LEER/TLR 5 Drill Procedure
General Coordination Procedures and Drill Scenario

General

The participants of the Lake Erie Emergency Redispatch (LEER) procedure will perform drills of various scenarios of dependent and constraining systems. The Lake Erie Security Process Working Group will identify appropriate scenarios allowing each participating Control Area/Security Coordinator (CA/SC) to act as a dependent system and/or a constraining/controlling system. The number of drills will be limited to focus on the most likely scenarios. This will limit the amount of time spent on the drills and better prepare Control Areas for the most probable constraints and controlling actions.

This document supplements the steps described in the Lake Erie Emergency Redispatch procedure and describes the specific actions to be taken during each drill. Defined terms are marked with special font.

Drill Scenarios

The drill scenarios will be developed based on the most probable scenario. Presently, one scenario is planned:

- IMO-MECS flowgate # 9159 is constrained. The flowgate consists of four tie lines connecting IMO and MECS. MECS will act as Dependent SC and the Dependent CA with a transaction dependent upon having Non-Firm Daily transmission service, sourced from NYISO. (Based on anticipation of heavy east-to-west flows.)

This scenario is described in further detail later in this document. Other scenarios will be added as necessary.

Drill Dates

The drill is tentatively scheduled for Wednesday 6/6/01. The back-up date is Wednesday 6/13/01. The actual date of the drill will be set by mutual agreement of the LEER participants based on having no emergency or other unusual conditions prevailing on the power system on the day of the drill.

Declaration of dependency via the Security Coordinator Information System

The Security Coordinator (MECS) with the Dependent Control Area will initiate the drill. The Security Coordinators with dependent Control Areas (MECS) shall provide notification of the dependency, and that a LEER Hotline\(^1\) call will be initiated, via the Security Coordinator Information System (SCIS) using the “System Emergency” messaging page. The message should contain the following information:

- Dependent CA identification,
- magnitude of the dependency, and
- time of the LEER Hotline call

The information can be entered into the SCIS using the appropriate SCIS message from the Templates described in Appendix D of this document.

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\(^1\) See Appendix H for information regarding alternatives to the prescribed LEER Hotline call plan.
LEER Hotline  Call to Discuss dependent transactions

Those Security Coordinators with Dependent CA, as documented in the drill scenario, shall initiate a LEER Hotline call to describe the dependency and the transactions to be protected. Relevant data and information will be recorded on the LEER Information Template Form 1 (Included in Appendix D). Once a roll call is performed, the following information should be exchanged as part of the call:

- **Dependent CA** shall report:
  - forecasted peak load(s),
  - committed resources,
  - expected relief (MW) upon voltage reduction,
  - expected relief upon implementation of interruptible/curtailable load,
  - magnitude of the dependency, and
  - dependent transaction(s) and anticipated time of dependency.

- **Constrained SC** shall report:
  - any projected system constraints
  - if possible, the distribution factor effect (OTDF or PTDF) of transaction(s) sinking in the Dependent CA on the projected system constraint. (Enter MECS as Sink Control Area and IMO-MECS flowgate. Run Sources to Avoid in PTDF viewer.) The PTDF viewer (through the IDC) is to be used if the EMS system is incapable of providing accurate distribution factors.
  - Control actions available to relieve the constraint. During the LEER Hotline call the system operators may exchange information regarding what units are available and/or unavailable for re-dispatch.

**Determine Redispatch Options**

Analysis of effectiveness of various redispatch options will be carried out after the initial call. Identification of Generation Shift Factor (GSF) effect of controlling actions should be determined via the company’s EMS system, if the capability exists. If the controlling action is on an external system, the distribution factor effect of the controlling action should be discussed between the controlling and constrained systems. The PTDF at [http://www3.nerc.com:1114/Tdf/TdfViewer.html](http://www3.nerc.com:1114/Tdf/TdfViewer.html), [http://www.mepcc.com:1114/Tdf/TdfViewer.html](http://www.mepcc.com:1114/Tdf/TdfViewer.html), and GSF viewer [http://www.mepcc.com:1114/Gsf/GsfViewer.html](http://www.mepcc.com:1114/Gsf/GsfViewer.html) is to be used if the EMS system is incapable of providing accurate distribution factors.

Note: Refer to Appendix E for procedures on TDF and GSF Viewers.

The Dependent SC/CA should determine the appropriate GSF/PTDF/OTDF for use in the re-dispatch evaluation, using on-line or off-line load flows that depict current system topology. The Dependent SC will use the PTDF viewer to determine redispatch and use the printed table of factors provided as backup data in case of problems with PTDF(see Appendix A). The Constrained SC/CA, the one declaring TLR, must be in control of the re-dispatch process and agree with the effectiveness of all schedule/re-dispatch changes. This process may involve third party SCs/CAs who are in control of available generation designated for re-dispatch.

**Make Redispatch Arrangements**

The Dependent SC/CA will make arrangements for the re-dispatch and coordinate the process up until the time TLR actions are imminent.
**Update dependency throughout the day**

The **Dependent SC** will communicate any changes to the dependency throughout the day. The following information shall be provided via the **SCIS** “System Emergency” messaging page and directly communicated to the affected parties via the **LEER Hotline** call (i.e. **Constrained SC**, **Controlling SC**, Security Coordinator with replacement energy):

- Any changes to the dependency information as indicated in the initial **SCIS** Message.
- Any changes to the agreed upon controlling actions.

**Prepare re-dispatch options**

There will be many potentially effective generation shifts to relieve the constraint. One (or several) option(s) must be set up ahead of time so that it may be activated in the event **TLR** is implemented. Probably the most likely option that would be available is to lower effective generation and schedule replacement energy from a system that is electrically remote from the constraint.

The **Dependent SC** will identify:
- Generation availability for redispach
- Transmission service reservation (may be made up to 4 hours after the fact).

Transmission service may have to be arranged at prevailing tariffs. The redispach may be subject to transmission tariffs from Transmission Providers (TPs) internal to a SC Area or from TPs that will act as wheeling agents. The ‘availability’ of other transmission will also have to be considered. Transmission reservation details are included in Appendix C.

Once the re-dispatch option(s) is determined, the **Dependent SC** will communicate the relevant information to the LEER participants through the **LEER Hotline** call. The information should include what units will be raised and lowered, the amount of relief expected on the constrained **Flowgate** and the dependent transaction(s) to be protected (once voltage reduction and interruptible load actions have been implemented on the dependent system). At this time, the **Constrained SC** must agree with the effectiveness of the re-dispatch option. All purchasers of transmission should simulate entering transmission reservations on their respective OASIS.

**Simulate declaration of a TLR event**

If available, the **IDC Training Server** will be used to issue TLR’s and cut lists.

The **Constrained SC** (MECS) will issue a message directly on the **SCIS** “TLR” messaging page. The **Constrained SC** may run a relief report on the **IDC** as if an actual **TLR** were being activated, but not execute the **TLR** function. If the Training Server is used the **Constrained SC** will use normal procedures to issue TLR and relief report. The **SCIS** message should contain the following subject line and header and footer in the main body of the message to designate the **TLR** declaration as a drill only.

Subject line and Header:

***** DRILL. This is a drill of the LEER procedure. No actual emergency exists. *****

Footer:
**** This message is intended only for LEER Drill participants. NO actual transactions are to be curtailed. *****

Notification of Protected Transactions through re-dispatch

The Constrained SC will place a LEER Hotline call to confirm the dependent transactions on the TLR list that will not be curtailed. The Controlling SC will confirm the generators and amount of MW’s that will be shifted or location of replacement energy.

In an actual re-dispatch situation, the Controlling SC/CA’s would enter the appropriate redispatches into their respective schedules. For drill purposes, enter these as 0 MW transactions. This would test the flow-through of the transaction information in the respective SC/CA EMS’s and the creation of a tag to be entered into the IDC. For the drill, the present tagging mechanism must be used. Either the PSE serving the DEC unit or the CA in which the DEC unit resides (Load Control Area) may enter the tag. Constrained SC/CA sends a SCIS message notifying SC(s)/CA(s) which transactions are or have been relieved through LEER redispatch.

Drill Scenario #1 – IMO-MECS Constrained with MECS as Dependent SC and CA

Seeking variety from the summer 2000 LEER Drill, the LESP group selected the following as the 2001 drill scenario:

- **Constrained SC/Flowgate:** MECS/IMO-MECS
- **Dependent SC:** MECS
- Potential **Controlling SC Source** (raise) – **Sink** (lower) pairs:
  - **Source** (INC unit CA’s): MECS
  - **Sink** (DEC unit CA’s): IMO

A sample list of generator pairs having greater than 30% effect on IMO-MECS is included in Appendix A. A more comprehensive list will be provided for the drill to identify candidate pairs of units to shift. The actual determination and selection of the re-dispatch is left to the drill participants. This will require the participants to work through the analysis and negotiation to effect the re-dispatch.
Appendix A

Sample Generation Shift Factors (GSF) for All Transactions For IMO-MECS (From > To)

<table>
<thead>
<tr>
<th>Source</th>
<th>Sink</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECS_19BR G126_1</td>
<td>IMO_LAMBTNG124_1</td>
<td>-93.7</td>
</tr>
<tr>
<td>MECS_19SC G718_7</td>
<td>IMO_LAMBTNG324_1</td>
<td>-94.7</td>
</tr>
<tr>
<td>MECS_19SC G718_7</td>
<td>IMO_LAMBTNG224_1</td>
<td>-94.0</td>
</tr>
<tr>
<td>MECS_19BR G126_1</td>
<td>IMO_LAMBTNG224_1</td>
<td>-93.7</td>
</tr>
<tr>
<td>MECS_19BR G226_2</td>
<td>IMO_LAMBTNG224_1</td>
<td>-93.7</td>
</tr>
<tr>
<td>MECS_19BR G126_1</td>
<td>IMO_LAMBTNG324_1</td>
<td>-93.7</td>
</tr>
<tr>
<td>MECS_19BR G226_2</td>
<td>IMO_LAMBTNG124_1</td>
<td>-93.7</td>
</tr>
<tr>
<td>MECS_19GRN G126_1</td>
<td>IMO_LAMBTNG124_1</td>
<td>-93.0</td>
</tr>
<tr>
<td>MECS_19GRN G126_1</td>
<td>IMO_LAMBTNG224_1</td>
<td>-93.0</td>
</tr>
<tr>
<td>MECS_19SC G718_7</td>
<td>IMO_NANTICG522_1</td>
<td>-73.0</td>
</tr>
<tr>
<td>MECS_19SC G718_7</td>
<td>IMO_NANTICG622_1</td>
<td>-73.0</td>
</tr>
<tr>
<td>MECS_19BR G126_1</td>
<td>IMO_NANTICG522_1</td>
<td>-72.7</td>
</tr>
<tr>
<td>MECS_19BR G226_2</td>
<td>IMO_NANTICG522_1</td>
<td>-72.7</td>
</tr>
<tr>
<td>MECS_19GRN G126_1</td>
<td>IMO_NANTICG722_1</td>
<td>-72.0</td>
</tr>
</tbody>
</table>

...
Appendix B

Step Procedures for June 6, 2001 LEER
(Lake Erie Emergency Re-dispatch) / TLR 5

Drill

Drill Scenario: IMO-MECS Constrained with MECS as **Dependent SC** and **CA**

- **Constrained SC/Flowgate:** MECS/IMO-MECS
- Dependent System: MECS
- Potential **Controlling SC Source** (INC unit) – **Sink** (DEC unit) pairs:
  - **Source** (INC unit CA’s): AEP, MECS, NIPS
  - **Sink** (DEC unit CA’s): IMO, NYISO, MECS

Note: Times have been selected arbitrarily and can be changed to suit operating conditions at the time.

The **Drill should begin at 08:30 Eastern Standard Time (EST).** Thereafter, the steps should proceed with suitable intervals to allow all participants to remain involved. The **Drill should conclude no later than noon.**

**Procedures:**

1. **08:30 EST:** The **Dependent SC** determines the dependency situation as follows:

<table>
<thead>
<tr>
<th>Dependent Control Area:</th>
<th>MECS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA Peak Load Forecast</td>
<td>MW</td>
</tr>
<tr>
<td><strong>less</strong> Committed Resources</td>
<td>MW</td>
</tr>
<tr>
<td><strong>less</strong> Voltage Reduction</td>
<td>MW</td>
</tr>
<tr>
<td>“<strong>Control Action</strong>” relief</td>
<td>MW</td>
</tr>
<tr>
<td><strong>less</strong> Interruptible/Curtailable</td>
<td>MW</td>
</tr>
<tr>
<td>“<strong>Control Action</strong>” relief</td>
<td>MW</td>
</tr>
<tr>
<td>Control Area Total Dependency</td>
<td>MW</td>
</tr>
</tbody>
</table>

2. The **Dependent SC** (MECS) to Provide “Dependency” Data via **SCIS**’s “System Emergency” messaging page using the message as per Template 1 in Appendix D:

3. The **Dependent SC** (MECS) establishes a **LEER Hotline** call with the **Constrained SC** (MECS) and other (impacted) LEER participants.
   *(Selected based on participation involvement for the simulation only)*

Some points to remember regarding the **LEER Hotline** procedure:

- Participants using speakerphones and not speaking should mute their phones.
- The Dependent SC should exercise control over the conversations by calling on each party to speak in turn.
- Participants should verify availability of the hotline in their alternate/backup control center periodically.

**LEER Hotline** Call Agenda:

a. Role Call
b. Discussion of MECS Dependency situation:


**MECS Dependent Transaction(s) to be Protected:**

<table>
<thead>
<tr>
<th>Transaction Identification (Tag ID)</th>
<th>Transfer Distribution Factor (TDF) on Constrained Flowgate</th>
<th>Anticipated Time of Dependency Hour-ending (EST)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factor</td>
<td>PTDF (P) or OTDF (O)</td>
</tr>
<tr>
<td>Ex. NYIS-MIJM01-001A000-MECS</td>
<td>15%</td>
<td>O</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Rows may be added as needed.

- c. Update by the **Constrained SC** (MECS) on the “projected” IMO-MECS constraint
- d. Discussion of possible controlling actions available to relieve the constraint and what units/replacement energy are available for re-dispatch

**Next Steps may be taken off line for further analysis**

- e. Assessment of optimal controlling actions available to relieve the constraint (by the Dependent and Constrained SC(s) & other SC(s) that may be Controlling).
- f. Determination of generation shift effect of (re-dispatch) controlling action by **Dependent SC** (MECS).

<table>
<thead>
<tr>
<th>Sink (DEC) Unit</th>
<th>Source (INC) Unit</th>
<th>Generation Shift Factor (GSF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex. AP FM1 500</td>
<td>AEP CONE 345</td>
<td>39.1%</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Rows may be added as needed.

4. The **Dependent SC/CA** (MECS) re-convenes **LEER Hotline** call with affected Security Coordinators to review re-dispatch options analysis completed “off line” and obtain concurrence from the **Constrained SC/CA** (MECS) of projected effectiveness of schedule/re-dispatch changes. Following the roll call, these items of information will be exchanged:

- a) **Protected Transaction ID:** __________
- b) Generation re-dispatch (INC & DEC unit pairs) available:  [For the Drill use the GSF Viewer will be used to select the INC and DEC values and the preprinted table (appendix A) will be used as a backup source of data]
**Sink (DEC) Unit** | **Source (INC) Unit** | **Generation Shift Factor (GSF)** | **MW Relief at IMO-MECS**
--- | --- | --- | ---
Ex. AP FM1 500 | AEP CONE 345 | 39.1% | 15
1 | | | |
2 | | | |
3 | | | |
4 | | | |
5 | | | |
6* | | | |
* Rows may be added as needed.

5. The **Dependent SC/CA** (MECS) confirms arrangements for re-dispatch with **Controlling CA(s)** providing updates of any dependency changes via the **SCIS** identifying:

   a) Generation re-dispatch available: [for the Drill use the GSF Viewer will be used to select the INC and DEC values and the preprinted table (appendix A) will be used as a backup source of data]

<table>
<thead>
<tr>
<th>Sink (DEC) Unit</th>
<th>Source (INC) Unit</th>
<th>Generation Shift Factor</th>
<th>MW Relief At IMO-MECS</th>
<th>Transaction Identification (Tag ID)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex. AP FM1 500</td>
<td>AEP CONE 345</td>
<td>39.1%</td>
<td>15</td>
<td>NYIS-MIJM01-001A000-MECS</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
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<td>4</td>
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<tr>
<td>5</td>
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<td></td>
</tr>
<tr>
<td>6*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
* Rows may be added as needed.

6. Each Participating control area obtains an appropriate TLR list from the **IDC** viewer.

7. The **Constrained SC/CA** (MECS) initiates **LEER Hotline** call. Following roll call, these items are covered:
   - **Constrained SC** (MECS) confirms **Dependent Transactions** from **TLR** list that are **NOT** to be cut
   - **Controlling SC** confirms generators and MWs to be shifted
   - **Dependent SC** confirms that Load Management and Voltage Reduction have been implemented as applicable.
8. The **Constrained SC/CA (MECS)** declares via the **SCIS “TLR”** messaging page the following:

```
****“Simulated TLR Event on IMO-MECS for 11:00 EST.”****
```

The following transactions are to be protected through re-dispatch with **Source/Sink SCs.**:

```
Note: SCIS Message to contain:
Subject Line:
******DRILL. This is a drill of the LEER procedure. No actual emergency exists.******
```

```
Message Body:
***This message is intended only for LEER Drill participants. NO actual transactions are to be curtailed.***
```

9. Each **Controlling SC** enters appropriate (0 MW) shifts into their respective schedules to begin @ 11:00 EST

10. **Start of Lake Erie Emergency Redispatch** by **Controlling CAs**.

11. The **Constrained SC (MECS)** declares LEER has been implemented on the **SCIS “System Emergency”** messaging page using Template 2 in Appendix D.

12. The **Constrained SC (MECS)** updates status of dependencies and constraint respectively via **SCIS**:
    - Changes to the dependency information as indicated in the initial **SCIS “System Emergency”** messaging page.
    - Changes in the **Dependent Transactions**.
    - Changes to the agreed upon controlling actions and **Generation Shift Factor**.
    - Changes to IMO-MECS **Flowgate** flows and forecast

***NOTE:** **Constrained SC (MECS)** determines that LEER will be ineffective and requires relief via NERC **TLR** procedure.

13. The **Constrained SC (MECS)** issues TLR 5B
    - **NOTE:** The **Dependent Transaction** will not be cut in response to the TLR 5 action, because it is protected by the **LEER**.

    a) Other LEER participants acknowledge Transactions to be curtailed on IDC Training Server.

14. The **Dependent SC/CA (MECS)** and the **Constrained SC/CA (MECS)** update status of dependencies and constraint respectively via **SCIS**:
    - Changes to the dependency information as indicated in the initial **SCIS “System Emergency”** messaging page.
    - Changes in the dependent transactions.
    - Changes to the agreed upon controlling actions and **Generation Shift Factor**.
    - Changes to IMO-MECS **Flowgate** flows and forecast
15. The **Constrained SC** (MECS) Declares a TLR 0.

If available the **IDC Training Server** will be used to issue TLR’s and Reload List.

The **Constrained SC** (MECS) will issue a message directly on the **SCIS “TLR”** messaging page. The **Constrained SC** may run a relief report on the **IDC** as if an actual TLR were being activated, **but not execute the TLR function**. If the Training Server is used the Constrained SC will use normal procedures to issue TLR and reload list. The **SCIS** message should contain the following subject line and header and footer in the main body of the message to designate the TLR declaration as a drill only.

Subject line and Header:

***** DRILL. This is a drill of the LEER procedure. No actual emergency exists. *****

Footer:

** This message is intended only for LEER Drill participants. NO actual transactions are to be curtailed.**

16. a) The **Constrained SC** (MECS) declares:

   **Source** Unit ID # __________________________ and

   **Sink** Unit ID # __________________________

   are no longer required to support

   **Dependent Transaction** ID# __________________________

b) The **Dependent SC** (MECS) can then cancel the Emergency transaction.

c) The **Sink & Source** Control Areas can then remove this transaction from their schedule and return generation dispatch to appropriate economic loading.

17. (Repeated for multiple transactions, if re-dispatches are released separately.)

   a) The **Constrained SC** (MECS) declares:

   **Source** Unit ID # __________________________ and

   **Sink** Unit ID # __________________________

   are no longer required to support

   **Dependent Transaction** ID# __________________________

b) The **Dependent SC** (MECS) can then cancel the Emergency transaction.

c) The **Sink & Source** Control Areas can then remove this transaction from their schedule and return generation dispatch to appropriate economic loading.

18. The **Constrained SC/CA** (MECS) declares the end of the LEER simulation via the **SCIS**.

END
Appendix C
Transmission Reservation Practices under LEER

The Lake Erie participants have agreed, when applicable under a participant’s Open Access Transmission Tariff (OATT), that transmission reservations for LEER emergency purchases would be reserved as Non-Firm Hourly (Priority Level 2). Reservations for LEER counter-flow transactions would be entered in the OASIS after the fact, but not exceeding a delay greater than four hours. This four hour period for after-the-fact posting of reservations on OASIS is consistent with the time period proposed for posting of OASIS reservations under the NERC MRD procedure and is consistent with the objective of providing information on OASIS as soon as practicable. All parties to a LEER transaction are responsible for entering the appropriate transmission reservations pertaining to their portion of the transaction into their OASIS nodes that are needed to support the LEER counter-flow transaction.

The following table is intended to serve as a reference for the Lake Erie participants aiding in the determination of whether a transmission reservation must be secured separately from an emergency energy purchase for a LEER transaction.

<table>
<thead>
<tr>
<th>LEER Transmission Provider/Control Area</th>
<th>TX Reservation Bundled in Emergency Purchase (Yes/No)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMO</td>
<td>Yes</td>
<td>IMO does not have a transmission tariff. IMO would contact OPGI and request them to redispatch if they have generation available appropriate location. The compensation would be at Emergency rates established by OPGI &amp; their counterparts.</td>
</tr>
<tr>
<td>MECS</td>
<td>Yes</td>
<td>IMO-MECS operate under an Interconnection agreement</td>
</tr>
<tr>
<td>NYISO</td>
<td>Yes</td>
<td>IMO-MECS operate under an Interconnection agreement</td>
</tr>
<tr>
<td>Allegheny Power</td>
<td>Yes</td>
<td>Allegheny Power's tariff includes the acquisition and purchase cost of the transmission reservation when buying emergency energy.</td>
</tr>
<tr>
<td>AEP</td>
<td>Yes</td>
<td>None</td>
</tr>
<tr>
<td>PJM</td>
<td>Yes</td>
<td>PJM does not require transmission reservations for PJM emergency purchases, but APS and VaPwr do enter reservations in their systems in order to enable charges to PJM while CEI and NYISO charge PJM via adders. For PJM emergency sales, non-firm transmission reservations are entered into OASIS by PJM after-the-fact.</td>
</tr>
</tbody>
</table>
Appendix D

SCIS TEMPLATES

TEMPLATE 1

LEER Hotline call Notification Message via SCIS “System Emergency”

****** DRILL. This is a drill of the LEER procedure. No actual emergency exists. *******

THERE WILL BE A LEER DRILL SCHEDULED TODAY FROM 0830 EST THROUGH APPROXIMATELY 1200 EST SIMULATING A CONSTRAINT ON THE IMO-MECS FLOWGATE # 9159. The flowgate consists of four tie lines connecting IMO and MECS. MECS will act as Dependent SC and the Dependent CA with a transaction dependent upon having Non-Firm Daily transmission service, sourced from NYISO. (Based on anticipation of heavy east-to-west flows.)

The following information is for those participating in this exercise:

DEPENDENT SC/CA
LEER SC IS DECLARING ENERGY EMERGENCY DEPENDENCY ON TRANSMISSION IMPORTS

<table>
<thead>
<tr>
<th>DEPENDENT SC:</th>
<th>DEPENDENCY START: (EST) MMDDYYYY HHHH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DEPENDENCY END: (EST) MMDDYYYY HHHH</td>
</tr>
<tr>
<td>LEER Hotline CALL:</td>
<td>(EST) MMDDYYYY HHHH</td>
</tr>
</tbody>
</table>

REQUESTED BY:

<table>
<thead>
<tr>
<th>Protected Transaction</th>
<th>Transaction MW Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-Tag ID</td>
<td>MW</td>
</tr>
<tr>
<td>1</td>
<td>MW</td>
</tr>
<tr>
<td>2</td>
<td>MW</td>
</tr>
<tr>
<td>3</td>
<td>MW</td>
</tr>
<tr>
<td>4</td>
<td>MW</td>
</tr>
<tr>
<td>5</td>
<td>MW</td>
</tr>
</tbody>
</table>

COMMENTS:

A LEER Hotline call will be initiated at 09:00 EST
Expected Effect of:
 a) Voltage Reductions in dependent Control Area:
 b) Interruptible customers in dependent Control Area:
DECLARING LEER via SCIS “System Emergency” – CONSTRAINED SC/CA
A DRY-RUN OF THE LEER EMERGENCY RE-DISPATCH HAS BEEN PERFORMED TO
PROTECT FIRM LOAD CURTAILMENTS AT THE REQUEST OF THE DEPENDENT SC.

*****THIS IS A TEST, NO EMERGENCY EXISTS. THE FOLLOWING INFORMATION
IS BEING PROVIDED FOR USE BY THE TEST PARTICIPANTS.*****

LEER EMERGENCY REDISPATCH HAS BEEN PERFORMED TO PROTECT FIRM LOAD
CURTAILMENTS AT THE REQUEST OF THE DEPENDENT SC

| CONSTRAINED SC |   |   |
| CONSTRAINED CA |   |   |
| DEPENDENT SC |   |   |
| LIMITING FLOWGATE NAME |   |   |
| FLOWGATE ID |   |   |
| TIME | (EST) |   |
| DIRECTION OF LOADING |   |   |
| IDC QUERY NAME |   |   |

| RE-DISPATCH UNIT(S) (DEC Unit) |   |   |
| MW DECREASED | MW |   |
| REDISPATCH UNIT(S)/ZONE/ CA (INC Unit) |   |   |
| MW INCREASED | MW |   |

| TOTAL MW REDUCTION ON FLOWGATE DUE TO REDISPATCH | MW |   |

| PROTECTED TRANSACTION E-Tag ID | TRANSACTION MW | CONSTRAINED FLOWGATE RELIEF |
| 1 | MW | MW |
| 2 | MW | MW |
| 3 | MW | MW |
| 4 | MW | MW |
| 5 | MW | MW |
| TOTAL PROTECTED TRANSATIONS | MW | MW |

COMMENTS:
Effect of:

a) Voltage Reductions in dependent Control Area:
b) Interruptible customers in dependent Control Area:
Appendix E
Procedure for using TDF and GSF Viewer

• Go to NERC Home page
  • WWW.nerc.com

• At the upper right hand section of the page there are three yellow boxes poke on “System Data”.
• This will take you to page “Central Repository for Security Events”
• Select either “GSF viewer” or “TDF viewer” from the poke bar at the top of the page
• Complete definitions of each option and troubleshooting procedures can be found by selecting the HELP menu on GSF and TDF viewer.

• GSF Viewer
  1. Box 1
     • Select Matrix from the drop down menu
       • Select: Current Day
     • Select Report from the drop down menu
       • Select: Top 100 pairs

  2. Box 2
     • Select Control Area from the drop down menu
     • Select Flowgate from drop down menu
     • Select direction of flow on flowgate

  3. Box 3
     • Select how to sort Report from the drop down menu
     • Press Calculate

  4. Report
     • This is a list of Generator pairs to Load up and Back down to relieve flow no the selected flowgate.
     • The report lists the Source and Sink Generators with the associated factor.
       • Factor shows what percentage of the LEER Transaction will flow over the affected flowgate.
         • Example: If you put in a 100Mw Transaction from Generator A to Generator B with a Factor of 95% then it will reduce the loading on the affected flowgate by 95Mw.
• **TDF Viewer**
  1. **Box 1**
     • Select Matrix from drop down menu
     • Select either Current hour or next hour
     • Select Report from drop down menu
  2. **Box 2**
     • Select Control Area from drop down menu
     • Select Flowgate from drop down menu
     • Select direction of flow on flowgate
     • If you check multiple flowgates
       • Can poke on Add TLR Flowgate
       • This adds all flowgates currently in the TLR process
       • Poke on Add this adds the selected flowgate the list
  3. **Box 3**
     • Select how to sort Report from the drop down menu
     • Select Control Area from drop down menu
     • Enter TDF cutoff value: Normally 5%
     • Press calculate
  4. This will list all Control Areas that the Control Area selected in Box 3 can not buy or sell to based on the constrained flowgates selected in Box 2.
Appendix F

Definitions

**Dependent SC/CA** – The Control Area (and associated Security Coordinator) that is dependent upon an import transaction for meeting internal load requirements.

**Dependent Transaction(s)** – The transaction(s) upon which the Control Area is dependent.

**Protected Transaction(s)** – The Dependent Transaction(s) protected against curtailment by implementation of LEER.

**Flowgate (FG)** – A transmission facility (line, transformer, etc.), or collection of facilities, that frequently are involved in constraints to the transfer of power due to thermal, voltage, or dynamic stability limitations.

**Constrained SC/CA** – The Control Area (and associated Security Coordinator) in which a constrained Flowgate exists.

**Controlling SC/CA** – The Control Area (and associated Security Coordinator) from which the service of either increasing (INC) or decreasing (DEC) the output of one or more generating units to protect the Dependent Transaction from curtailment will be provided.

**LEER Hotline call** – The pre-arranged telephone conferencing service by which the LEER participants contact one another to arrange LEER actions. Every LEER Hotline call will begin with a roll call.

**Security Coordinator Information System (SCIS)** – The Internet-based communication service provided to Security Coordinators by the North American Electric Reliability Council (NERC).

**Transmission Loading Relief (TLR)** – The Transmission Loading Relief procedures developed jointly by the market and reliability sectors of the electric industry, under the sponsorship of NERC.

**Purchasing-Selling Entity (PSE)** – One who buys, sells, and arranges for the transfer of electric power in the wholesale market.

**Interchange Distribution Calculator (IDC)** – A software tool developed under NERC sponsorship for guiding the execution of TLR actions. The IDC also provides other information for operators through a variety of data viewers.

**Power Transfer Distribution Factor (PTDF)** – A measure of the impact of a power transfer transaction on a Flowgate. The NERC IDC provides PTDF values for all transactions having more than a threshold value impact on a Flowgate.

**Outage Transfer Distribution Factor (OTDF)** – A measure of the impact of a power transfer transaction on a Flowgate when an outage occurs on another circuit. The NERC IDC provides OTDF values for all transactions having more than a threshold value impact on a Flowgate.

**Generation Shift Factor (GSF)** – A measure of the impact on a Flowgate of increasing or decreasing the output of a generating unit. The NERC IDC can provide GSF values for transactions impacting a Flowgate.
**DEC** Unit – The generating unit that decreases its output in a redispatch action.

**Sink** – Collectively, the DEC unit and the Control Area in which it resides.

**INC** Unit – The generating unit that increases its output in a redispatch action.

**Source** – Collectively, the INC unit and the Control Area in which it resides.

**Energy Management System (EMS)** – A software tool used by transmission operators to monitor and control operation of their transmission systems.
Appendix G

Drill Guide/Checklist

Note: all times are Eastern Standard Time unless otherwise noted. The Drill is to begin at 08:30. Other times are listed as a guide, rather than a schedule. The steps may proceed more quickly, but intervals should be suitable for keeping the participants’ actions together.

08:30  The Dependent SC (MECS) determines Dependency using Table in Appendix B (page 6).

08:45  The Dependent SC (MECS) issues message on SCIS using Template 1 in Appendix D (page 12).

09:00  The Dependent SC (MECS) establishes a LEER Hotline call with LEER Members (page6 & 7).
1) Roll Call
2) Discuss MECS Dependency (Table on page 7)
3) Update members on IMO-MECS constraint and projections
4) Discuss what units are available for re-dispatch
** Items 5 and 6 should be accomplished off line **
5) Assess optimal controlling actions between Dependent and Constrained SC.
6) Determine units to be re-dispatched

09:30  The Dependent SC/CA (MECS) reconvenes the LEER Hotline call and, following roll call, reviews redispatch options.
1) Protected Transaction ID #:
2) Generation re-dispatch pairs available (INC & DEC units) (use table page 8).

10:00  The Dependent SC/CA (MECS) Confirms re-dispatch arrangements and provides an update on SCIS

10:10  Each participating Control Area gets appropriate TLR list.

10:20  The Constrained SC/CA (MECS) initiates a LEER Hotline call. Following roll call,
1) Constrained SC (MECS) confirms dependent transactions from TLR list that are not to be cut
2) Controlling SC confirms generators and MWs to be shifted
3) Dependent SC (MECS) confirms load management and voltage reduction have been implemented.

10:40  The Constrained SC/CA (MECS) declares TLR via the “IDC Training Server” and puts message on SCIS (using template on page 9).

10:50  Each Controlling SC enters LEER Transactions (0MW)

11:00  Each Controlling CA starts LEER re-dispatch.

11:10  The Constrained SC (MECS) updates status of dependencies and constraint via SCIS.
• Any Changes in:
  1) Dependency information
  2) Dependent Transactions
  3) Agreed to controlling actions and Generator Shifts
4) Constrained flowgate flows and forecasted flows

11:30 Constrained SC (MECS) issues TLR 5B via the “IDC Training Server” and puts message on SCIS (using template on page 9).

11:40 The Constrained SC (MECS) Updates Dependency and Constraint via SCIS
Any Changes in:
    1) Dependency information
    2) Dependent Transactions
    3) Agreed to controlling actions and Generator Shifts
    4) Constrained flowgate flows and forecasted flows

11:50 The Constrained SC (MECS) declares TLR 0 using “IDC Training Server” and puts message on SCIS (using template on page 9).

12:00 The Constrained SC/CA (MECS) declares INC & DEC transactions no longer needed to support the Dependent Transaction.
    1) Emergency Transactions taken out
    2) INC and DEC Units loading returned to appropriate economic loadings.

12:10 The Constrained SC/CA (MECS) declares an end of the LEER simulation via the SCIS.
Appendix H

Alternative LEER Conference Procedure(s)

In the event of a failure of the prescribed LEER Hotline call procedure (defined as an inability to connect with any LESP member affected by the anticipated emergency redispatch action), the Controlling SC shall:

1. request that any member(s) successfully participating in the call, but not directly affected by the LEER, attempt to contact the affected member(s) using a separate line, and then establish an internal link to the LEER Hotline call; or

2. request that a different member re-initiate the LEER Hotline call; or

3. cancel the call and notify all members via SCIS to call the Allegheny Power conferencing scheme. It will be necessary to notify members, either via SCIS, or by agreement to re-convene at a set time, prior to every use of this scheme. [Note: AP will develop a process for this purpose if the concept is accepted.]