transmission Grid status is such that a Credible Single Contingency event presents the threat of uncontrolled separation, cascading Outages and/or large-scale service disruption to Load and/or overload of a Transmission Facility, and no timely solution is obtainable from the market;   **THEN:**   * Verify that an Emergency Notice is issued * Verify the necessary actions are taken to return the system to normal operating conditions (returning an outage, committing Resources, etc.). |
| **2** | **IF:**   * The system disturbance cannot be normalized with current on-shift staff;   **THEN:**   * Identify and assign additional System Operators, Operations Engineering Support, Outage Coordination, Forecasting and Ancillary Services Engineers, or Market Operations staff to assist in normalizing the system condition. |
| **3** | The ERCOT Shift Supervisor issues Emergency Communications and Notifications to internal staff and management in accordance with Desktop Guide Shift Supervisor **section 2.1**. |
| Significant Weather Events | |
| **1** | **WHEN**:   * A significant weather event is developing (See Significant Weather Event in Operator Procedures);   VERIFY:   * The System Operators issued the appropriate OCN, Advisory, and/or Watch as needed. |
| **2** | **IF:**   * The significant weather event turns extreme;   **THEN:**   * Refer to appropriate weather procedure to act as needed. |

## 7.2 EEA Implementation Guideline

**Procedure Purpose:** To provide general guidelines on the actions and sequence of steps required prior to and during an EEA event.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** | **6.5.7.6.2.2(16)** | **6.5.9.3.4(6)** | **6.5.9.4** | **6.5.9.4.2** |
| **6.5.9.4.3** |  |  |  |
| **Guide Reference** | **4.5.3** | **4.5.3.1** | **4.5.3.2** | **4.5.3.3** |
| **4.5.3.4** |  |  |  |
| **NERC Standard** | **EOP-011-4**  **R1, R1.1, R1.2, R1.2.2, R1.2.6, R2, R2.1, R2.2** |  |  |  |

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| **Note** | * ERCOT shall use the PRC and system frequency to determine the appropriate Emergency Notice and EEA levels. * Manually deploy Load Resources other than Controllable Load Resources providing ECRS or RRS before entering into an Energy Emergency Alert (EEA), to maintain a minimum 500 MWs of Physical Responsive Capability (PRC) reserves on Generation Resources. * ERCOT will declare an EEA Level 1 when PRC falls below 2,500 MW and is not projected to be recovered above 2,500 MW within 30 minutes without the use of the following actions that are prescribed for EEA Level 1 * ERCOT **MAY** immediately implement **EEA Level 2** when clock-minute average system frequency falls below 59.91 Hz for 15 consecutive minutes. * ERCOT may immediately implement **EEA Level 3** any time the clock-minute average system frequency falls below 59.91 Hz for 20 consecutive minutes **OR** when steady-state frequency falls below 59.8 Hz for any duration of time. * ERCOT **SHALL** immediately implement **EEA Level 3** any time the steady-state frequency is below 59.5 Hz for any duration. |
| **Note** | Energy Storage Resources (ESR) are instructed to suspend charging. For ESRs, ERCOT shall issue the suspension instruction via a SCED Base Point instruction, or, if otherwise necessary, via a manual Dispatch Instruction. An ESR shall suspend charging unless it is providing Primary Frequency Response, has received a charging instruction via SCED Base Point, or is carrying Reg-Down and has received a charging instruction from LFC. However, an ESR co-located behind a POI with onsite generation that is incapable of exporting additional power to the ERCOT System may continue to charge as long as maximum output to the ERCOT System is maintained. |

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| **Prior to entering EEA**   * To be considered when ERCOT anticipates entering an EEA Event or one is imminent |
| Action |
| * Media Appeal for voluntary energy conservation |
| * Commit available Resources that can respond in the timeframe of the emergency, including RMR |
| * Non-Spin deployed |
| * Request Large Load Curtailment Program |
| * 30 MIN & 10 MIN ERS deployed. This includes Weather-Sensitive if available and Time Periods TP3 & TP4 * Ensure XML deployment made prior to QSE hotline call |
| * Distribution voltage reduction, if deemed beneficial when EEA2 and/or EEA3 load shed is not anticipated |
| * TOs load management program deployed during June - September or when available during only in EEA 2 or EEA3 if not already self-deployed by TO |
| * TCEQ exercising enforcement discretion for exceedance of generating plants environmental limits |
| * ERCOT and the TO agree to use a 15-minute Rating * Identify the appropriate double-circuit contingency and constrain on the single-circuit contingency to make more generation available |
| * ERCOT notifies MISO or SPP to request one or more SWGRs be switched into ERCOT |

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| **Administrative tasks applicable to each step:** |
| * Hotline calls made |
| * NXT System activated |
| * ERCOT Website message posted |
| * SPP RC Notified |
| * RCIS Posting |
| * Ensure 3-part communication is used |
| * Update EEA Dashboard, if EEA3 update Load Shed amounts each time it changes |
| * Ensure ERS XML deployments are made with time period changes |

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| **EEA Level 1 Implementation** |
| * PRC <2500 MW and is not projected to be recovered above 2500 MW within 30 minutes without the use of EEA Level 1 |
| * EMS EEA Flag activated |
| * TCEQ exercising enforcement discretion for exceedance of generating plants environmental limits |
| * Non-Spin deployed if not already deployed |
| * SCED dispatchable ECRS released, if not already released |
| * 30 MIN ERS deployed, if deploying in Level 1. This includes Weather-Sensitive if available and Time Periods TP3 & TP4 if not already deployed   Ensure XML deployments are made |
| * Resource testing suspended |
| * Online RMRs loaded to full output |
| * Emergency Energy procedures implemented across CENACE DC-Ties |
| * EEA 1 Schedule requested across SPP DC-Ties |
| * RUC VDI/electronic Dispatch Instruction confirmation, as appropriate/including EMR |
| * DOE-417 for public appeals |
| * PRC <2000, Manually released RRS |
| * If available, deploy the Resources providing ECRS using ONECRS Resource Status |
| **EEA Level 2 Implementation** |
| * Maintain steady state system frequency at a minimum of 59.91 Hz and maintain PRC above 1500 MW * ERCOT ***may*** immediately implement EEA Level 2 when the clock-minute average system frequency falls below 59.91 Hz for 15 consecutive minutes. * ERCOT ***will*** declare an EEA Level 2 when PRC <2000 MW or unable to maintain system frequency at a minimum of 59.91 Hz and is not projected to be recovered above 2000 MW within 30 minutes without the use of EEA Level 2 |
| * Media Appeal for voluntary energy conservation (if not already issued) |
| * Load Resources deployed and/or ERS Resources (if not already deployed)   + Group 0/ Group 0+1a/ Group 0+1a+1b/ Group 0+1a+1b+1c/ Group 0+1a+1b+1c+2/ Group 0+1a+1b+1c+2+3 (<2000MW)   + All (<1500MW)   Ensure XML deployments are made |
| * ERS deployed, if not already deployed. This includes Weather-Sensitive * Ensure XML deployment made prior to QSE hotline call |
| * ERCOT and the TO agree to use a 15-minute Rating * De-activate the appropriate double-circuit contingency and constrain on the single-circuit contingency to make more generation available |
| * TOs load management program deployed if not already deployed during June - September or when available |
| * Emergency Energy Procedures implemented across SPP DC-Ties |
| * TOs notified of Load Resource deployment |
| * Distribution voltage reduction, as appropriate if not already implemented. |
| * RUC VDI/electronic Dispatch Instruction confirmation, as appropriate/including EMR |
| **EEA Level 3 Implemention FIRM LOAD SHED** |
| * ERCOT ***may*** immediately implement EEA Level 3 when the clock-minute average system frequency falls below 59.91 Hz for 20 consecutive minutes. * ERCOT ***will*** declare an EEA Level 3 when PRC cannot be maintained above 1500 MW * PRC < 1500 MW and is not projected to be recovered above 1,500 MW within 30 minutes, or when the clock-minute average frequency falls below 59.91 Hz for 25 consecutive minutes **OR** when steady-state frequency falls below 59.8 Hz for any duration of time. |
| * Implement any measures associated with EEA Levels 1 and 2 that have not already been implemented |
| * Verify all ERS and Load Resources deployed prior to firm load shed   Ensure XML deployments are made |
| * Energy Storage Resources (ESR) are instructed to suspend charging. For ESRs, ERCOT shall issue the suspension instruction via a SCED Base Point instruction, or, if otherwise necessary, via a manual Dispatch Instruction. An ESR shall suspend charging unless it is providing Primary Frequency Response, has received a charging instruction via SCED Base Point, or is carrying Reg-Down and has received a charging instruction from LFC. However, an ESR co-located behind a POI with onsite generation that is incapable of exporting additional power to the ERCOT System may continue to charge as long as maximum output to the ERCOT System is maintained. |
| * Firm Load shed ordered (100 MW blocks) |
| * QSEs notified of Firm Load shed |
| * Load shed achieved |

## 7.3 EEA Restoration Guideline

**Procedure Purpose:** To provide general guidelines on the actions and sequence of steps required when recovering from an EEA event.

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| --- | --- | --- | --- | --- |
| **Protocol Reference** | **6.5.9.4.3** |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** |  |  |  |  |

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| Action |
| **Administrative tasks applicable to each step:** |
| * Hotline calls made |
| * NXT System activated |
| * ERCOT Website message updated |
| * SPP RC Notified |
| * RCIS Posted |
| **RESTORE FIRM LOAD** |
| * Firm load restoration instructed |
| * QSEs notified of Firm load restoration |
| * Load shed recall achieved |
| **EEA LEVEL 3 TO EEA LEVEL 2** |
| * All firm load must be restored prior to Load Resources being recalled |
| * Begin recalling Load Resources |
| * TOs notified of Load Resources |
| * TOs notified of Load Resource and ERS Resources recall |
| **EEA Level 2 TO EEA LEVEL 1** |
| * TOs load management program recalled |
| * Instruct all deployed Load Resources that are not controllable to be restored |
| **EEA Level 1 TO EEA 0** |
| * End emergency energy across DC Ties |
| * Release any RUC committed Resources |
| * Manually deployed RRS recalled |
| * Restore control to the post-contingency flow to within the Emergency Rating for those constraints that utilized the 15-Minute Rating * Enforce double-circuit contingencies |
| * See administrative tasks |

## 7.4 Hurricane/Tropical Storm

**Procedure Purpose:** To ensure Entities are prepared for a Hurricane or Tropical Storm that could impact system reliability.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** | **6.3.2(3)(a)(ii)** | **6.5.9.3.1** | **6.5.9.3.2** | **6.5.9.3.3** |
| **6.5.9.3.4** |  |  |  |
| **Guide Reference** | **4.2.1** | **4.2.2** | **4.2.3** | **4.2.4** |
| **NERC Standard** | **EOP-011-4**  **R1, R1.1, R1.2, R1.2.2, R1.2.6, R1.2.6.2, R2, R2.1, R2.2, R2.2.10, R2.2.10.2** |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| **Note** | * Hurricane and Tropical Storm notifications can be called when there is a probability of landfall in the ERCOT Region (<http://www.nhc.noaa.gov>) * The ERCOT Meteorologist may provide forecasts to supplement other Weather Service data information * The sequence of actions taken, or notifications issued may vary due to system conditions or other operational issues and it may be necessary to skip actions due to the severity of the situation. To the extent possible, and when prudent, actions that were skipped may be implemented at a later time or date |
| **Reporting** | As system conditions warrant, complete the following tasks:   * Refer to the “Abnormal Events” procedure (7.1) and take appropriate actions for “Gas Restrictions” * Refer to the “Reports” procedure (6.1) and coordinate with the Director Control Room Operations or designee on reporting requirements for the conditions that exist |
| **OCN** | OCNs will be issued with as much lead time as possible to provide Market Participants with information and instructions about a developing Hurricane or Tropical Storm that is forecasted to potentially impact the ERCOT Region. As a guideline, review the bullets below and determine which steps are necessary:   * Ensure OCN is issued * Review the expected path of the hurricane/tropical storm and consult with the Operations Support Engineer to determine if multiple contingencies should be studied due to the possibility of transmission outages or loss of load * Coordinate with Outage Coordination for the review of planned and existing transmission outages to be withdrawn, rejected, or restored. * Coordinate with Outage Coordination for the review of planned and existing Resource outages that could be asked to be delayed or returned early * Report any fuel restrictions as per section 6.1 of this procedure   Outages that could be critical are:   * Getaways from power plants, in the affected areas, that need to remain on during the storm for reliability * 345 KV transmission paths in the affected areas, **OR** * 345 KV transmission paths that will significantly impact the flow of power to and from the affected area |
| **Advisory** | An Advisory can be issued as the probability of an approaching Hurricane or Tropical Storm impacting the ERCOT Region increases to escalate awareness and provide instructions to Market Participants. As a guideline, review the bullets below and determine which steps are necessary:   * Ensure Advisory is issued * If STP is in the path of the hurricane/tropical storm and the QSE is planning to take the unit offline,   + Contact Operations Support to run studies to determine the impact and evaluate system conditions.   + If necessary, determine the generation needed to replace the loss of capacity from STP * Continue to coordinate with Outage Coordination for the review of planned and existing transmission outages to be withdrawn, rejected, or restored. * Continue to coordinate with Outage Coordination for the review of planned and existing Resource outages that could be asked to be delayed or returned early * Report any fuel restrictions as per section 6.1 of this procedure |
| **Watch** | A Watch notification can be issued to Market Participants when impacts to the ERCOT Region from an approaching Hurricane or Tropical Storm are imminent and anticipated to have an adverse impact on the ERCOT System. As a guideline, review the bullets below and determine which steps are necessary:   * Ensure Watch is issued * If necessary, instruct the RUC Operator to RUC commit additional Resources as per Operations Support recommendations * Determine if the need to have a conference call bridge open with the most affected TOs * Determine if the need for additional support staff from GMS Support, ANA, Operations Support, and Operators * Report any fuel restrictions as per section 6.1 of this procedure |
| **Emergency**  **Notice** | When a Hurricane or Tropical Storm is beginning to have an adverse impact on the ERCOT Region.   * Ensure Emergency Notice is issued * Implement emergency procedures as needed |
| **Issues** | Notify the ERCOT Director Control Room Operations or Designee of any issues. |
| **Log** | Log actions for each bullet above, including if no action was taken and why. |

## 7.5 Extreme Cold Weather

**Procedure Purpose:** To ensure ERCOT ISO, TOs and QSEs are prepared for extreme cold weather operations.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** | **6.3.2(3)(a)(ii)** | **6.5.9.3.1** | **6.5.9.3.2** | **6.5.9.3.3** |
| **6.5.9.3.4** |  |  |  |
| **Guide Reference** | **4.2.1** | **4.2.2** | **4.2.3** | **4.2.4** |
| **NERC Standard** | **EOP-011-4**  **R1, R1.1, R1.2, R1.2.2, R1.2.6, R1.2.6.1, R1.2.6.2, R2, R2.1, R2.2, R2.2.10, R2.2.10.1, R2.2.10.2** |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| **Note** | * Extreme cold weather notifications can be issued when temperatures are forecasted to be 25°F or below in the North Central and in the South Central weather zones. Wind chill also has an impact on how the temperature feels due to the flow of lower temperature air. Extreme cold weather notifications can also be issued when the Wind Chills are forecasted to be 20°F or below in the North Central and in the South Central weather zones. The criteria has been developed for guidance when the temperature or wind chills are expected to be below freezing for several continuous hours which may have an abnormally high impact on load levels or generation availability. * For such events, additional reserves may be necessary * The ERCOT Meteorologist may provide forecasts to supplement other Weather Service data information * The order of actions taken may vary due to system conditions or other operational issues and it may be necessary to skip actions due to the severity of the situation. To the extent possible, and when prudent, actions that were skipped may be implemented at a later time or date. |
| **Reporting** | As system conditions warrant, complete the following tasks:   * Refer to the “Abnormal Events” procedure (7.1) and take appropriate actions for “Gas Restrictions” * Refer to the “Reports” procedure (6.1) and complete the appropriate reporting forms for the conditions that exist. |
| **OCN** | OCNs will be issued with as much lead time as possible to provide Market Participants with information and instructions about a developing Extreme Cold Weather that is forecasted to potentially impact the ERCOT Region. As a guideline, review the bullets below and determine which steps are necessary:   * Ensure OCN is issued * Continually monitor the expected path of the approaching extreme cold front * Coordinate with Outage Coordination for the review of planned and existing transmission outages to be withdrawn, rejected, or restored * Coordinate with Outage Coordination for the review of planned and existing Resource outages that could be asked to be delayed or returned early * Review the Extreme Weather Capacity Monitor for the dates the OCN is issued, and notification of Resources at high risk are communicated to QSEs that currently are not reflecting weather limitations within COP * Review system conditions and determine if more lead-time is needed than the normal Day Ahead market allows |
| **Advisory** | An Advisory can be issued as the probability of an approaching Extreme Cold Weather impacting the ERCOT Region increases to escalate awareness and provide instructions to Market Participants. As a guideline, review the bullets below and determine which steps are necessary:     * Ensure Advisory is issued * Continue to monitor the expected path of extreme cold front * Continually coordinate with Outage Coordination for the review of planned and existing transmission outages to be withdrawn, rejected, or restored * Continue to coordinate with Outage Coordination for the review of planned and existing Resource outages that could be asked to be delayed or returned early * Review the Extreme Weather Capacity Monitor for the dates the Advisory is issued, and notification of Resources at high risk are communicated to QSEs that may not be accurately reflecting Resource weather limitations within COP * Consider high risk generation and if additional Resources need to be committed * Contact Operations Support to run studies to determine the impact of current and future outages * Review system conditions and determine if more lead-time is needed than the normal Day Ahead market or if additional Ancillary Services will be needed |
| **Watch** | A Watch notification can be issued to Market Participants when impacts to the ERCOT Region from an approaching Extreme Cold Weather is imminent and anticipated to have an adverse impact on the ERCOT System. As a guideline, review the bullets below and determine which steps are necessary:   * Ensure Watch is issued * Continually monitor the expected path of extreme cold front * Determine the need for additional support staff * Review the Extreme Weather Capacity Monitor for the dates the Watch is issued, and notification of Resources at high risk are communicated to QSEs that are not accurately reflecting Resource weather limitations within COP * Consider high risk generation and if additional Resources need to be committed * Determine if additional Ancillary Services will be needed * Determine if Resources need to be RUC committed early before freezing temperatures arrive * Consider if fuel switching is needed. |
| **Emergency**  **Notice** | When extreme cold weather has arrived and is beginning to have an adverse impact on the ERCOT Region:   * Ensure Emergency Notice is issued * Review the Extreme Weather Capacity Monitor for the dates the Emergency Notice is issued and notification of Resources at high risk are communicated to QSEs that are not accurately reflecting Resource weather limitations within COP * Consider high risk generation and if additional Resources need to be committed * Implement emergency procedures as needed |
| **Log** | Log actions for each bullet above, including if no action was taken and why. |

## 7.6 Extreme Hot Weather

**Procedure Purpose:** To ensure Entities are prepared for extreme hot weather operations that could impact system reliability.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** | **6.3.2(3)(a)(ii)** | **6.5.9.3.1** | **6.5.9.3.2** | **6.5.9.3.3** |
| **6.5.9.3.4** |  |  |  |
| **Guide Reference** | **4.2.1** | **4.2.2** | **4.2.3** | **4.2.4** |
| **NERC Standard** | **EOP-011-4**  **R1, R1.1, R1.2, R1.2.6, R1.2.6.2, R2, R2.1, R2.2, R2.2.10, R2.2.10.2** |  |  |  |

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| **Step** | | **Action** |
| --- | --- | --- |
| **Note** | | * Extreme Hot weather notifications can be issued when:   Temperatures are forecasted to be 103°F or above in the North Central and South Central weather zones.  – OR –  Temperatures are forecasted to be 94°F or above in the North Central and South Central weather zones during the following months (October – May)   * For such events, additional reserves may be necessary   The order of actions taken may vary due to system conditions or other operational issues and it may be necessary to skip actions due to the severity of the situation. To the extent possible, and when prudent, actions that were skipped may be implemented at a later time or date |
| **OCN** | | OCNs will be issued with as much lead time as possible to provide Market Participants with information and instructions about developing Extreme Hot weather that is forecasted to potentially impact the ERCOT Region. As a guideline, review the bullets below and determine which steps are necessary:   * Ensure OCN is issued * Continually monitor the weather * Coordinate with Outage Coordination for the review of Planned and existing outages for the possibility of withdrawing or restoring equipment * Review the Extreme Weather Capacity Monitor for the dates the OCN is issued and notification of Resources at high risk are communicated to QSEs that are not accurately reflecting Resource weather limitations within COP |
| **Advisory** | | An Advisory can be issued as the probability of approaching Extreme Hot weather impacting the ERCOT Region increases to escalate awareness and provide instructions to Market Participants. As a guideline, review the bullets below and determine which steps are necessary:   * Ensure Advisory is issued * Continually monitor the weather * Continue to coordinate with Outage Coordination for the review of Planned and existing outages to be withdrawn, rejected, or restored * Review the Extreme Weather Capacity Monitor for the dates the Advisory is issued and notification of Resources at high risk are communicated to QSEs that are not accurately reflecting Resource weather limitations within COP * Consider high risk generation and if additional Resources need to be committed |
| **Watch** | | A Watch notification can be issued to Market Participants when impacts to the ERCOT Region from approaching Extreme Hot weather are imminent and anticipated to have an adverse impact on the ERCOT System. As a guideline, review the bullets below and determine which steps are necessary:  :   * Ensure Watch is issued * Continue to monitor the weather * Continue to coordinate with Outage Coordination for the review of Planned and existing outages to be withdrawn, rejected, or restored * Review the Extreme Weather Capacity Monitor for the dates the Watch is issued and notification of Resources at high risk are communicated to QSEs that are not accurately reflecting Resource weather limitations within COP * Consider high risk generation and if additional Resources need to be committed * Contact Operations Support to run studies to determine the impact of current and future outages * Review emergency operating procedures |
| **Emergency**  **Notice** | | When extreme hot weather has arrived and is beginning to have an adverse impact on the ERCOT Region:   * Ensure Emergency Notice is issued * Review the Extreme Weather Capacity Monitor for the dates the Emergency Notice is issued and notification of Resources at high risk are communicated to QSEs that are not accurately reflecting Resource weather limitations within COP * Consider high risk generation and if additional Resources need to be committed * Implement emergency procedures as needed |
| **Issues** | | Notify the ERCOT Director Control Room Operations or Designee of any issues. |
| **Log** | Log actions for each bullet above, including if no action was taken and why. | |

## 7.7 Significant Weather Events

**Procedure Purpose**: Monitor severe weather conditions for the ERCOT Region and regions outside of ERCOT which can arise with little or no warning that could potentially impact the ERCOT Grid.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** | **3.1.4.6** | **6.3.2(3)(a)(ii)** | **6.5.9.3.1** | **6.5.9.3.2(4)** |
| **6.5.9.3.4** |  |  |  |
| **Guide Reference** | **4.2.1** | **4.2.2** | **4.2.3** | **4.2.4** |
| **NERC Standard** | **EOP-011-4**  **R1, R1.1, R1.2, R1.2.2, R1.2.6, R1.2.6.2, R2, R2.1, R2.2, R2.2.10, R2.2.10.1, R2.2.10.2** | **TOP-001-6**  **R8** |  |  |

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| **Step** | **Action** |
| --- | --- |
| **Note** | * Significant weather events are those that do not meet the criteria of the extreme hot, extreme cold, hurricane, or tropical storm procedures * Significant weather events can consist of, but are not limited to the following:   + Tornados   + Strong straight-line winds   + Flooding   + Freezing precipitation   + Wild Fires * The ERCOT Meteorologist may provide forecasts to supplement other Weather Service data information * The sequence of actions taken, or notifications issued may vary due to system conditions or other operational issues and it may be necessary to skip actions due to the severity of the situation. To the extent possible, and when prudent, actions that were skipped may be implemented at a later time or date |
| **OCN/**  **Advisory/**  **Watch** | When a significant weather event arises that could or does impact the ERCOT Region, ensure the proper notifications are issued. |
| **Post** | Coordinate with the Real-Time Operator for the posting of the notices on the ERCOT Website. |
| **Issues** | Notify the ERCOT Director Control Room Operations or Designee of any issues. |
| **Log** | Log all actions |

# 8. Monitoring Real-Time Performance

## 8.1 Under Performing QSE

**Procedure Purpose:** To remedy under-performance of one or more QSE to prevent adverse effects on ERCOT ACE performance.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| **1** | **IF:**   * Under-performance by one or more QSEs is detected,   **THEN:**   * VERIFY the Resource Operator has established communication with the QSE(s) to determine the cause. * VERIFY that the Transmission & Security and Real-Time Desk Operators are informed of the situation. * ALLOW the Transmission & Security and Real-Time Operators to RESOLVE the problem to restore ERCOT ACE performance to normal. |
| **2** | **IF:**   * QSE continues to under-perform in real time, AND * ERCOT’s NERC performance requirements are not being met,   **THEN:**   * ASSIGN a system operator to collect performance data on the QSE(s) affecting ERCOT’s NERC performance * VERIFY data collected by system operators from the EMMS |
| **Note** | Step 3 may be done at any time. |
| **3** | RECORD the following information:   * QSE name * Date and Time period of non-performance * Type(s) of AS not provided and nature of non-performance * Perceived effect on ERCOT’s NERC performance requirements * Description of remediation attempts and results |
| **Log** | Log all actions. |

## 8.2 Dispatch Instruction Disputes

**Procedure Purpose:** The Shift Supervisor applies this procedure for resolving dispatch instruction disputes when the system operator and the participant fail to resolve the issue raised by the participant.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** | **6.5.7.8(3)** | **6.5.7.9** |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| **Note** | * Each TO and QSE shall comply fully and promptly with Dispatch Instructions, unless in the sole and reasonable judgment of the TO or QSE, such compliance would create an undue threat to safety, undue risk of bodily harm or undue damage to equipment’s, or the Dispatch Instruction is otherwise not in compliance with the Protocols. * An Intermittent Renewable Resource (IRR) must comply with Dispatch Instructions requiring it to reduce output two MW or more below the Resource’s latest HSL. |
| **1** | **IF:**   * A Resource has inadequately responded to a Dispatch Instruction,   **THEN:**   * Notify the QSE representing the Resource as soon as practicable. |
| **2** | **IF:**   * The dispatch instruction is deemed to be invalid,   **THEN:**   * Issue a new Valid Dispatch Instruction. THEN Go to STEP 4.   **IF:**   * The dispatch instruction is confirmed as a valid dispatch instruction,   **THEN:**   * Clarify the issue with the participant. |
| **3** | **IF:**   * A participant(s) does not agree with the resolution:   **THEN:**   * Instruct the participant(s) to contact their ERCOT Wholesale Client Services representative for instructions on filing a formal dispute resolution request.   OTHERWISE, Go to next step |
| **4** | **WHEN:**   * The dispatch instruction dispute is resolved   **THEN:**   * Inform all participants involved in the dispute of the resolution of the dispute |
| **5** | RECORD the following information:   * Summary of communications with the participant * Agreements reached * Understood disagreements and, * Reasons for proposed actions |
| **Log** | Log all actions. |

## 8.3 Possible Protocol or Operating Guide Violations

**Procedure Purpose:** Provide instructions for reporting that a QSE or TO may have violated an ERCOT Protocol or Operating Guides requirement.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** | **6.5.7.9** |  |  |  |
| **Guide Reference** | **3.1.2** |  |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** | |
| --- | --- | --- |
| **1** | **IF:**   * It appears that a QSE or TO is in violation of the ERCOT Protocols or Operating Guides,   **THEN:**   * Confirm the ERCOT System Operator’s finding of a possible violation and that an attempt was made to resolve issue with the QSE or TO personnel. * Attempt to resolve the issue. * Obtain information from Market Operations Support and/or Operations Support personnel, as needed.   IF resolution is reached, then LOG the event and this procedure is complete. |
| **2** | **IF:**   * No agreement can be reached;   **THEN:**   * Review the incident to establish confidence that there has been a possible violation.   Submit information to Director Control Room Operations and/or Designee |
| **3** | Log all actions. |

## 8.4 Monitor Performance of On-Shift Operators, Coach or Assist System Operators as Required

**Procedure Purpose:** High performance is important and expected.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| **1** | SELECT at least one week per month to make observations and take notes on the performance of the system operators. |
| **2** | OBSERVE and TAKE notes on the performance of the system operators during special events and system emergency conditions. |
| **3** | KEEP observations and notes as supporting information for On-The-Job Performance Evaluation. |
| **4** | ADVISE, ASSIST, AND COACH system operators when requested or as needed. |

## 8.5 Ensure Compliance with ERCOT Protocols, Operating Guides, NERC Reliability Standards, and Operating Procedures

**Procedure Purpose:** Culture of Compliance.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| **1** | The ERCOT Shift Supervisor is responsible for the day-to-day supervision of the RUC Operator, Transmission Security Operator, Real-time Operator, Resource Operator and the DC-Tie Operator. |
| **2** | The ERCOT Shift Supervisor shall PERIODICALLY CHECK the operations of each desk to ensure compliance with ERCOT Protocols, Operating Guides, NERC Reliability Standards, and Operating Procedures. The ERCOT Shift Supervisor is responsible for ensuring compliance. |

## 8.6 Root Cause Analysis

**Procedure Purpose:** To investigate and recommend corrective action on procedure violations.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| **Note** | The following events will trigger an investigation:   * Possible violation of the Contingency Event Recovery Period * Possible violation of the Contingency Reserve Restoration Period * Frequency deviation of +/- .05 from scheduled frequency for greater than 30 minutes * High frequency events greater than 60.175 Hz. * Incorrect procurement/deployment of NSRS * Operating actions outside of the ERCOT Protocols, Guides, Operating Procedures or NERC Reliability Standards * Over constraining   + A constraint that remains active with no corresponding congestion   The Director Control Room Operations and/or Designee may direct the investigation of other events not listed above. |
| **Note** | The “rule of thumb” is to ask why until the most basic cause of the problem is revealed. |
| **1** | When an event occurs, notify the Director Control Room Operations and/or Designee via e-mail that an investigation has been initiated. Include the event, time, duration, and a summary of what occurred. |
| **2** | Preserve all data relevant to the event:   * EMMS data * Operational logs * Applicable graphs and charts |
| **3** | Evaluate the following conditions:   * Resources   + Software performance   + Man – Machine interface   + Procedures   + Management instructions   + Training   + Computer (hardware) performance * External Distracters   + Control Room conditions   + Market conditions   + System conditions * Human Performance   + QSE input and communication   + TO input and communication   + ERCOT internal support and communication   + Shift communication and team work |
| **4** | A preliminary report is due within three days. The report should include:   * A summary * The chain of events and/or decisions that produced the outcome * The most basic root cause * Recommended steps to prevent future events from occurring. |
| **5** | Forward the report and related information to the Director Control Room Operations and/or Designee; keep one for the later discussion. |
| **6** | The Director Control Room Operations and/or Designee will review the report with the appropriate ERCOT staff and Shift Supervisor to identify the cause and recommend corrective action. |

## 9. Interpersonal Communication

## 9.1 Interpersonal Communication Devices

**Procedure Purpose:** To define the Interpersonal Communication capability devices as well as the Alternate Interpersonal Communication capability devices.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** | **COM-001-3**  **R1, R1.1, R2, R2.1, R3, R3.3, R3.4, R3.6, R4, R4.4, R5, R5.2, R5.3, R5.4, R6, R6.2, R12** |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| **Interpersonal**  **Communication** | Interpersonal Communication is defined as “Any medium that allows two or more individuals to interact, consult, or exchange information”. This is referring to voice only, not data. There is internal Interpersonal Communication capabilities between ERCOT’s Control Centers.  Interpersonal Communication is classified as the following devices:   * The hotline, OPX, and long distance located in the Turret. * Not all DC-Tie Operators are on the hotline; the Interpersonal Communication capability with them is the OPX and long distance located in the Turret. |
| **Alternative**  **Interpersonal**  **Communication** | Alternative Interpersonal Communication (AIC) is defined as “Any Interpersonal Communication that is able to serve as a substitute for, and does not utilize the same infrastructure (medium) as, Interpersonal Communication used for day-to-day operation”.  The designated Alternative Interpersonal Communication device is the Satellite phone in the Turret.  Additional communication devices:   * Satellite stand-alone phone * PBX Landline (Cisco) * PBX Bypass land-line * Cell phone |
| **1** | ERCOT has Interpersonal Communication capability and Alternate Interpersonal Communication capability with the following entities:   * TOs * QSEs * DC-Tie Operators |

## 9.2 Interpersonal Communication Failures

**Procedure Purpose:** To ensure notifications are made when there is a failure in Interpersonal Communication capability.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** | **COM-001-3**  **R10** | **TOP-001-6**  **R9** |  |  |

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| **Step** | **Action** |
| --- | --- |
| **1** | **IF:**   * The Turret phone, the Hotline or the OPX lines become inoperable;   **THEN:**   * Attempt to use the device from the Alternate Control Room.   **IF:**   * If any one of these devices are inoperable from the Alternate Control Room;   **THEN:**   * Use the Alternate Interpersonal Communication capability (Satellite phone) or any other communication device available listed in section 9.1 of this manual, * Open a help ticket to have the device repaired. |
| **2** | **IF:**   * There is a failure at both the Primary and Alternate Control Rooms for the Turret phone, Hotline or OPX lines;   **THEN:**   * If failure is expected to last 30 minutes or longer, notification must be made to the following entities within 60 minutes of the detection of a failure of its Interpersonal Communication capability.   + TOs   + QSEs   + DC-Tie Operators (AEP Ohio, AEP TO, & Oncor TO)   Note: The list of OPX and long distance numbers can be found on SharePoint titled “OPX & LD Phone Numbers”. |
| **Log** | Log all actions. |

## 9.3 Monthly Testing of Alternative Interpersonal Communication Device and other Communication Devices

**Procedure Purpose:** To test the multiple communication capabilities at least once each calendar month to ensure functionality.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** | **COM-001-3**  **R9** |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| **Primary Control Center** | |
| **1st**  **Weekend**  **Of Every**  **Month** | On the first weekend of each month, between the hours of 0000 Saturday and 0500 Monday, test each communication device as listed in the steps below. |
| **Testing**  **Form** | Complete the Monthly Communication Tests spreadsheet located on the System Operations – Control Center SharePoint site under Alternative Interpersonal Communication Testing (on left under Documents). |
| **Satellite Phone**  **(AIC)** | The Satellite Phone is the Alternative Interpersonal Communication device.  Coordinate the test with the DC Tie Operator at the alternate control center.   * Using the turret, call each programmed Satellite desk phone (RUC, RRD, REAL, RES, and TRANS) at the other control center, * If any connection is unsuccessful, immediately open a helpdesk ticket and cc: “shiftsupv”, * Complete the testing form and make a log entry. |
| **PBX** | * Using the Cisco phone, make a call to an OPX extension * Update the testing form and make a log entry listing the device tested, who the test call was made to, if it was successful or not, and actions taken if not successful. |
| **PBX**  **By-Pass** | * Using the PBX By-Pass phone, make a long distance call * Update the testing form and make a log entry listing the device tested, who the test call was made to, if it was successful or not, and actions taken if not successful. |
| **Cell**  **Phone** | * Using the Control Room cell phone, make a call to the ERCOT   Helpdesk.   * Update the testing form and make a log entry listing the device tested, who the test call was made to, if it was successful or not, and actions taken if not successful. |
| **Stand**  **Alone**  **Satellite** | * Using the Standalone Satellite phone, make a call (not necessary to call a satellite number). Refer to Desktop Guide Common to Multiple Desks section 2.7.5. * Update the testing form and make a log entry listing the device tested, who the test call was made to, if it was successful or not, and actions taken if not successful. |
| **NXT**  **Test** | * Using the VESTA Communicator, activate the “SO ENS Test” scenario between the hours of 0800-2200. * Update the testing form and make a log entry if it was successful or not, and actions taken if not successful. |
| **Unsuccessful**  **Test** | **IF:**   * Any of the communication devices proved to be unsuccessful;   **THEN:**   * Immediately open a helpdesk ticket and cc: “shiftsupv”, AND * Make a log entry. |
| **Email** | Send the spreadsheet results by e-mail to “1 ERCOT Shift Supervisors”. |
| **Log** | Log all actions. |
| **Alternate Control Center** | |
| **Once a**  **Month** | When working out of the alternate Control Room during the monthly scheduled dates, test each Communication devices as listed in steps below. |
| **Testing**  **Form** | Complete the Monthly Communication Tests spreadsheet located on the System Operations – Control Center SharePoint site under Alternative Interpersonal Communication Testing (on left under Documents). |
| **Satellite Phone** | The Satellite Phone is the Alternative Interpersonal Communication device.  Coordinate the test with the DC Tie Operator at the other control center.   * Using the turret, call each programmed Satellite desk phone (RUC, RRD, REAL, RES, and TRANS) at the other control center, * If any connection is unsuccessful, immediately open a helpdesk ticket and cc: “shiftsupv”, * Complete the testing form and make a log entry. |
| **PBX** | * Using the Cisco phone, make a call to an OPX extension * Update the testing form and make a log entry listing the device tested, who the test call was made to, if it was successful or not, and actions taken if not successful. |
| **PBX**  **By-Pass** | * Using the PBX By-Pass phone, make a long distance call * Update the testing form and make a log entry listing the device tested, who the test call was made to, if it was successful or not, and actions taken if not successful. |
| **Cell**  **Phone** | * Using the Control Room cell phone, make a call to the ERCOT Helpdesk. * Update the testing form and make a log entry listing the device tested, who the test call was made to, if it was successful or not, and actions taken if not successful. |
| **Stand**  **Alone**  **Satellite** | * Using the Standalone Satellite phone, make a call (not necessary to call a satellite number). Refer to Desktop Guide Common to Multiple Desks section 2.7.5. * Update the testing form and make a log entry listing the device tested, who the test call was made to, if it was successful or not, and actions taken if not successful. |
| **NXT**  **Test** | * Log into the **Bastrop ENS link** when working out of the alternate Control Room in Bastrop, * Using the VESTA Communicator, activate the “SO ENS Test” scenario between the hours of 0800-2200. * Update the testing form and make a log entry if it was successful or not, and actions taken if not successful. |
| **Unsuccessful**  **Test** | **IF:**   * Any of the communication devices proved to be unsuccessful;   **THEN:**   * Immediately open a helpdesk ticket and cc: “shiftsupv”, AND * Make a log entry. |
| **Form** | Complete the Alternative Interpersonal Communications Testing form located on the System Operations – Control Center SharePoint site |
| **Email** | Send the spreadsheet results by e-mail to “shiftsupv”. |
| **Log** | Log all actions. |

## 9.4 Monthly Testing of TOs Satellite Phones

**Procedure Purpose:** To test the satellite phone system between ERCOT and the Transmission Operators to ensure communication capability via the Satellite Phone System.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** | **COM-001-3**  **R9** |  |  |  |

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| **Step** | **Action** |
| --- | --- |
| **Note** | * This test is to be conducted on the first weekend of each month, between the hours of 0000 Saturday and 0500 Monday. * Refer to Desktop Guide Common to Multiple Desks **section 2.7**. * When a participant dials into the conference bridge before the moderator dials in, they will hear music and be placed on hold. |
| **Test** | Call each ERCOT TO using the preprogrammed number in the Turret Phone.  IF:   * No answer, call the TO directly using the Satellite Phone number provided in Desktop Guide Common to Multiple Desks section 2.7.1 and inform them of the time of their respective Satellite Conference Bridge Call. |
| **Forms** | * Complete the Monthly Satellite Testing forms located on the System Operations – Control Center SharePoint site |
| **Email** | Send completed spreadsheet of the Satellite phone test by e-mail to:   * “shiftsupv” |
| **Issues** | For any issues identified during testing, follow up with the TO and make an entry on the testing form as to the resolution. |
| **Log** | Log all actions. |

# 10. Monitoring Control Room Systems Availability

## 10.1 Loss of Primary Control Center Functionality

**Procedure Purpose:** Provide instructions for responding to conditions that cause the primary control center to become inoperable or uninhabitable and ensuring the safety of control room personnel.

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| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Stanard** | **EOP-008-2**  **R1, R1.4, R1.6, R1.6.2, R1.6.3** | **TOP-001-6**  **R9** |  |  |

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| **Step** | **Action** |
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| **Note** | Market Participants must be notified of any planned outages, and unplanned outages of **30 minutes or more,** of telemetering, monitoring and assessment capabilities, and associated communication channels between affected entities. |
| **1** | It will be the responsibility of the Shift Supervisor to determine the risk and ensure the safety of Control Center personnel when deciding to evacuate the Control Center. |
| **2** | Upon confirmation of imminent danger to Control Center personnel, immediately evacuate the Control Center to a secure area, taking the Control Center cell phone. Notify the DC Tie Desk Operator before leaving or immediately after. |
| **Note** | After the Control Center has been evacuated the Shift Supervisor may:   * Re-locate the entire shift to the Alternate Control Center (ACC). * Send a partial shift or contact extra personnel to report to the ACC. * Remain in the secure area in anticipation of a quick return to the Primary Control Center (PCC). * The Shift Supervisor may choose another course of action that will best maintain grid security depending on the circumstances causing the evacuation. |
| **3** | The Shift Supervisor is responsible for the following notifications in the event of a Control Center evacuation. Information and instructions conveyed will be based on the Shift Supervisors decision regarding relocation to the ACC.   * ERCOT Security TCC1 – Ext. 3000 * ERCOT Security ACC (Bastrop) – Ext. 5000 * Service Desk (to notify GMS Support and IT Infrastructure (Telecommunications and Data Center) * Director Control Room Operations and/or Designee * Engineering Support   These phone numbers have been programmed into the control room cell phone. |

## 10.2 EMMS and Interface System Failures

**Procedure Purpose:** Provide guidance for coordinating with the ERCOT Service Desk and making notification for unplanned outages of 30 minutes or more, for telemetering and control equipment, monitoring and assessment capabilities, and associated communication channels between the affected TOs and QSEs.

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| **Protocol Reference** |  |  |  |  |
| **Guide Reference** | **7.3.3(4)** |  |  |  |
| **NERC Standard** | **IRO-018-1(i)**  **R1, R1.3, R2, R2.2, R3** | **TOP-001-6 R9** | **TOP-010-1(i)**  **R1, R1.3, R2, R2.3, R3, R3.2, R4** |  |

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| **Step** | | **Action** |
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| **Note** | | Market Participants must be notified of any planned outages, and unplanned outages of **30 minutes or more,** of telemetering, monitoring and assessment capabilities, and associated communication channels between affected entities. |
| **1** | | If any Control Room computer systems fails, such as ICCP links, Web Portal, ERCOT Website, or Outage Scheduler that affect normal operations,   * Contact the ERCOT Service Desk immediately from the Supervisor Service Desk button on the Turret Phone or extension 6804 * Continue with situational awareness   If necessary, contact the on-call IT person first then contact the Service Desk. |
| **Note** | | For a complete EMMS failure, see Real-Time Procedure section 3.1 Frequency Control Operating Procedure and 3.3 System Failures. |
| **2** | | **IF:**   * Any of the systems fail and are affecting ERCOT systems or TOs and/or QSEs, and will be unavailable for at least 30 minutes;   **THEN:**   * Notify TOs and QSEs of the problem and expected duration via Hotline, * Request additional assistance from other support staff, if needed. |
| **3** | | When the problem is resolved, Notify all TOs and QSEs via Hotline of the problem resolution. |
| **4** | | RECORD the following information:   * Date * Time of event * Description of system alarms, events, failures, or incident * Actions taken and resolution * Time of system or function restoration |
| **Log** | | Log all actions. |
| Data and/or Voice Communication Failures | | |
| **1** | | Notify the Service Desk of the loss and REQUEST assistance to re-establish voice and/or data communications.   * Telecommunications group will be responsible for voice communications. * GMS Support will be responsible for data communications |
| **2** | | Use back-up communications if needed such as the Control Room cell phone, Standalone Satellite phone or the PBX Bypass phones to maintain communications with the other control room, TOs, QSEs, SPP and any other entities as needed. The list of phone numbers is located on the System Operations SharePoint site. |
| **3** | | **IF:**   * The criticality and impact of events or failures is such that TOs and/or QSEs are, or will be affected before the problem can be resolved, and the failure is expected to last at least 30 minutes;   **THEN**:   * Instruct ERCOT System Operator to NOTIFY the other ERCOT Control Room and all TOs and QSEs via Hotline of the problem and expected duration. If Hotline is unavailable utilize any of the following methods:   + Control Room cell phone, PBX Bypass phones, or Standalone Satellite phone. * REQUEST additional assistance from other support staff, as needed. |
| **Note** | | Steps 4 & 5 may be performed in any order. |
| **4** | | RECORD the following:   * Date * Time of event * Description of events, failures, or incident * Actions taken and resolution * Time of system or function restoration |
| **5** | | When the problem is resolved, NOTIFY all participants via Hotline of the problem resolution. |
| **Log** | | Log all actions. |
| EMS Alarm Heartbeat, Dynamic Rating, SCED Status, EMBP, SE, RTCA or RLC Alarms | | |
| **Note** | | * Normal status for the EMS Alarm Heartbeat (Automatic RTA Failure)/Dynamic Rating, SCED Status, EMBP, SE, RTCA and RLC Status is indicated by each status box constant green on the “ERCOT & QSE Summary Page” in the PI system. * Failure of the PI server is indicated by abnormal status of Dynamic Rating, SE and RLC, accompanied by the PI system “flat-lining” * Indication of PI server failure has been moved to the update time for all wallboard displays. * **Dynamic Rating, SE and RLC status boxes flashing red AND PI flat-lining may indicate failure of the EMS.** * Verify Shift Engineer has contacted on-call GMS Support person via xmatters for any EMS tool failure that impacts grid reliability. Confirm with the Shift Engineer that the Helpdesk was also notified as time permits. |
| **Monitor** | | PERFORM the following as applicable to the indicated conditions:   * IF only the EMS Alarm Heartbeat (Automatic RTA Failure) status box is yellow, orange or red, CONTACT the ERCOT Service Desk   + Tell them the EMS Alarm Heartbeat status in Processbook is not green and normal     - Greater than 1 minute but less than 3 minutes turns - Yellow     - Greater than 3 minutes but less than 5 minutes turns - Orange     - Greater than 5 minutes – Red   + REQUEST they notify the on-call GMS Support person of the situation. * IF only the Dynamic Ratings status box red, CONTACT the ERCOT Service Desk   + Tell them the Dynamic Rating Alarm status in Processbook is red and the dynamic ratings are not being sent to the SCADA in the EMS.   + REQUEST they notify the on-call GMS Support person of the situation. * IF only the RLC status box is yellow/red, CONTACT the ERCOT Service Desk   + Tell them the RLC Alarm status in Processbook is not green     - Greater than 5 minutes but less than 7 minutes turns - Yellow     - Greater than or equal to 7 minutes turns - Red   + Instruct them to notify the on-call GMS Support person of the situation. * IF only the SCED Status box is Yellow or red,   + The alarm turns yellow when the update duration is greater than 5 minutes and less than 7 minutes.   + The alarm turns red when the update duration is greater than or equal to 7 minutes   + Follow the Managing SCED Failures in the Real Time Desk Procedure.   + If SCED failure can’t be resolved CONTACT the ERCOT Service Desk and instruct them to notify the on-call GMS Support person of the situation. * IF only the EMBP box is red,   + Determine the reason Emergency Base Point are being issued,   + Remove the Emergency Base Point flag when condition allow,   + If EMBP can’t be resolved CONTACT the ERCOT Service Desk and instruct them to notify the on-call GMS Support person of the situation. * IF only the SE status box is red, CONTACT the Operations Support Engineer   + Tell them the SE Alarm status in Processbook is red * IF only the RTCA status box is yellow or red, CONTACT the Operations Support Engineer   + RTCA executes every 5 minutes, if RTCA doesn’t complete within the desired threshold the display changes colors   + Greater than 5 minutes but less than 10 minutes turns – Yellow   + Greater than 10 minutes but less than 15 minutes turns – Orange   + Greater than 15 minutes turns - Red   + Tell them the RTCA Alarm status in Processbook is yellow/red   + Greater than 15 minutes, inform QSEs for STP and CPSES. |
| Building Security and Fire Alarms | | | |
| **Note** | The Shift Supervisor or designee will ensure staff members adhere to emergency evacuation procedures and evacuate all team members from the Control Room if an emergency evacuation is required. | | |
| **1** | **IF:**   * Building security or fire alarm sounds,   **THEN:**   * Contact Security’s Emergency Number if Security has not already made communications with the Control Room. | | |
| **2** | **IF:**   * Control Room personnel are in danger or ordered to be evacuated,   **THEN:**   * Transfer control of the Grid to the Alternate Control Center (see “Loss of Primary Control Center Functionality” procedure section 4.4 in the DC Tie Desk Procedure), * Request additional assistance from other support staff, * Evacuate the Control Room to a safe area for Zone #1, * Report to the Alternate Control Center if necessary. | | |
| **3** | Notify the Director Control Room Operations and/or Designee as soon as practical. | | |
| Failure of the Emergency Generator | | | |
| **1** | If the Facilities emergency generator fails to start, you will be notified by the Facilities Staff. | | |
| **2** | If the Facilities Staff or the Shift Supervisor determines that it will be more than 20 minutes before the emergency generator can be started, the Shift Supervisor may consider initiating the “Loss of Primary Control Center Functionality” procedure. | | |
| **3** | The Shift Supervisor or his/her delegated representative should notify the Director Control Room Operations and/or Designee that the controls have been transferred to the other control center. | | |
| **4** | REQUEST additional assistance from other support staff as needed. | | |
| **Note** | See Desktop Guide Shift Supervisor section 2.1. | | |
| Telemetering, Control Equipment and Communication Outages | | | |
| **Note** | TOs are required to inform ERCOT of all planned outages, and unplanned outages of 30 minutes or more, for telemetering and control equipment, monitoring and assessment capabilities, and associated communication channels between the affected entities. Telemetering, Control Equipment and Communication outages that ERCOT ISO has been made aware of can be found on the Outage Calendar located on the System Operations SharePoint. | | |
| **Planned**  **Outage** | **WHEN:**   * Notified of a planned outage by email;   **THEN:**   * Record the information on the Outage Calendar located on the System Operations SharePoint Site for coordination;   **IF:**   * The outage(s) cause State Estimator or Contingency Analysis solution issues;   **NOTIFY:**   * Shift Engineer as manual updates may be needed to correct any reliability issue; | | |
| **Forced**  **Outage** | **WHEN:**   * Notified of a forced outage;   **THEN:**   * Ask if the secondary/back up redundancy is available and functional;   **IF:**   * There is no redundancy available and functional;   **NOTIFY:**   * Shift Engineer as manual updates may be needed to correct issues with the State Estimator or Contingency Analysis solution. | | |
| **Log** | Log all actions. | | |

# 11. Supervisory Responsibilities

**Procedure Purpose:** To keep current on all activities.

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| **Protocol Reference** |  |  |  |  |
| **Guide Reference** |  |  |  |  |
| **NERC Standard** |  |  |  |  |

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| **Step** | **Action** | |
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| Review Shift Logs | | |
| **1** | REVIEW shift logs entries using the following guidelines:   * Review multiple days’ worth of shift logs when returning from multiple rest days or vacation periods. * Review previous two shifts logs when accepting a shift in mid-rotation. | |
| Review New Communications from Director Control Room Operations and/or Designee | | |
| **Note** | | Periodically, the ERCOT Director Control Room Operations and/or Designee will issue new operating instructions, operating memos, and other relevant communications to all System Operators. These types of communications are used to clarify or temporarily modify existing procedures.  The Shift Supervisor is required to review these communications to ensure that the new instructions are known and understood by all desks in the shift. This task is especially crucial when returning from vacation periods, or several rest days. This review of Director Control Room Operations and/or Designee issued communications includes verification of e-mail and hardcopy communications or instructions. Clarification of new instructions, if needed, must be addressed directly to the Director Control Room Operations and/or Designee. |
| **1** | | REVIEW all communications received from the Director Control Room Operations and/or Designee including e-mails, letters, and memorandums. |
| **2** | | DETERMINE if new or revised operating instructions and operating memos were issued since the last verification of communications was made. |
| **3** | | IF new or revised operating instructions and operating memos were issued, VERIFY which system operator positions and operating procedures may be affected. |
| Deliver Oral Shift Report to Entering Shift Supervisor | | |
| **1** | OUTLINE comments on the following areas:   * Forced Outages * System Reserves * System Conditions * Market Conditions * Forecasted Congestion * System Disturbances, if any occurred * New or modified operating procedures * Shift Staffing information including staff assigned to alternate control center | |
| **2** | REQUEST understanding and acknowledgement from entering Shift Supervisor. | |
| Coordinate Adjustments to Shift Personnel Schedules | | |
| **1** | ADJUST system operator’s shift schedules for:   * Scheduled vacation leave periods * Schedule or unscheduled sick periods * Training needs * Special assignments * Other unscheduled leaves of absence | |
| **2** | COORDINATE system operator replacements for any coordinated leave. | |
| Implement ERCOT Personnel and Company Standards | | |
| **1** | IMPLEMENT the policies described in the ERCOT Employee Corporate Standard Manual as needed. | |
| **2** | ASSIST system operators in observing the standards described in the ERCOT Employee Corporate Standard Manual as needed. | |
| **3** | DISCUSS any violations of the standards described in the ERCOT Employee Corporate Standard Manual with the system operators as needed. | |
| **4** | DISCUSS any continuous and persistent non-compliance of a system operator with the standards described in the ERCOT Employee Corporate Standard Manual with the Director Control Room Operations and/or Designee as needed. | |
| **5** | EXECUTE any remedial actions recommended or instructed by the Director Control Room Operations and/or Designee. | |

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| Communicate Procedure Changes | |
| **1** | When changes to operating procedures are approved, INFORM the System Operators and have them review the change(s). |
| **2** | VERIFY that each affected System Operator understands the new or revised procedures. |
| **3** | VERIFY that each affected System Operator has signed the log sheet (located on the Shift Supervisor desk) that states that each Operator is aware and understands the new or revised operating instructions. |
| Identify Training Needs of System Operators | |
| **Note** | Under performance by a system operator is generally remedied by additional training. Clear indications of underperformance obtained from periodic performance reviews, and on the job-performance observations should indicate to the Shift Supervisor the need to consider training options. |
| **1** | REVIEW performance review results and periodic job performance observation notes at least once every three months. |
| **2** | IDENTIFY training needs of a system operator or group of system operators in any of the following areas:   * System Operations * Employee standards * General skills required in performing assigned system operator duties * New or modified operating procedures or instructions * Other areas not covered by Operating Procedures, Operating Guidelines, or established system operator training |
| **3** | REVIEW record of training needs of each system operator in the crew. |
| **4** | SCHEDULE required training for each system operator with ERCOT Training Department. |
| **5** | FOLLOW progress of system operators training. |
| **6** | DISCUSS effectiveness of training program related to system operator job performance with Director Control Room Operations and/or Designee and ERCOT Training Department at least once every six months. |
| **7** | MAKE recommendations on system operator training program as needed. |
| Official Copies of Manuals and Guides | |
| **Note** | Employees who want their own personal copies are responsible for making them themselves. |
| **1** | Ensure that only the official updated copy of the Protocols Manual, Operating Guide, and Operating Procedures Manual is kept at each Operating Desk. |
| **2** | Personal copies of Protocols Manual, Operating Guide, and Operating Procedures Manual ARE NOT allowed at the duty desk. |

Document Control

## Preparation

| **Prepared by** | **Role** | **Date Completed** |
| --- | --- | --- |
| Hartmann, Cyphers, Luker, and Smith | Procedure writers and editors | December 1, 2025 |

## Manual Change History

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| --- | --- | --- | --- |
| **Procedure** | **Ver/Rev** | **Reason for Issue** | **Effective Date** |
| All Sections | 2.0 / 0 | RTC+B | December 5, 2025 |