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**Market Manual 7: System Operations**

**Part 7.7: Disturbance Reporting**

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**Issue 2.0**

**This document describes Disturbance Reporting Procedures. It includes processes, roles, responsibilities, reporting and compliance requirements for internal *IMO* departments and for external parties.**

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## Document Change History

<b>Issue</b>	<b>Reason for Issue</b>	<b>Date</b>
1.0	Initial Release for Baseline 6.5	October 8, 2001
2.0	Issue released for Baseline 6.6	November 26, 2001

## Related Documents

<b>Document ID</b>	<b>Document Title</b>
NERC Standard I.F	NERC Planning Standard Section I ( System Adequacy and Security), Subsection F (Disturbance Monitoring)
SCO R-0615	IMO System Control Order R-0615 Disturbance Event Reporting
N/A	NERC Glossary of Terms (August 1996)
NPCC A-7	NPCC Glossary of Terms



# Table of Contents

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<b>Table of Contents</b> .....	<b>i</b>
<b>List of Figures</b> .....	<b>ii</b>
<b>List of Tables</b> .....	<b>iii</b>
<b>Table of Changes</b> .....	<b>iv</b>
<b>Market Manuals</b> .....	<b>1</b>
<b>Market Procedures</b> .....	<b>1</b>
<b>1. Introduction</b> .....	<b>3</b>
1.1 Purpose.....	3
1.2 Scope .....	3
1.3 Overview .....	3
1.4 Roles and Responsibilities.....	4
1.5 Acronyms .....	5
1.6 Reports.....	6
1.7 Disturbance Tracking Database.....	7
<b>2. Procedural Work Flow</b> .....	<b>9</b>
<b>3. Procedural Steps</b> .....	<b>11</b>
<b>Appendix A:Forms</b> .....	<b>A-1</b>
<b>Appendix B:IMO Internal Roles and Responsibilities</b> .....	<b>B-1</b>
<b>Appendix C:Compliance Requirements</b> .....	<b>C-1</b>
<b>References</b> .....	<b>1</b>

# List of Figures

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Figure 2-1: Disturbance Analysis and Reporting ..... 12

# List of Tables

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Table 1-1: Acronyms .....	5
Table 1-2: Disturbance Report Types .....	6
Table 2–1: Legend for Procedural Work Flow Diagrams .....	9
Table 3–1: Procedural Steps for Disturbance Reporting .....	12

# Table of Changes

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<b>Reference (Section and Paragraph)</b>	<b>Description of Change</b>
Whole Document	Changes were made to the common conventions adhered to in the <i>market manuals</i> . Specifically, all <i>market rule</i> defined terms, as found in Chapter 11 of the "Market Rules", shall now be identified by italics; all references to document titles shall now be presented in double quotation marks.

# Market Manuals

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The *market manuals* consolidate the market procedures and associated forms, standards, and policies that define certain elements relating to the operation of the *IMO-administered markets*. Market procedures provide more detailed descriptions of the requirements for various activities than is specified in the “Market Rules”. Where there is a discrepancy between the requirements in a document within a *market manual* and the “Market Rules”, the “Market Rules” shall prevail. Standards and policies appended to, or referenced in, these procedures provide a supporting framework.

## Market Procedures

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The “System Operations Manual” is Volume 7 of the *market manuals*, where this document forms “Part 7.7: Disturbance Reporting”.

A list of the other component parts of the “System Operations Manual” is provided in “Part 7.0: System Operations Overview”, in section 2, “About This Manual”.

## Structure of Market Procedures

Each market procedure is composed of the following sections:

1. **“Introduction”**, which contains general information about the procedure, including an overview, a description of the purpose and scope of the procedure, and information about roles and responsibilities of the parties involved in the procedure.
2. **“Procedural Work Flow”**, which contains a graphical representation of the steps and flow of information within the procedure.
3. **“Procedural Steps”**, which contains a table that describes each step and provides other details related to each step.
4. **“Appendices”**, which may include such items as standards, policies, agreements and list of forms.

## Conventions

The *market manual* standard conventions are as defined in the “Market Manual Overview” document.

**– End of Section –**

# 1. Introduction

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## 1.1 Purpose

The purpose of this procedure is to describe the process and roles of departments within the *IMO*, of *market participants* and other external parties in reporting, reviewing and analyzing disturbances. Compliance requirements of *NERC* and *NPCC* for disturbance reporting are also outlined.

Terminology is intended to be consistent with “Market Rules”. Any terms that are not defined in the “Market Rules” are included in the “Part 7.6 Glossary of Standard Operating Terms”. For clarity within this procedure, the definition of a system disturbance as defined in “Part 7.6 Glossary of Standard Operating Terms” is given below as:

A system disturbance is an unplanned event that produces an abnormal system condition on the bulk *electricity system*. It may be associated with a fault, and may be characterized by any of the following phenomena: the loss of power system stability, cascading *outages* of transmission circuits, abnormal ranges of frequency or voltage.

Also, for clarity within this procedure, the definition of a significant event as defined in “Part 7.6 Glossary of Standard Operating Terms” is given below as:

A significant event is a contingency on the bulk *electricity system* less severe than a system disturbance, but requiring assessment, analysis and special reporting by the *IMO* and *market participants* of actual or potential impact on the *reliability* of the *IMO* controlled grid.

## 1.2 Scope

This part of the “System Operations Manual” describes the requirements for the analysis and reporting of disturbances impacting upon the *IMO controlled grid*.

*NERC*, *NPCC*, and the Ontario “Market Rules” all specify requirements for disturbance reporting to be met by their respective members and *market participants*. This procedure will indicate the information required and the processes to be followed by the members of *NERC* and/or *NPCC* and *market participants* in order to satisfy this requirement. The analysis of the disturbance or significant event includes a review of the sequence of events surrounding the disturbance, an analysis of root causes, a review of applicable operating procedures and tools, and in some cases a formal report.

## 1.3 Overview

Disturbances may occur throughout the *IMO controlled grid*, and *interconnected systems* due to equipment failures or operation, weather conditions, natural phenomena, etc. Information obtained

from system logs, recording equipment and relay settings and the review of operating procedures may be used to analyze the disturbance and the *response* of the *interconnected system*. This information can be used for further analysis and to identify ‘lessons to be learnt’ and for correcting deficiencies and improving system *reliability* in the future.

## 1.4 Roles and Responsibilities

The following outlines the accountabilities of the *IMO*, *transmitters* and other *market participants* for reporting disturbances. Additional detail relating to the *IMO* roles and responsibilities are provided in Appendix B.

The *IMO* will do the following:

- Report within 24 hours to *NERC*, *NPCC*, the Ministry of Energy, Science and Technology (MEST) and the U.S. Department of Energy (DOE) as required with a preliminary report of the disturbance. The *IMO* is not obligated to inform the DOE and other US regulatory bodies that have no jurisdictional powers over the *IMO*, but will do so in the interests of co-operation as deemed appropriate. *NERC/NPCC* may choose to forward *IMO* reports to these organizations in any case, if necessary.
- Review the sequence of events and the appropriateness of the operating procedures used.
- Co-ordinate the collection of data and information required, within the Ontario market, to satisfy regulatory requirements. Details of compliance reporting requirements based on *NERC* and *NPCC* standards are provided in Appendix C.
- Issue requests to *market participants* for information such as protection relay settings, equipment descriptions and specifications.
- Issue requests to *market participants* for information and data records to be used in disturbance analysis and system modeling.
- Perform disturbance analysis by reviewing the sequence of events and assessing the correctness of factors such as operating procedures, equipment operation, relay settings, *security* policies and training needs.
- Assess any non-compliance with *NERC*, *NPCC* and the “Market Rules” by the *market participants*, and refer to the *IMO* Market Assessment and Compliance Division for appropriate action.
- Produce required reports and make recommendations to involved parties on corrective action to prevent recurrence.
- Maintain a database of disturbance monitoring equipment based on input from equipment owners.
- Maintain a database of disturbance events.

*Transmitters* will do the following:

- Provide data, information and reports as required by regulatory entities and/or the *IMO* in order for disturbance analysis to be performed, and reports to be prepared by the *IMO*, as per “Market Rules” (Chapter 5, Section 14.1.5).

- Install disturbance monitoring equipment to meet standards and requirements specified by *NERC* and *NPCC* and any other statutory or regulatory bodies, and maintain this disturbance monitoring equipment in working order.
- Provide disturbance monitoring equipment data as requested by the *IMO*, as per “Market Rules” (Chapter 5, Section 14.1.4).
- Promptly notify the *IMO* of any disturbance monitoring equipment failure or malfunction that could affect the timely collection and reporting of disturbance data.
- Inform the *IMO* of any changes (physical or operational, actual or proposed) to the equipment installed for the purpose of disturbance monitoring.
- Provide a report to the *IMO* detailing the sequence of events, operating procedures and recommended corrective actions, within 48 hours of a *forced outage* resulting in potential *reliability* concerns, such as a disturbance. This is as per “Market Rules” (Chapter 5, Section 6.3.5).

Other *market participants* will do the following:

- Provide data, information and reports with respect to the operation of their equipment as required by regulatory entities and/or the *IMO* in order for disturbance analysis to be performed, and reports to be prepared by the *IMO*, as per “Market Rules” (Chapter 5, Section 14.1.5).
- Inform the *IMO* of any changes (physical or operational, actual or proposed) to the equipment installed for the purpose of disturbance monitoring.
- Provide a report to the *IMO* detailing the sequence of events, operating procedures and recommended corrective actions, within 48 hours of a *forced outage* resulting in potential *reliability* concerns, such as a disturbance. This is as per “Market Rules” (Chapter 5, Section 6.3.5).

## 1.5 Acronyms

A number of acronyms are used within this procedure to designate departments or sections with the *IMO*, and other external parties. A list of acronyms is given in Table 1-1.

**Table 1-1: Acronyms**

CISD	IMO Consistent Information Set Department
CRM	IMO Control Room
CSM	IMO CISD Consistent Set Management Section
DAWG	NPCC Disturbance Analysis Working Group
DFR	Digital Frequency Recorder
DOE	Department of Energy (U.S.)
MEST	Ministry of Energy, Science & Technology
MFD	IMO Market Facilitation Department
MOF	IMO Market Operations and Forecasts Division

<b>Table 1-1: Acronyms</b>	
PLC	Participant Life Cycle
RCC	NPCC Reliability Co-ordinating Committee
SCO	IMO System Control Order
SOD	IMO Shift Operations Department
SPS	Special Protection System
TFCO	NPCC Task Force on Co-ordination of Operation
TP	Transmission Provider (i.e. transmitter)

## 1.6 Reports

The *IMO* and external parties are responsible for developing reports following disturbances or significant events involving *forced outages*. All parties shall maintain accurate and complete records for use in preparing reports and for subsequent inquiries and analysis.

The intent is to provide a factual account of events, actions taken and data records. Speculation should be avoided, and reports should clearly state facts.

Table 1-2 below lists the types of reports that are required for disturbance events. Note that the severity or significance of the disturbance will determine the need for reports to external parties such as *NERC* and *NPCC*, as governed by their rules.

**Table 1-2: Disturbance Report Types**

<b>Timeline</b>	<b>Output</b>	<b>Author</b>
within 24 hours (1 working day)	preliminary report (incident or system control report)	IMO SOD (CRM)
	NPCC (1 page) if required	IMO SOD (off shift)
	NERC (1 page) if required	IMO SOD (off shift)
	MEST if required	IMO SOD (off shift)
	DOE if required	IMO SOD (off shift)
within 48 hours	preliminary report, if required	Transmission Provider/Market Participant
within 25 days	detailed report if required	Transmission Provider/Market Participant
within 30 days	TFCO formal report, if required.	IMO CSM

## 1.7 Disturbance Tracking Database

The *IMO* shall maintain a database for tracking of disturbances and other events of interest. This database shall contain required information for disturbance reporting purposes. Suitable *security* shall be in place to ensure confidentiality of information relating to disturbances and *market participant* information.

## 1.8 Contact Information

As part of the participant authorization and registration process, *applicants* are able to identify a range of contacts within their organization that address specific areas of market operations. The *IMO* will seek to contact the Main Contact in Participant Life Cycle (PLC) that is established during the participant authorization process. The *IMO* will seek to contact these individuals for activities within this procedure, unless alternative arrangements have been established between the *IMO* and the *market participant*. For more information on PLC and the Participant Authorization Process see “Market Entry, Maintenance and Exit, Part 1.1 – Participant Authorization Maintenance and Exit”.

If the *market participant* wishes to contact the *IMO*, the *market participant* can contact the *IMO* Help Centre via email at [helpcentre@theimo.com](mailto:helpcentre@theimo.com) or via telephone, mail or courier to the numbers and addresses given on the *IMO*'s Web site ([www.theimo.com](http://www.theimo.com) – or click on ‘Have a question?’ to go to the ‘Contacting the *IMO*’ page). If the *IMO* Help Centre is closed, telephone messages or emails may be left in relevant voice or electronic *IMO* mail boxes, which will be answered as soon as possible by Help Centre staff.

– End of Section –



## 2. Procedural Work Flow

The diagrams in this section represent the flow of work and information relating to the process by which disturbances and significant events are investigated and reported by the *IMO*, the primary external *market participants* involved in the procedure, and any other external parties, such as *NERC* and *NPCC*.

The steps illustrated in the diagram are described in detail in section 3.

**Table 2–1: Legend for Procedural Work Flow Diagrams**

<b>Legend</b>	<b>Description</b>
Oval	An event that triggers task or that completes task. Trigger events and completion events are numbered sequentially within procedure (01 to 99).
Task Box	Shows reference number, party responsible for performing task and task name or brief summary of task.
Solid horizontal line	Shows information flow between the <i>IMO</i> and external parties.
Solid vertical line	Shows linkage between tasks.
Broken line	Links trigger events and completion events to preceding or succeeding task.

Task steps 4, 7, 8 and 11 illustrated in Figure 2-1 show the responsible party as the ‘Disturbance Review Team’. The composition of this Disturbance Review Team will include *IMO* staff members and also representatives from relevant *market participant* organizations where required for disturbances of significant impact involving *market participants*.

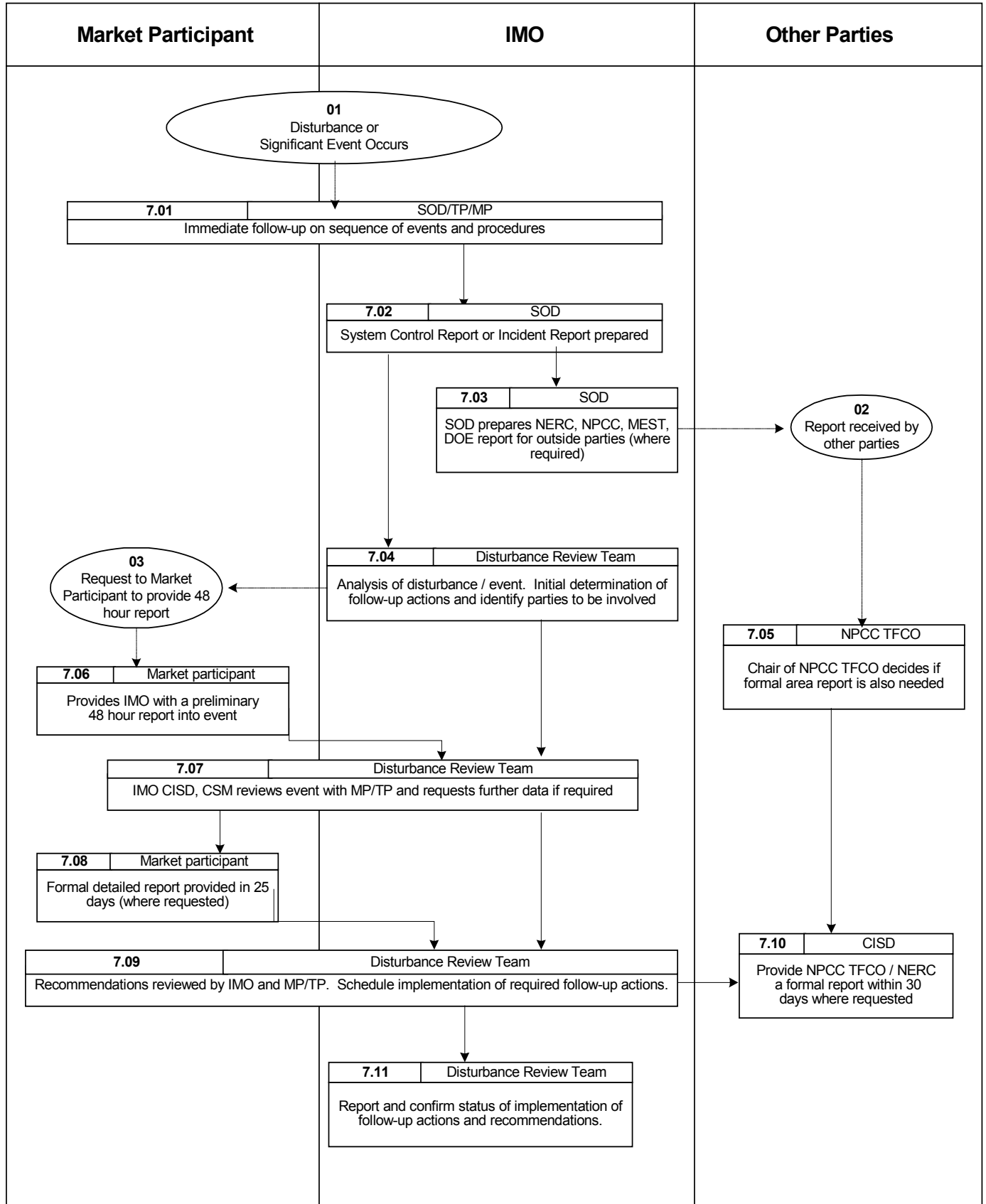


Figure 2.1: Disturbance Analysis and Reporting- End of Section -

## 3. Procedural Steps

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This section contains details of the tasks that comprise the procedures. The table contains seven columns, as follows:

### **Ref**

The numerical reference to the task.

### **Task Name**

The task name as identified in Section 2.

### **Task Detail**

Detail about the task.

### **When**

A list of all the events that can trigger commencement of the task.

### **Resulting Information**

A list of the information flows that may or must result from the task.

### **Method**

The format and method for each information flow are specified.

### **Completion Events**

A list of all the circumstances in which the task should be deemed finished.

The following table shows the tasks related to Disturbance Reporting. The steps described in Table 3-1 are illustrated in Figure 2-1.

**Table 3–1: Procedural Steps for Disturbance Reporting**

<b>Ref</b>	<b>Task Name</b>	<b>Task Detail</b>	<b>When</b>	<b>Resulting Information</b>	<b>Method</b>	<b>Completion Events</b>
7.01	Immediate follow-up and action taken following disturbance or event.	<i>IMO</i> SOD (CRM), Transmission Provider, <i>market participant</i> do operational follow-up and discussion. SOD may also inform Transmission Provider/ <i>market participant</i> if a 48-hr report is required.	Immediately following event.	Preliminary details of event including sequence of events and operating procedures followed.	Verbal conversation and written entries in <i>IMO</i> control room log.	Initial follow up completed / acknowledged.
7.02	System Control Report or Incident Report prepared.	A report prepared by <i>IMO</i> SOD and distributed to <i>IMO</i> management, SOD, CSM and MFD.	Within 24 hours of event 01.	Incident or System Control Report as applicable.	Report as per SCO R-0615, using information from task 1.	Report sent to internal <i>IMO</i> parties.
7.03	SOD prepares <i>NERC</i> , <i>NPCC</i> , MEST, DOE report where required.	Prepares 1 page report (form) if required. Faxed to outside party ( <i>NERC</i> , <i>NPCC</i> , MEST, DOE).	Follows event 01 within 24 hours of event being identified as reportable.	Report for <i>NERC</i> / <i>NPCC</i> / MEST / DOE as required.	As per <i>NPCC</i> and <i>NERC</i> policy, and SCO R-0615.	Report received by outside parties.
7.04	Analysis of disturbance event by Disturbance Review Team. Initial determination of follow-up actions and identify parties to be involved.	Analyze sequence of events, limits, operating procedures, communications, <i>security</i> policy, tools, compliance assessments etc – see details elsewhere in this procedure.	Before and following receipt of report from Task 2.	Recommended actions. Initial determination of root causes and corrective actions.	Consultation with other <i>IMO</i> departments, e.g. CISD.	Completed analysis. Follow actions and responsible parties identified.

**Table 3–1: Procedural Steps for Disturbance Reporting**

<b>Ref</b>	<b>Task Name</b>	<b>Task Detail</b>	<b>When</b>	<b>Resulting Information</b>	<b>Method</b>	<b>Completion Events</b>
7.05	<i>NPCC</i> TFCO Chair decides if formal area report is required.	<i>NPCC</i> review preliminary report and determine if further detail warranted.	After receiving <i>NERC/NPCC</i> report (event 02).	TFCO decision for more formal report and may also form a DAWG to review.	Analysis and comparison with other similar events.	TFCO identifies to <i>IMO</i> if a report is required.
7.06	<i>Market participant</i> provides <i>IMO</i> with a preliminary 48 hour report into event.	Report for significant occurrences.	Within 48 hours of event 01 occurring.	Report of events from Transmission Provider / <i>market participant</i> perspective.	Written initial report.	Report received by <i>IMO</i> CSM.
7.07	<i>IMO</i> CISD, CSM reviews event with <i>market participant</i> / Transmission Provider and requests further data if required.	Review sequence of events, data limits for correctness. Request information on relay settings and similar types of data if required. Other <i>IMO</i> groups to investigate as required.	Following task 6 and task 4.	Comparison of limits with events. Investigate other aspects as necessary.  Further determination of root causes and corrective actions.	Market Limits (CISD) to review limits, possibly conducting new studies. Other sections to examine their areas of responsibility.	Confirm correct operation and procedures or recommended changes.

**Table 3–1: Procedural Steps for Disturbance Reporting**

<b>Ref</b>	<b>Task Name</b>	<b>Task Detail</b>	<b>When</b>	<b>Resulting Information</b>	<b>Method</b>	<b>Completion Events</b>
7.08	Formal detailed report provided in 25 days (where requested) by <i>market participant</i> .	Transmission Provider/ <i>market participant</i> to provide report and information to <i>IMO</i> .	Within 25 days of event 01, timing to be provided by <i>IMO</i> and agreed to by Transmission Provider/ <i>market participant</i> .	Detailed description of the nature and causes of the disturbance. Recommended actions to mitigate / prevent a repeat occurrence. Proposed schedule of implementation. Other information as may be requested by the <i>IMO</i> , e.g. relay targets, DFR data.	Analysis of data and information available.	Detailed report received from Transmission Provider/ <i>market participant</i> .
7.09	Recommendations reviewed by <i>IMO</i> and Transmission Provider/ <i>market participant</i> . Schedule implementation of required follow-up action.	Review recommendations and schedule plan of action.	Follows tasks 7 and 8.	<i>IMO</i> CSM and others as required meet with Transmission Provider/ <i>market participant</i> . Agreement reached with Transmission Provider/ <i>market participant</i> . Implementation schedule created.	Meeting, phone or email.	Required actions documented, including responsible party and completion dates.
7.10	Provide <i>NPCC</i> TFCO / <i>NERC</i> a formal report within 30 days where requested.	Prepare report if required.	Within 30 days of event 01.	Report prepared.	<i>IMO</i> CSM prepares report.	Report sent.

**Table 3–1: Procedural Steps for Disturbance Reporting**

<b>Ref</b>	<b>Task Name</b>	<b>Task Detail</b>	<b>When</b>	<b>Resulting Information</b>	<b>Method</b>	<b>Completion Events</b>
7.11	Report and confirm status of implementation of follow-up actions and recommendations.	Review progress of action items.	As required, at least monthly.	Progress is acceptable or compliance enforcement initiated if necessary.	Review and refer to <i>IMO</i> Market Assessment and Compliance Division.	Update status. Input to <i>IMO</i> monthly performance reporting.

– End of Section –



# Appendix A: Forms

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There are no forms used in this procedure.

**– End of Section –**



# Appendix B: IMO Internal Roles and Responsibilities

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Roles and responsibilities for disturbance analysis and reporting are assigned within the *IMO* as listed below.

## IMO Shift Operations Department (SOD)

This includes both Control Room personnel on 24/7 shift and “off shift” personnel. Responsibilities include:

- Initial review of sequence of events and operating procedures with *transmitter* and/or *market participant* during or immediately following event.
- Identify disturbances and write incident reports, system control reports, *NPCC*, *NERC*, *MEST*, *DOE* reports/forms as required. Distribute resulting reports to internal and external entities as required.
- Inform other *IMO* sections and *transmitter / market participant* that a reportable disturbance has occurred.
- Identify policy or operating procedures and practices that may have contributed to undesirable outcomes during the disturbance. Discuss with *market participants* or appropriate *IMO* staff.
- Meet with *CSM* and *MFD* the day after the incident/disturbance and decide on initial follow up actions (including responsible parties) and recommendations. Participate as part of the Disturbance Review Team.
- Request *CISD* to follow up on events as appropriate.
- Inform other *IMO* sections of changes to operating practice (such as might be determined during Operating Effectiveness Meetings) that would contribute to system *reliability*.

## Consistent Information Set Department- Market Limits (ML) Section

Responsibilities include:

- Ensure data is retrieved from recording devices on a periodic and timely basis as required.
- Analyze sequence of events, *DFRs*, relay target settings, correctness of limits, correct functioning of protection & *SPSs*.
- Assess whether standards/requirements as per “Market Rules” (Chapter 4 Appendix 4) were adhered to. Determine if current system performance meets *IMO* requirements and standards.
- Assess correctness of operating limits, conduct studies and correct operating limits where necessary, including revising relevant *SCOs*. Inform other *IMO* sections when reviews are being conducted.

## Consistent Information Set Department - Consistent Set Management (CSM) Section

Responsibilities include:

- Meet with SOD and MFD staff the day after the incident/disturbance, to assess the incident, its root causes and follow up or corrective actions (including responsible parties) to be taken to prevent recurrence.
- Receive the report from the required *transmitter* and/or *market participants* within 48 hours, and *distribute* to members of Disturbance Review Team at the *IMO*. Review the disturbance with *transmitter* and/or *market participant* where necessary in order to identify corrective actions.
- Co-ordinate the activities associated with disturbance reporting, with appropriate follow up with *transmitter* and/or *market participant* and *IMO* staff as required, including the maintenance of the disturbance event reporting database. Participate as part of the Disturbance Review Team.
- Track number of load interruptions and duration on an area basis (as defined by the *IMO*) relative to area performance *reliability* indices.
- Track operating *security* limit violations as per compliance requirements.
- Determine the root causes of the disturbance and identify corrective actions. Factors to be considered will include policy/procedure, *security limits*, level of *ancillary services*, transmission or generation, equipment failures or maloperation, control systems, telemetry, weather, communication problems, etc.
- Assess if changes are needed to *reliability* or *security* policy, or if there is a need for increased *adequacy* (transmission, generation, *dispatchable loads*),
- Inform other *IMO* sections that a disturbance review is being conducted.
- Make recommendations and identify corrective actions.
- Ensure recommendations, changes to policy or operating procedures are implemented with appropriate follow up within the *IMO* and with *transmitter* and/or *market participants*. Advise status of follow up to MFD for inclusion in *IMO* Monthly Performance Report.
- Identify non-compliance situations and refer to appropriate authority for follow up.
- Co-ordinate and prepare 30 day formal report to *NPCC* if required.
- Provide annual audit and analysis of effectiveness of corrective actions taken in preventing future disturbances.

## Consistent Information Set Department – System Capability Section

Responsibilities include:

- Assess whether standards/requirements as per “Market Rules” (Chapter 4 Appendix 4) were adhered to. Determine if current system performance meets *IMO* requirements and standards.
- Assess correctness of operating limits, conduct studies and correct operating limits where necessary, including revising relevant *SCOs*. Inform other *IMO* sections when reviews are being conducted.

- Participate as part of the Disturbance Review Team as required.

### **Market Facilitation Department**

Responsibilities include:

- Review incidents/disturbances from an internal Market Operations & Forecasts perspective and flag follow up to other accountable sections.
- Track performance measures relating to disturbances for monthly performance monitoring purposes. Report disturbances and incidents in *IMO* Monthly Performance Report.
- Meet with CSM and SOD (off shift) the day after the incident/disturbance, review incident, and decide on follow up actions (including responsible parties). Participate as part of the Disturbance Review Team.

### **MOF (Market Operations and Forecasts) Training**

Responsibilities include:

- Review “lessons learned” from disturbances and significant events with applicable *IMO* staff, as part of training activities.

### **Long Term Forecasts and Assessments Department**

Responsibilities include:

- Determine the need for system improvements, and provide appropriate recommendations and reports, on the basis of the outcome of system disturbances and significant events.

### **Contracts and Agreements Department**

Responsibilities include:

- Determine the need for, and arrange for changes to external agreements and contracts, and other relevant external policy/procedures documentation, on the basis of the outcome of system disturbances and significant events

### **IMO Market Assessment and Compliance Division**

Responsibilities include:

- Assess and action compliance issues related to disturbances and significant events.

– End of Section –



# Appendix C: Compliance Requirements

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This Appendix provides related background material in support of the disturbance monitoring and reporting functions.

## NERC

“NERC Planning Standard Section I. – System Adequacy and Security, Subsection F” deals with Disturbance Monitoring. This Standard (S1) specifies that each region will develop requirements to ensure that disturbance monitoring equipment is in place to be able to retrieve data that will allow system performance and the causes of system disturbances to be determined. There are a number of compliance templates applicable to this area. Each of the standards has specific measurements and compliance levels.

The following topics are covered:

- a. Disturbance Monitoring Equipment List
  - Specifies what equipment is required.
  - The obligation on regional members (i.e. *NPCC*) is to maintain a list of installed equipment that can be made available on request within 5 *business days*.
- b. Disturbance Monitoring Data Reporting Requirements
  - Criteria for specifying and reporting data so as to ensure that it is available for determining system performance and the causes of system disturbances.
  - The obligation is to have this information made available on request, within 5 *business days*.
- c. Disturbance Data
  - Criteria for providing current data so that transmission models may be developed, maintained and updated.
  - The obligation is to have this data made available on request, within 30 *business days*.

## The Compliance Process

1. *NERC* will request the above information as per *NERC* policies, either directly or via *NPCC*
2. The *IMO* will pass this request onto *transmitters* and/or *market participants* within the Ontario *Control Area*.
3. The *IMO* will co-ordinate and collect all the required information and summarize it
4. The *IMO* will enter data into the appropriate *IMO* database and record keeping systems.
5. The *IMO* will send a single, consistent *response* to *NERC* (and/or *NPCC*).

## NPCC

*NPCC* has taken the *NERC* Planning Standards and created requirements to satisfy those standards. The requirements are contained in *NPCC* document B13 “Guide for Reporting System Disturbances”. There is also an *NPCC* Compliance template and accompanying document iC25 (interim revision to C25) entitled “Procedure to Collect Power System Event Data” that specifies equipment and procedures with respect to disturbance monitoring and collection of power system data in general.

*NPCC* also has a working group (Task Force on System Studies – Working Group on Inter-area Dynamic Analysis - SS38) that has investigated disturbance reporting and equipment. The working group report (SS38-6 “Review of Dynamic recording Devices”) contains most of the compliance requirements. The most recent report, prepared in November 1999, is an update to a report previously completed in 1996. The document lists disturbance monitoring equipment specifications, the location and operational status etc of the installed equipment and provides other required information for all installations within *NPCC*.

### Related Documents

1. B13 “Guide for Reporting System Disturbances”
  - Specifies definitions and requirements for reporting system disturbances.
2. *NPCC* Compliance template “Define and Document Disturbance Monitoring Equipment Requirements”
  - Satisfies the requirements of the *NERC* Compliance Standard “Disturbance Monitoring Equipment List”.
  - *NPCC* document iC25 “Procedure to Collect Power System Event Data” is the output required to satisfy this standard.
3. *NPCC* document iC25 “Procedure to Collect Power System Event Data”
  - This document (iC25) is an interim revision that is currently under review at *NPCC*.
  - The document contains procedures to collect data, the format to be used and who to contact for the data.

### The Compliance Process

1. *NPCC* will request the above information as per *NPCC* policies (note: *NPCC* may be requesting data on behalf of *NERC*)
2. The *IMO* will pass this request onto *transmitters* and/or *market participants* within the Ontario *Control Area*.
3. The *IMO* will collect, co-ordinate and summarize all the required information
4. The *IMO* will enter data into the appropriate *IMO* database and record keeping systems.
5. The *IMO* will send a single, consistent *response* to *NPCC* (and/or *NERC*).

## IMO

The “Market Rules” require *market participants* to provide reports on system disturbances within 48 hours of the initial event when requested to do so. The reports should include:

- detailed description of the nature & causes of the disturbance

- recommended actions to mitigate/prevent a repeat occurrence
- proposed schedule of implementation
- other information as may be requested by the *IMO* such as relay targets, digital frequency recorder data, etc

– **End of Section** –



## References

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<b>Document ID</b>	<b>Document Title</b>
MDP_RUL_0002	Market Rules for the Ontario Electricity Market
NERC Standard I.F	NERC Planning Standard Section I ( System Adequacy and Security), Subsection F (Disturbance Monitoring)
NERC Policy 5F, 5G	NERC Policy 5F Disturbance Reporting NERC Appendix 5F Reporting Requirements for Major Electric System Emergencies NERC Policy 5G Sabotage Reporting
NPCC B13	NPCC Guide for Reporting System Disturbances
NPCC C25	NPCC Procedure to Collect Real Time Data for Inter-Area Dynamic Analysis
NPCC iC25	NPCC Procedure to Collect Power System Event Data (to be reissued to address NERC and DOE new requirements)
NPCC SS38	NPCC working Group: Inter-area Dynamic Analysis – SS38 report: Review of Dynamic Recording Devices (edition 2 November 1999)

– End of Document –