

# Communicating with the IESO – Non-Dispatchable Loads

IESO Training

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## Communicating with the IESO: Guide for Non-dispatchable Loads

### AN IESO MARKETPLACE TRAINING PUBLICATION

This guide has been prepared to assist in the IESO training of market participants and has been compiled from extracts from the market rules or documents posted on the web site of Ontario's Independent Electricity System Operator. Users of this guide are reminded that they remain responsible for complying with all of their obligations under the market rules and associated policies, standards and procedures relating to the subject matter of this guide, even if such obligations are not specifically referred to herein. While every effort has been made to ensure the provisions of this guide are accurate and up to date, users must be aware that the specific provisions of the market rules or particular document shall govern.

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# 1. Introduction

Effective communication is the most important tool we<sup>1</sup> have in maintaining the reliability of the IESO-controlled grid<sup>2</sup> and operating the markets. Information exchange is key. Although we receive thousands of bits of data every few seconds, there are many situations that only you can see. Your information can alert us to something we are unaware of or can confirm the seriousness of a situation and help us make the right decision as quickly as possible. Examples of this type of information include local electrical storms, grass fires, high winds, and ice build-up on structures. It is also essential for you to tell us about circumstances that have the potential to impact the future operation of your facilities.

This guide covers:

- Timelines – and reasons for these timelines
- Communication principles and protocols
- Communication requirements during normal and abnormal operating states
- How we communicate with each other in real-time

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<sup>1</sup> In this document, 'we', 'us' and 'our' refer to the IESO. 'You' refers to the market participant.

<sup>2</sup> In this document, 'grid' means the IESO-controlled grid. 'Markets' means the IESO- administered markets.

## 2. Communications Timelines

Events on the power system happen quickly. When we experience an unexpected event on the power system (a ‘contingency’), the system is not as strong as it was before the event. We need to re-prepare, i.e., get ready to face the next event as soon as possible.

The longer we spend time in a degraded state, the more vulnerable the system is to the effects of another contingency. Often, contingencies take place during severe weather, so the likelihood of another event is higher than normal.

### **Reliability standards**

Reliability standards require us to re-prepare the system within 30 minutes during normal conditions – and we only have 15 minutes during high risk conditions, such as an electrical storm. In these short periods, we must gather information from participants, make a plan and execute it. As you can see, timely communication from the involved participants is key if we are to meet our re-preparation times and minimize our exposure to this increased risk.

### **Your role**

We may direct you to take an action ‘promptly’ or ‘immediately’. When we use these terms, we mean:

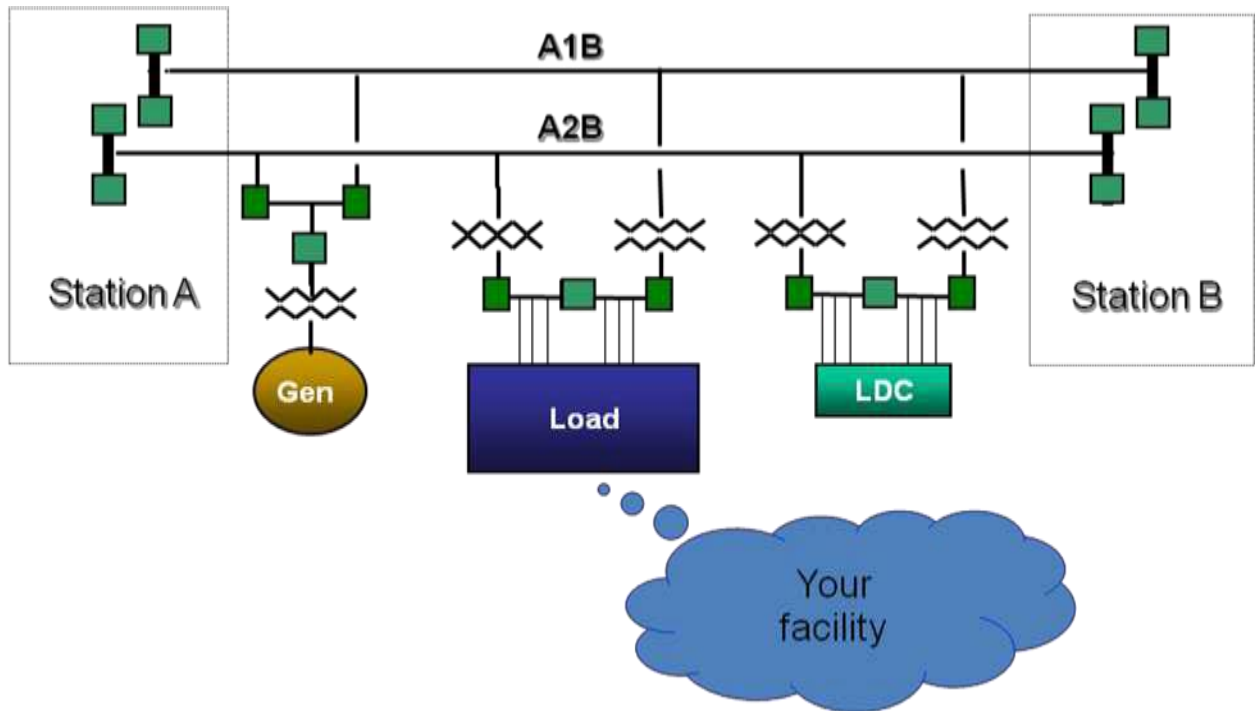
**As soon as possible, but no longer than 5 minutes after receiving direction or recognizing the need to take an action.<sup>3</sup>**

We will communicate this type of direction to you by telephone.

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<sup>3</sup> As outlined in the *Market Rules: Chapter 5, Section 1.2.5*.

## 3. Communications Principles and Protocols



Both the market rules and market manuals use the term 'connected wholesale customers' to refer to directly connected loads as shown here.

If this is your configuration, you are directly connected to the grid, that is, the transmission system between Station A and Station B. Because of this, we are responsible for directing the operation of the equipment that connects your facility, and you have some specific communications obligations with us.

Our goal is to facilitate open, timely communication. Clear communication is paramount during both normal and abnormal conditions. It is important that we understand what you have said to us and we must ensure that our messages are correctly understood.

Because of unconscious editing, technical term misunderstanding, or technical problems, the receiver must repeat the message back to the sender to ensure that the message has been received and is understood.

#### Guidelines

- Avoid using first names when you participate on a conference call - address individuals by station or site name.
- Be concise and precise - provide only the information that is related to the purpose of your call.
- Give the call your complete attention.
- To avoid any misunderstandings, use official industry operating terminology.
- Avoid using jargon that may only be understood within your own company. Please refer to Market Manual 7.6: *Glossary of Standard Operating Terminology* for a list of approved operating terms.
- Be sure to identify yourself, your company and the location you are calling from. (Some participants have more than one location.)

#### Where can you find communications protocols?

Communication protocols with the IESO are in the market rules and market manuals:

- *Market Manual 7.1* contains much of the material covered in this guide
- *Market Manual 7.6* lists approved operating terms

Please note that although we do not cover it in this guide, you also have protocols with your transmitter as defined in your connection agreement.

## 4. Communicating During a Normal Operating State

### What are normal operating conditions?

We are in a normal operating state when we have:

- Fair weather conditions
- No security limits or thermal limits being exceeded
- Sufficient energy and capacity to meet the forecast demand
- No emerging reliability concerns within Ontario or in neighbouring jurisdictions that could affect our area

The grid is in the normal operating state most of the time.

### What should you communicate to your transmitter?

You have communication obligations with your transmitters, as outlined in your connection agreement. These obligations include coordination of switching or outage timing requirements and work protection. We may also be involved in some of these discussions.

### And what should you communicate to us?

There are things that you must communicate directly to us – even if you also communicate them to your transmitter – such as:

- System reliability information
- Outage notification
- Approvals for switching equipment in and out of service
- Planned equipment and auxiliaries outages or tests
- Except for large industrial customers who routinely exceed these levels, planned single-point load pickup of:
  - 100 MW if your facility is south of Barrie
  - 50 MW if your facility is north of Barrie
- Planned operation of any breakers that can cause a parallel between multiple connection points to the grid
- An event that could potentially jeopardize grid or equipment reliability

We encourage you to contact us whenever you have something relevant to communicate.



## 5. Communicating During an Abnormal Operating State

### **What are abnormal operating conditions?**

An abnormal operating state exists any time we are not in a normal condition, including when:

- We declare an emergency, or
- We declare a high risk operating state, or
- After a contingency (i.e., an unexpected event on the power system).

### **Who should you communicate with?**

In abnormal operating conditions, such as after a contingency, we are your first point of contact.

We will assess, co-ordinate and direct the restoration of equipment when it is safe to do so, conferencing in all involved parties.

### **When should you call us?**

Call us immediately if:

- You experience partial or total loss of potential
- You are located south of Barrie and you experience:
  - Automatic loss of load > 100 MW
  - Automatic loss of reactive capability  $\geq$  15 MVARs (dispatchable by us)
- You are located north of Barrie and you experience:
  - Automatic loss of load > 50 MW
  - Automatic loss of reactive capability  $\geq$  10 MVARs (dispatchable by us)
- Operation of any protective relaying, special protection schemes or system auxiliaries (such as communication facilities associated with protections)
- Degradation of system auxiliaries
- Loss of any internal distribution lines that affect the output of an embedded generator of 20 MW or more

In abnormal operating conditions, we are your first point of contact. You may contact your own authority control centre as long as doing so does not delay the phone call to us.

If your call is due to a contingency, we will assess, co-ordinate and direct the restoration of any equipment. Typically, we will conference call with all affected parties, including your transmitter if necessary.

### **Multi-party communications**

Due to the integrated nature of the power system, there are many situations where we need to speak with a number of different participants at the same time via conference call.

As an involved party, it is essential that you remain on the line while these discussions take place. Failure to do so may delay restoration or prevent resolution of the operating problem.

For example, assume you are fed off a two line supply, and one of them is automatically removed from service. For safety reasons, we cannot restore the circuit until we have spoken with all the tapped participants.

If you do not call us and we cannot reach you, the line will remain out of service, subjecting all the participants, including yourself, to increased risk as you will remain on single line supply until we can reach you.

### **Communicating with us during a contingency**

#### **Who should you call?**

- Call our control room operator promptly when a grid disturbance occurs, and provide information on the cause (if known) and effect of the contingency on your facility and equipment.
- We will conference you as necessary with all affected parties. During phone conferencing, please remain on the line until we end the call. Remember that your information is important to us in building the plan for recovery to normal operation.

#### **What do you say?**

Whether you speak with our operator or are re-directed to a voice mailbox<sup>4</sup>, we need key information from you:

- Identify yourself
- Identify your company and facility location
- Identify the reason for your call

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<sup>4</sup> You may be directed to a voice mailbox only during large scale or widespread disturbances.

- Have key information available (as outlined below)

### **What information should you provide?**

- Time of the event
- Status of your facility and equipment
- What you observed – were there any indications prior to the trip that something was happening on the grid
- If you have any indication of likely cause
- Any concerns about returning equipment to service
- Other urgent equipment, safety, or environmental concerns

### **What if you get voice mail?**

Our telephone system prioritizes calls during disturbances. When this happens, your call may be re-directed to voice mail:

- It is important to leave all your information on the recording and we will return your call as soon as possible. Please note that due to the volume of calls we receive during disturbances, unless your conditions change, one phone message is sufficient.
- You may elevate yourself in our phone queue if you have urgent information concerning public safety, danger to the environment, or risk of equipment damage.

Your message should include:

- Your identity, company and facility location
- The reason for your call
- Information on the cause or impact of the disturbance and the status of your equipment

Be prepared for our follow-up call.

### What happens next?

We will use all available information from you and other affected participants to build a plan for recovery to restore the system to normal operation as soon as possible:

- Follow our directions to restore equipment
- Resume normal operation when we confirm it is safe to do so
- Call us if you know of any post-event issues that may affect the grid or the markets or if you discover anything that could help reveal the cause of the disturbance

Your information is a very important part of building our restoration plan. It is important that we are able to communicate with every participant on a circuit before re-energizing that circuit.

If we cannot speak with you, restoration may be delayed. That is why it is important that your contact numbers are up-to-date in our registration database. If your information is not up-to-date, please contact your account manager.

### Communicating with us if you have a loss of potential

What happens if your facility loses all potential? The blackout could be localized or could affect a large area. Regardless of the extent, you must call us immediately.

Call our control room operator promptly, following the same steps as you would for a contingency. Keep in mind that:

- During a widespread disturbance you will probably be unable to talk with us directly.
- Our telephone system prioritizes calls during disturbances. When this happens, your call may be re-directed to voice mail. As with contingencies, it is important that you leave all your information on the recording and we will return your call as soon as possible. You may also elevate yourself in our phone queue if you have urgent information concerning public safety, danger to the environment, or risk of equipment damage.
- In the meantime, take your pre-approved independent actions on loss of potential following the Ontario Power System Restoration Plan.

We will call you when restoration has proceeded to the point where we are able to allow load back on the system.

- Resume normal operation when we confirm it is safe to do so
- Call us if you know of any post-event issues that may affect the grid or the markets

### Post-contingency communications

The information you provide is very important for system reliability. Post contingency, we need to know:

- **Equipment status or concerns:** Has your equipment been forced out of service for a long period? Do you have any concerns about equipment damage?
- **System status:** Do you have any voltage or thermal concerns? Have you noticed any abnormal frequency excursions? Has your facility suffered any load loss?
- What annunciations can you provide to us – such as relay protection sealed-in? This can help us piece together the cause of an event.
- Have you had any operation of any special protection schemes or system auxiliaries (e.g., underfrequency load shedding)?
- Do you have any urgent environmental concerns that could become a major disaster?
- Indications of fault severity (if you have digital fault recorders installed within your operation, communicating this information is very important, e.g., how did your equipment respond during this disturbance, etc.)
- Your assessment of return to service of your equipment and any potential causes, if they are known.
- Any information relevant to security of the grid or concerns before restoration attempt is made, e.g., equipment limitations, environmental conditions, etc.
- If the contingency involves other market participants' equipment - we will discuss with all parties before the restoration attempt (this is why it is important for our facility registration database to have your up-to-date contact information).

## 6. IESO-initiated Communications

There are circumstances when we may call you to do something during normal or abnormal conditions. For example, to maintain reliability or during emergency operating states, we will take actions that could include:

- Directing you to execute an action, or
- We could also implement rotational or block load shedding

If we are requesting a load reduction, we will either call you directly or via a recorded broadcast message. It is important that you implement the requested actions immediately and call us back confirming your participation and the amount of load you will shed. Use the phone number that was given to you on the recorded message.

Advisory Notices also alert you to an emergency operating state.

### **How we communicate with you**

#### **Telephone**

Telephone is our most common means of communication.

We do not physically operate equipment, rather we direct the operation of the IESO-controlled grid. It is through telephone communication with you, the participant, that we get things done. During your registration, we provided you with all the phone numbers you need to communicate with us. If you wish to confirm any of these numbers, please contact [Customer Relations](#).

#### **Advisory Notices and Adequacy Reports**

We release these Adequacy Reports and Advisory Notices, if required, at specific times daily throughout the day and post them on our web site. These notices allow us to present information to the market participants that is not addressed through the Adequacy Report. They are intended to provide this information for an event that is deemed significant or any change that is not captured through regularly scheduled publication of reports.

SSRs Adequacy Reports list the hourly forecast demand, system capacity and energy, as well as system advisories for the IESO-administered markets.

We also release SSRs when there are any material changes within the IESO-administered markets. (Please refer to *Market Manual 7.2, Section 1.3.3*, available on our Rules and Manuals web page, for details on material changes.)

## 7. Skill Check

### Skill Check: Questions

1. From the list below, under which of the following situations should you call us?
  - a) You are planning to operate the tie circuit breaker that will parallel two connection points of the grid
  - b) You are going to draw an oil sample from your station's directly connected main transformer
  - c) You will be performing some internal plant switching that will introduce a load pick-up of 45 MW to the system
  - d) Your maintenance team is performing infrared scanning of your live transformer and overhead line switches
  - e) Your facility, located in Toronto, suffers a load loss of 34 MW
  
2. When is the grid considered to be in abnormal conditions? (choose all that apply)
  - a) When we have formally declared an emergency and posted a system status report
  - b) When primary demand forecast adjustments are required due to revised weather forecasts
  - c) When there is lightning activity in a local area of southern Ontario
  - d) When we have formally declared a high risk operating state and posted a system status report
  - e) When system contingencies or unusual equipment behaviour threaten the reliability of the grid
  
3. Assume you receive a high temperature alarm on your facility's directly connected main transformer. Your technician determines that the temperature switch needs replacement. What communication to us, if any, needs to be initiated?
  - a) No communication is necessary since your technician informs you that the replacement of the switch can be done without de-energizing the transformer.
  - b) Replace the temperature switch promptly, then call to inform us.
  - c) Call to inform us promptly. Coordination through our outage management procedure is required.

4. You have received a credible sabotage threat to your facility and you will be shutting down your facility, resulting in a sudden load loss of 35 MW. Should you call us about this?
  - a) No, this is a local problem within your facility.
  - b) Yes. We encourage communication of unusual events that could become bigger issues affecting grid reliability, public safety, equipment or the environment.
  - c) No, since this only causes a load loss of 35 MW.
  
5. There has been a contingency on the grid and your facility has lost all potential. You have no environmental, safety or equipment concerns. You wish to know what happened and how long it will be before power is restored. When you call us, you get a recorded message. What should you do next?
  - a) Elevate your priority in our telephone queue to find out when the power will be restored
  - b) Leave a message with applicable details, and implement your independent control actions in preparation for our phone call
  - c) Keep calling and leave as many messages as it takes
  - d) Keep calling until you speak with an operator
  
6. It is a normal day of production at your facility. You receive a recorded message from our control room requesting that you reduce demand by 4% in 10 minutes. How should you respond?
  - a) Call us back immediately at the number that was given to you on the recorded message and verify that it is not a simulated exercise
  - b) Call us back at the number provided on the recorded message and request an explanation
  - c) Begin implementing the demand reduction, then call us back at the number provided on the recorded message with an estimate MW reduction that will be achieved
  - d) Look for a system status report on our web site for verification of an emergency condition and call us back at the number provided on the recorded message
  - e) Contact your management staff and call us back to initiate a conference with us once you have contacted them



7. Your facility is directly connected to the grid and is experiencing fluctuating incoming voltages. You suspect it is caused by the neighbouring generating facility. Who do you call for more information about the cause?
- a) Your transmitter
  - b) The IESO
  - c) Your local distribution company
  - d) The neighbouring generation facility

**Skill Check: Answers**

1. From the list below, under which of the following situations should you call us?
  - a) You are planning to operate the tie circuit breaker that will parallel two connection points of the grid ✓
  - b) You are going to draw an oil sample from your station's directly connected main transformer
  - c) You will be performing some internal plant switching that will introduce a load pick-up of 45 MW to the system
  - d) Your maintenance team is performing infrared scanning of your live transformer and overhead line switches
  - e) Your facility, located in Toronto, suffers a load loss of 34 MW
  
2. When is the grid considered to be in abnormal conditions? (choose all that apply)
  - a) When we have formally declared an emergency and posted a system status report ✓
  - b) When primary demand forecast adjustments are required due to revised weather forecasts
  - c) When there is lightning activity in a local area of southern Ontario
  - d) When we have formally declared a high risk operating state and posted a system status report ✓
  - e) When system contingencies or unusual equipment behaviour threaten the reliability of the grid ✓
  
3. Assume you receive a high temperature alarm on your facility's directly connected main transformer. Your technician determines that the temperature switch needs replacement. What communication to us, if any, needs to be initiated?
  - a) No communication is necessary since your technician informs you that the replacement of the switch can be done without de-energizing the transformer.
  - b) Replace the temperature switch promptly, then call to inform us.
  - c) Call to inform us promptly. Coordination through our outage management procedure is required ✓
  
4. You have received a credible sabotage threat to your facility and you will be shutting down your facility, resulting in a sudden load loss of 35 MW. Should you call us about this?
  - a) No, this is a local problem within your facility.
  - b) Yes. We encourage communication of unusual events that could become bigger issues affecting grid reliability, public safety, equipment or the environment. ✓
  - c) No, since this only causes a load loss of 35 MW.

5. There has been a contingency on the grid and your facility has lost all potential. You have no environmental, safety or equipment concerns. You wish to know what happened and how long it will be before power is restored. When you call us, you get a recorded message. What should you do next?
  - a) Elevate your priority in our telephone queue to find out when the power will be restored
  - b) Leave a message with applicable details, and implement your independent control actions in preparation for our phone call ✓
  - c) Keep calling and leave as many messages as it takes
  - d) Keep calling until you speak with an operator
  
6. It is a normal day of production at your facility. You receive a recorded message from our control room requesting that you reduce demand by 4% in 10 minutes. How should you respond?
  - a) Call us back immediately at the number that was given to you on the recorded message and verify that it is not a simulated exercise
  - b) Call us back at the number provided on the recorded message and request an explanation
  - c) Begin implementing the demand reduction, then call us back at the number provided on the recorded message with an estimate MW reduction that will be achieved ✓
  - d) Look for a system status report on our web site for verification of an emergency condition and call us back at the number provided on the recorded message
  - e) Contact your management staff and call us back to initiate a conference with us once you have contacted them
  
7. Your facility is directly connected to the grid and is experiencing fluctuating incoming voltages. You suspect it is caused by the neighbouring generating facility. Who do you call for more information about the cause?
  - a) Your transmitter
  - b) The IESO ✓
  - c) Your local distribution company
  - d) The neighbouring generation facility

## 8. Summary

In summary:

- We encourage you to contact us any time you have something relevant to tell us
- Your timely communication during normal and abnormal conditions allows for
- more options
- Be aware of the types of situations that require you to call us promptly
- Your participation in conference calls is an important part of a prompt recovery plan
- We will call you directly by phone or via a broadcast message if:
  - You are required to shed load, or
  - You are part of a simulated load-shedding exercise