Market Entry:
A Step-by-Step Guide

IESO Training

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A Step-by-Step Guide

AN IESO TRAINING PUBLICATION

This guide has been prepared to assist in IESO training 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

Welcome to Ontario's IESO!

This guide explains what you need to do to join the IESO-administered markets.

If you have any questions as you follow this guide, please call Customer Relations at 1-888-448-7777, or if assigned, contact your Registration & Compliance Support – Project Manager.

2. Market Entry Overview

There are up to four main tasks that will need to be completed, depending on the type of interactions you will have with the markets:

Connection Assessment

A connection assessment is required if you are planning to construct or modify a connection to the IESO-controlled grid. We will assess the impact of your connection on the reliability of the integrated power system. (Please note: we will refer to the IESO-controlled grid as 'the grid' for the remainder of this guide.)

Your connection to the grid could affect how you participate in the energy markets. We can help you understand the impact of your decisions.

Participant Authorization

If your company wishes to participate in the IESO-administered markets, it needs to be 'authorized'. The authorization task ensures that:

- You have obtained the required government documentation
- Your company is credit-worthy
- You can connect to our secure website
- Your obligations as a market participant are clear to you
- You have identified people in your company who will act as our official contacts
- You have identified the roles you wish to play in the IESO-administered markets (load, generator, transmitter, distributor, wholesaler, retailer, financial market participant)

Facility Registration

Physical facilities that are connected to the grid or that will be participating in the physical market are registered with us. This helps us ensure the reliability and performance of the grid.

The facility registration task gathers the technical data we need to represent your facility in our systems. This allows us to:

- Take your facility's capabilities into account when we operate the energy markets, and
- Assess whether your facility meets reliability standards and any requirement identified in your connection assessment.

The information we gather includes:

- A single line diagram of your facility
- The physical characteristics ('technical data') of your facility
- The location of your facility
- The people responsible for specific roles at your facility

Meter Registration

Within Ontario, all energy bought or sold in the IESO-administered markets is measured and recorded by metering installations that meet our standards. These metering installations are registered with us so they can be allowed into service in the market. The meter registration task ensures that:

- Your metering installation accurately measures and records the flow of energy entering or leaving your facility
- We can communicate with and read your meters
- We can produce financial settlements from your meter readings
- You have identified who is responsible for financial settlements with us, and who is responsible for maintaining and testing your metering installation

What should you do first?

If a connection assessment is required, complete this task first. (See the Connections Assessment section on Page 4 for details.)

To complete any of the remaining tasks, contact us at market.entry@ieso.ca. You will be assigned a Registration & Compliance Support – Project Manager who will provide assistance to you, and in particular, identify any critical milestones we would need to complete to meet your timelines.

Some tasks may require more time to complete than others. The task timelines in relation to each other are shown on Page 20. The facility registration and meter registration tasks cannot begin until the connection assessment task is complete and you have started the participant authorization task.

Do you need more information?

The next sections of this guide provide more information on the tasks, including the documents required to be submitted, as well as timing information.

Please also see our Connection Assessments and Approvals (CAA) and Registration web pages.

3. Connection Assessment

Your connection affects how you will be able to operate in the market

You will need to complete the connection assessment task if you intend to:

- Connect a new facility to the grid
- Significantly modify a facility connected to the grid
- Connect a generator larger than 10 MW to a distribution system (embedded generator)

We will assess the impact of your connection on the reliability of the integrated power system. A formal system impact assessment study will be required if we expect your project to have a significant impact on the grid. If we expect the impact to be minimal, a less rigorous system impact assessment will be required. Please see the guidelines in Section 9.2 of the *Connection Assessment and Approval* manual.

Your connection to the grid affects how you will be able to operate in the market. We can help you understand the impact of the type of connection you are proposing.

Authorization to participate in the market cannot be given until any required connection assessment and approval process has been completed.

Information is also available at our Connection Assessments and Approvals (CAA) web page.

Consulting with the transmitter

You will need to send us a detailed project design that shows the arrangement of your facility and the point of connection to the grid. We recommend that you consult with the transmitter to determine:

- The appropriate voltage at which the connection should be made, and
- The preferred point of termination of the incorporation facilities. This is especially important in situations where system constraints might influence the connection arrangement or where new equipment needs to be installed within facilities owned by the transmitter.

You will probably want to review the Transmission System Code before you meet with the transmitter.

System Impact Assessment

Are you constructing or modifying a connection to the grid?

You can download your *System Impact Assessment Application* from our web site. Select the application you need for your company (generation facility, load facility, transmission facility, or ancillary services) and send a complete System Impact Assessment Application and a single line diagram of your proposal by email to connection.assessments@ieso.ca. When we have received your *System Impact Assessment Application* together with the appropriate deposit, and the *System Impact Assessment Agreement* has been signed, we will evaluate the impact of your proposal on the reliability of the integrated power system.

The system impact assessment also tells us if any transmission facility enhancements are required.

You will be responsible for all the costs of carrying out the assessment.

If you wish, you can arrange for a consultant to carry out the assessment.

Embedded generator

If the generation project is greater than 10 MW and is to be connected to a distribution system, the application and the applicable deposit will have to be sent to the distributor. The distributor will then send us the System Impact Assessment application and the applicable deposit to modify the existing connection to the grid to reflect the proposal. We recommend that you consult with your distributor prior to sending them the application for an embedded generation facility.

Expedited System Impact Assessment

Does your connection have minimal impact?

If you think your connection will have only minimal impact on the grid, you can apply for an Expedited System Impact Assessment. To start this assessment, send an email with details and a single line diagram of your proposal to connection.assessments@ieso.ca. We will let you know if we need additional information. We will tell you whether we will require a System Impact Assessment or expedited System Impact Assessment within five business days of receiving all the necessary information.

You will be responsible for all the costs of carrying out the assessment. A *Cost Recovery Agreement* will be executed between your company and us to carry out the initial expedited assessment and all future expedited assessments.

Feasibility Study

Before you apply for a System Impact Assessment, you can ask us to perform a confidential feasibility study to determine if there are any major concerns or issues with your proposed connection. You will have to pay the costs of the feasibility study, and we will ask you for a deposit before beginning the study.

You can download the *Feasibility Study Application* from our web site. Send a complete application and a single line diagram of your proposal by email to connection.assessments@ieso.ca. We will evaluate the technical acceptability of your proposal once we have received your application together with the required deposit, and the *Feasibility Study Agreement* has been signed.

You will be responsible for all the costs of carrying out the feasibility study.

If you wish, you can arrange for a consultant to carry out the feasibility study.

Using a consultant for your connection assessment study

You might want to have a consultant do your connection assessment study.

We can provide you with a list of consultants who have indicated an interest in performing connection assessment studies. If you decide to engage a consultant, we will provide base case load flows, dynamic data, and other required study data. (We cannot give any assurances regarding the performance of the consultant and we do not assume any liability for poor performance by a consultant.) For more details see *Guidelines for Performance of Connection Assessment Studies by Consultants.*

If we perform the connection assessment studies, we will manage your connection assessment task on a best effort basis, depending on how many other connection assessments we are working on.

Project Lists

Your connection proposal is placed on a project list (described in section 3.1 of Market Manual 2.10) when we sign the system impact assessment agreement. Expedited connection proposals are placed on the applicable project list immediately.

Notification of Conditional Approval

Your conditional approval to connect

If your connection is approved, we will send you a *Notification of Conditional Approval* and ask you to send us a *Project Status Report* periodically to let us know the status of your proposal.

4. Participant Authorization

This section provides details on the documents you need to provide to us and the forms you need to complete to become an authorized market participant. Information is also available at our Participation Registration web page.

Application for Authorization to Participate (Form 1016)

To start, you will need to complete and submit this *form*, which asks for information on your company and how you will be participating in the energy markets. We need to know:

Information about your company

- Your company information (name, address, etc.)
- The people we will be dealing with at your company
- HST information
- Banking information – must be a Schedule I, II, or III bank with a branch in Ontario (this can take some time for U.S. companies – you may want to start this early.)
- 'Market Information' – which markets you will participate in and which roles you will play
- A checklist of documents that you may send us along with your application form

An officer of your company with signing authority for agreements and contracts signs the completed application form. You must send us the original signed form by mail or courier.

Application fee

You must include a non-refundable application fee of CAD$1,000 plus HST. You can use a certified cheque, credit card, direct deposit or electronic funds transfer (EFT).

Government Documents

Do this early

Ontario Energy Board (OEB) Licence

You will need an OEB license if you are participating in the energy markets. You may need more than one, depending on the roles you intend on playing in the market. You should apply for these licences as early as possible - getting them may take longer than our actual authorization task. Information is available on the OEB web site at http://www.oeb.gov.on.ca/OEB/Industry#.

If you are participating in the energy markets and do not already have a HST number, you will need to apply for one. Information is available on the Canada Revenue Agency's web site at http://www.cra-arc.gc.ca/tx/bsnss/tpcs/gst-tps/rgstrng/menu-eng.html. (This can take a few months for U.S. companies.)

National Energy Board (NEB) Permit

Required for exporters

You need an NEB permit if you will be exporting energy out of Canada. Information is available on the NEB web site (http://www.neb-one.gc.ca/clf-nsi/rthnb/rgltrpplctn/rgltrpplctn-eng.html).

Certificate of Status/Articles of Incorporation/Partnership Registration

Your company must be 'active'

Canadian companies need to send us a certificate of status, which is a legal document that tells us your company is 'active'. This certificate is probably available from your company's legal department.

U.S. companies must provide a certificate of status or the equivalent documentation in its home jurisdiction such as Articles of Incorporation.

For a partnership, a legal document that shows that the partnership exists and duly registered in Canada should be submitted to us. This document informs us that your partnership is legally established and 'active'.

IESO Legal Documents

Two of the documents you need to complete are legal documents. You may want to send these to your lawyer for review early in the authorization task.

Participation Agreement

Signing the formal agreement

The ***Participation Agreement*** **is a legally binding document** that covers the business relationship between you and the IESO, and states both your agreement and our agreement to follow the market rules. Send two completed and signed Participation Agreements by mail or courier. We will countersign each agreement and return one to you upon completion of the participant authorization task.

Other IESO Documents

Market Participant Contacts (Form 1238)

More contact information

Use this *form* to tell us who we should contact for all the different IESO functions. For example, you can tell us which person to contact if we have information regarding your settlement statement, who to contact if there is a question about compliance, etc. This helps us ensure that certain communications by phone or emails involve the right person. The form lists various contact types – see Page 6 of the form for a description of each type.

It is important to keep your contact list up-to-date. Remember to inform us every time you want to change, add or delete a contact.

Prudential Support Information (Form 1044) and Spreadsheet Attachment

Information about your company's credit-worthiness

You may have to meet credit requirements, called 'prudential' requirements. Prudential requirements are based on your activities in the market - the requirements are not the same for all market participants. Your prudential amount can be reduced if you have a good credit rating or good payment history.

(By setting prudential requirements, we ensure that if a market participant has financial difficulties and is unable to pay, other market participants will not face financial losses.)

After we receive this *form*, we will send you a 'Schedule A' listing your prudential obligations. You will need to send us back 'Schedule B' telling us in what form your prudential support will be submitted (e.g., letter of credit, treasury bills, etc.).

Transmission Rights Auction Information (Form 1361)

Transmission Rights Market

Use this *form* if you want to participate in the Transmission Rights (TR) market.

Send us this form and your TR market deposit at least five business days before the TR auction round in which you wish to participate. We use the information in the form to determine your bidding limit.

Transmission Rights Certification as an Eligible Commercial Entity (Form 1540)

Use this *form* if you are based in the United States and want to participate in the Transmission Rights Market.

How do I know I am authorized as a Market Participant?

Your approval document

Once you are fully authorized, we will send you a copy of the cover sheet of your approval document known as the NFN (*New Facility Notification).* This is your confirmation that your company is authorized to participate.

Connecting to IESO Information Systems

We will communicate back and forth with you over the internet for many of our transactions. For example, you will connect to our secure web sites if you want to submit energy bid and offer information, pick up your settlement statements and invoices, send or retrieve certain documents and data, or retrieve metering data.

A user name and strong password are required for user authentication for such tasks as submitting energy offers and bids, submitting Transmission Rights Auction bids, or retrieving confidential Reports.

Anyone at your company who will be performing transactions with us will need to obtain access to our systems.

Identity and System Access Management Form (Form 1276)

Use this *form* to tell us which people in your company will need to access our information systems to communicate with us.

Once we have processed the access requests, the people in your company will be able to login to our information systems.

Your Participant Workstation

What you need to interact with us over the internet

You will need to set up and maintain a participant workstation to interact with us over the internet. The technical requirements for your workstation are explained in the *Participant Technical Reference Manual*.

In general terms, a participant workstation is a computer with internet access that runs using Windows XP or Vista, and has Internet Explorer 6 or 7 installed.

Testing your internet connections

If you would like to test your internet connections to us, we can give you access to our sandbox system for testing. Your Registration & Compliance Support – Project Manager can help arrange this.

Ontario Reliability Compliance Program

Once you become an authorized market participant, you must comply with all reliability standards that apply to you depending on your role in the IESO-administered markets and the power system equipment you own or operate. In addition, you may be required to self-certify compliance with certain reliability standards as determined by the Ontario Reliability Compliance Program (ORCP).

If required, your Registration & Compliance Support – Project Manager will make arrangements to help you understand your reliability compliance obligations and the reporting requirements of the ORCP.

See the Ontario Reliability Compliance Program web page for further details.

5. Facility Registration

This section provides details on some of the activities and documents you need to provide to us to complete the facility registration task. You need to register any physical facility that is connected to the grid or that will be participating in the energy markets. Information is also available at our Facility Registration web page.

This task helps us ensure the reliability and performance of the grid. We use the information you send to represent your facility in our systems. This allows us to take the information about your facility into account as we operate the market and the system. It also helps us ensure that your facility meets reliability standards and any requirement identified in your connection assessment.

When should you start facility registration task?

Start the facility registration task by contacting us at market.entry@ieso.ca once you have completed the connection assessment task and you have begun one or more of the following:

- Construction of your facility,
- Modification of equipment, or
- The participant authorization task. (In this case, contact your Registration & Compliance Support – Project Manager.)

Time estimates for facility registration

How long will the facility registration task take?

These are estimates of the amount of time you should allow for facility registration before you can expect to bring your facility into service:

- New generation or intertie connections: 7 to 8 months
- New load greater than 20 MVA: 6 months
- New load less than 20 MVA: 4 months
- Modifications of equipment requiring new telemetry data (see *Our Next Steps* on Page 12): 6 months
- Modifications of equipment not requiring new telemetry data: 3 months

Let us know your key milestones and the dates you expect to complete your scheduled activities. This information allows us to coordinate our activity with you while we work toward your connection to the grid.

We will meet with you to help you get started

Meeting with our technical staff

Our technical staff will meet with you for an early review of your project. Your Registration & Compliance Support – Project Manager will help arrange the meeting.

Our technical staff will discuss a number of questions with you, including:

- Whether your facility is dispatchable, non-dispatchable, self-scheduling or intermittent (see the *Overview of IESO-Administered Markets* for definitions of these terms). You should sort this out with us early – the acceptable placement of your revenue meters depends partly on the type of facility you have, and how you intend to participate in the energy markets.

- Which energy markets you plan to participate in.
- If you are planning to aggregate equipment. (For example, a 2-unit generating station may want to operate in the energy markets by offering energy as a single generator.)

Transmission Connection Agreement

You need to contact your transmitter

This agreement provides an outline of the connection of your facility to the grid as well as the roles and responsibilities between you and your transmitter. We need a signed copy of the agreement at least two weeks before your first connection to the grid.

You should send us a draft copy of the technical schedules in the agreement (Schedules A and E) as soon as you can – at least eight weeks before you plan to connect.

Single line diagram

Send us the single line diagram as soon as you can

We need an 'as-built' single line diagram (SLD) for your facility that has been reviewed and approved by your transmitter:

- If possible, scan the diagrams and send them to your Registration & Compliance Support – Project Manager electronically in pdf format.
- If you cannot scan the diagrams, send us a hard copy. Include your name, the name of the facility, and your market participant ID number (contact your Registration & Compliance Support – Project Manager if you do not have your ID number).

The SLD must show the electrical equipment at your facility and the connection points to the grid, and have operating nomenclature, not engineering nomenclature.

Our next steps

We will send you telemetry data requirements

We will use the single line diagram, the proposed size and aggregation requirements (if any) of your facility, and the information regarding your role in the market to determine if you need to provide us with operational telemetry data from your facility. If we need telemetry data, we will develop and send you a list of all the required status and analog points. The list will help you set up your equipment that will be used for telemetry. You will also need to add some technical details to the list and send it back to us.

We will also tell you if the required telemetry performance for your facility is 'high' or 'medium'.

We will add these points to our systems to represent your facility. Before your first connection to the grid and any subsequent scheduled activity date for your facility, you will need to have certain points tested and verified with us. Your Registration & Compliance Support – Project Manager will coordinate the testing with you.

Your 'delivery points'

For a generation or load facility, we will also send you a list of the 'delivery point' (also known as 'resource') names and ID numbers we use to in our systems to identify your facility's injections into or withdrawals from the grid. You will need to give these names and IDs to your meter service provider for your meter registration. (We use the delivery point name in our models. The delivery point ID number becomes the account number, and is used for settlements.)

Real-Time Communications

Your Remote Terminal Unit

Providing Operational Telemetry?

If the required telemetry performance for your facility is 'high' (see above under *Our Next Steps*), you will need to set-up and maintain a remote terminal unit (RTU).

We will need to order a communication circuit for your RTU at least five months before your first connection date to the grid. The required information for this order is:

- Street address of site containing the RTU, and
- Name and phone number of site contact for our telecom contractor to use.

We may need additional information about your RTU – our technical staff will let you know if we do.

Your Dispatch Workstation

Do you need a dispatch workstation?

Dispatchable generators and dispatchable loads will receive dispatch instructions from us for each 5 minute period of the day. You will need to set-up and maintain a dispatch workstation at your facility to receive and respond to our dispatch instructions 24 hours a day, 7 days a week.

We will also order an additional communication circuit for your dispatch workstation. You will need to provide us with your official 'registered' internet address for the workstation.

If you need to complete commissioning tests for your facility, the dispatch workstation is not required to be operational until those tests are done – see Commissioning on Page 16 for details.

Self-scheduling and intermittent generators, non-dispatchable loads, and transmission facilities do not need to install a dispatch workstation.

Voice Communications

Most communications with us are through your participant and dispatch workstations, but we also use voice communication systems for some situations.

The 'normal priority' path requires only a regular telephone with call display and call waiting. A satellite phone will be required if we determine that you need a 'high priority' voice communication path.

Need more information?

You can find further technical details in the *Participant Technical Reference Manual* and in *Connecting to the IESO*. If you need additional help, our technical staff will arrange to meet with you.

The procedure to hook up the RTU and dispatch workstation to each communication circuit is similar.

Other IESO documents & requirements

Resource information

Facility Profile (Form 1181)

Use this *form* to provide us with specific information for the resources associated with your generation or load facility, such as the connection type, the intended roles in the energy markets and ancillary services, and the maximum active power capability and ramp rate.

See Our Next Steps – "Your 'delivery points'" paragraph on Page 13 for details on what a resource is.

More contact information

Facility Contacts (Form 1176)

Use this *form* to tell us who we should contact for all of the different IESO functions relating to your physical facilities. For example, you can tell us which person to contact if we have technical question regarding performance, or who to contact regarding operational matters. This helps us ensure that certain communications by phone or emails involve the right person.

It is important to keep your contact list up-to-date. Remember to inform us every time you want to change, add or delete a contact.

What will you do in an emergency?

Emergency Preparedness Plan (EPP)

All market participants with any physical facility connected to the grid require an emergency preparedness plan. See the guidelines on our Emergency Preparedness web pages for a list of documents you will need to send us. We also provide a guide (*Market Participant Emergency Planning Guidelines*).

If you already have an emergency preparedness plan, you can use your existing plan as a start.

Restoration Plan Attachment

We designate some market participants as restoration participants because of their size and/or grid connectivity. These participants are required to send us an additional attachment. (Sections 2 and 13 of Market Manual 7.8, the *Ontario Power System Restoration Plan,* list the criteria for designation as a restoration participant and the items to include in your attachment.)

We can help you with technical data forms

Sending us technical data

We need 'as-built' technical data to model your facility in our systems. This data can include:

- Parameters for transformers and other equipment such as breakers and switches,
- Models and data for generator and associated control systems, or
- Descriptions of high voltage protection systems including special protection systems (e.g., load rejection, generation rejection, runback scheme)

We have many *supporting forms* for collecting this data. Your Registration & Compliance Support – Project Manager will help identify which forms you need to complete and submit for your facility. Our technical staff can assist if you need help completing the forms. For protection systems, you will need to prepare and submit a protection description document.

All submitted data will be reviewed by our technical staff. Approval of this data by our technical staff is a facility registration requirement. In some cases, certain data will need to be further calibrated during your commissioning tests. (See Commissioning on Page 16 for details.)

Testing of operational telemetry data

Testing of operational telemetry data between your facility and us is required before we issue your approval to connect. You will need to test each status and analog point, including end to end tests (from each piece of monitored equipment in your facility to our model of your facility), with our technical staff.

Depending on the scheduled activities for your facility, testing may need to occur as more than one activity. Your Registration & Compliance Support – Project Manager will identify and help coordinate the testing.

Your approval(s) to connect

What approvals do you need before you connect to the grid?

- We will send you a copy of the cover sheet of your approval document known as the NFN (*New Facility Notification).* Depending on your key milestones and your scheduled activity dates for the facility, we may issue more than one NFN. The NFN is a confirmation of our recommendation for approval to connect to the grid for the scheduled activity.
- In addition to any NFN issued, final 'outage' approval may also be required to connect.

You will need to complete all of the facility registration requirements for your scheduled activity before we can send you the NFN. Be sure your metering service provider has tested your metering installation (see Page 18 for details). Contact your Registration & Compliance Support – Project Manager if you have not received an NFN at least one week before any scheduled activity date.

Your outage requirements

Your final 'outage' approval

Final approval to connect to the grid will not be issued to you without final 'outage' approval.

Before your first connection to the grid, you will need to submit a request and, if applicable, a commissioning test plan and schedule to our outage group (ontca.dayahead@ieso.ca). Be sure to send your request at least 33 days before your scheduled in-service date.

You may also wish to contact your transmitter about any outages they may need to complete to facilitate the connection of your facility.

You will need to review outage requirements

You will also need to request permission from us for planned equipment outages in your facility so that we maintain the reliability of the grid. You will be provided an outage reporting letter listing the equipment in your facility that will need this permission. The outage approval process and its associated requirements will be reviewed with you before your first connection to the grid. For more details, see the Outage Management manual. Your Registration & Compliance Support – Project Manager can also help with these details.

Other information

Registered market participant (RMP)

You need to register an RMP if you are required to submit dispatch data (bids, offers, forecasts and schedules) for your facility. Complete and submit this *form*.

Commissioning

Certain facilities or equipment will require commissioning tests to be completed when connecting to the grid for the first time. This requirement will be identified to you by your Registration & Compliance Support – Project Manager and/or our technical staff.

If required for your connection, you will be required to submit a detailed commissioning test plan to us. This plan needs to be approved by our technical staff before you send your outage request to our outage group.

We may need to complete additional registration activities for your facility once you complete your commissioning tests, depending on your role in the energy markets. We need at least six business days notice to complete these activities. If you are a dispatchable facility, your dispatch workstation will need to be ready to operate at this time.

You will also need to do the following tasks:

- Send us an email indicating the results are adequate as soon as the tests are finished, and
- Send us a final commissioning test report summarizing all results with any changed technical data. This should typically be supplied no later than 30 days after the tests are finished.

We will provide further details on the above tasks on your approval document (The NFN - *New Facility Notification)*.

Our Market Assessment and Compliance department

Our Market Assessment and Compliance Department ensures that the market rules are followed. If you have market rule compliance questions you may contact, MACDInbox@ieso.ca or see our website http://www.ieso.ca/imoweb/mktIntegrity/overview.asp

6. Meter Registration

We use the meter registration task to ensure that:

- Your metering installation accurately measures and records the flow of energy entering or leaving your facility
- We can communicate with and read your meters
- We can produce financial settlements from your meter readings
- You have identified who is responsible for financial settlements with us, and who is responsible for maintaining and testing your metering installation

Before the task starts, you will need to send us the names of your metering service provider and your metered market participant.

Information is also available at our Meter Registration web page.

Metering service provider (MSP)

You need to have an MSP register and maintain your metering installation. If you do not already have an MSP, you can find a list of registered MSPs on our web site.

Decisions about your metering installation

Your MSP will be able to help you with important decisions regarding the design and operational requirements of your metering installation. You have many different options available to you, and these options have different cost considerations.

Important tasks your MSP carries out

Your MSP provides a great deal of metering information to us. You need to be sure that your MSP sends us accurate data as this information is used when we determine your settlement amounts. You will also want to ensure that your MSP completes your metering installation registration at least two days before your facility's first scheduled connection to the grid – the metering installation needs to be registered before we can give you final approval to connect.

Your metering service provider is responsible for:

- Registering your metering installation
- Installing, commissioning, maintaining, and testing the metering installation
- Responding to meter trouble reports
- Ensuring that your metering data is accurate and reliable, and that the metering installation is secure

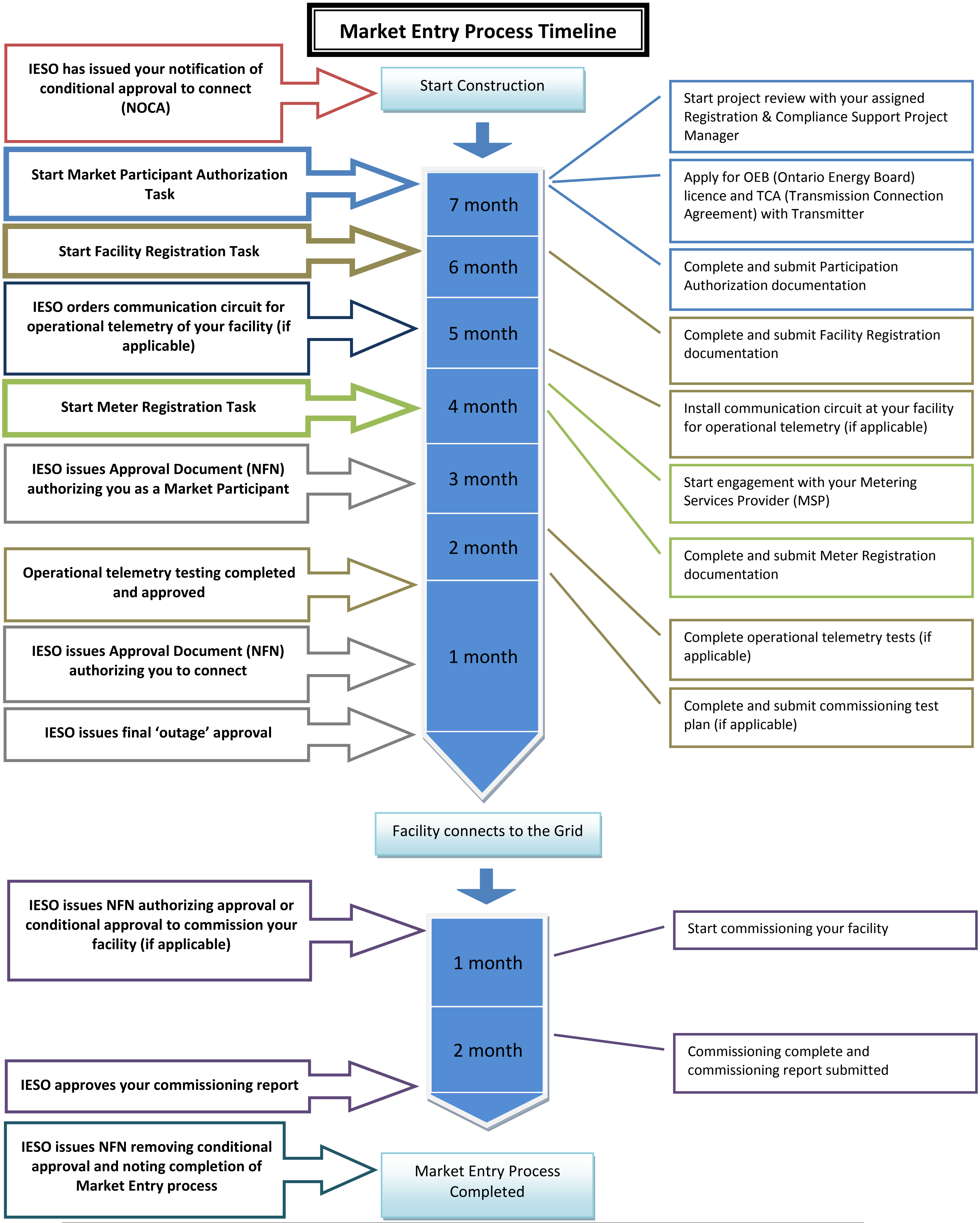
Metered market participant (MMP)

You will need to send us the name of your metered market participant. This is the person responsible for financial settlements with us based on the information provided by your meters. (In most cases, the metered market participant will be you – the market participant.) You can use *Form 1299* to send us this information.

The MMP sends us the form that assigns the MSP for your delivery point (use *Form 1300*). You will also need to give your MSP the names and ID numbers of your delivery points (see Our Next Steps – Your 'delivery points' paragraph on Page 13). Use *Form 1390* if the MSP for the metering installation is different from the MSP at the delivery point.

If you are a transmission customer, contact the transmitter to obtain your transmission tariff delivery points. You will need to assign an MSP to these delivery points. Use *Form 1304* to send us this information.

(Forms are available on our Meter Registration web page.)


Market Entry Process Timeline
IESO has issued your notification of conditional approval to connect (NOCA)
Start Construction
Start Market Participant Authorization Task
Start Facility Registration Task
IESO orders communication circuit for operational telemetry of your facility (if applicable)
Start Meter Registration Task
IESO issues Approval Document (NFN) authorizing you as a Market Participant
Operational telemetry testing completed and approved
IESO issues Approval Document (NFN) authorizing you to connect
IESO issues final 'outage' approval
7 month
6 month
5 month
4 month
3 month
2 month
1 month
Start project review with your assigned Registration & Compliance Support Project Manager
Apply for OEB (Ontario Energy Board) licence and TCA (Transmission Connection Agreement) with Transmitter
Complete and submit Participation Authorization documentation
Complete and submit Facility Registration documentation
Install communication circuit at your facility for operational telemetry (if applicable)
Start engagement with your Metering Services Provider (MSP)
Complete and submit Meter Registration documentation
Complete operational telemetry tests (if applicable)
Complete and submit commissioning test plan (if applicable)
Facility connects to the Grid
IESO issues NFN authorizing approval or conditional approval to commission your facility (if applicable)
IESO approves your commissioning report
IESO issues NFN removing conditional approval and noting completion of Market Entry process
1 month
2 month
Start commissioning your facility
Commissioning complete and commissioning report submitted
Market Entry Process Completed

7. Variable Generation Registration

All variable generators are required to register with the IESO. Complete IESO-FORM-1735 "Application to Register Variable Generation Facility Registration Data" and submit it to the IESO: http://www.ieso.ca/imoweb/pubs/forms/me_f1735_RegVariableGenerationFacilityData.doc

Variable generators must also submit facility data describing the details and physical layout of the facility (details can be found in appendix E and F of Market Manual 1, Part 1.2):

- Complete and submit IESO-FORM-1736 "Wind Generation Facility Data" for wind generation facilities (http://www.ieso.ca/imoweb/pubs/forms/me_f1736_WindGenerationFacilityData.xls)
- CompleteIESO-FORM-1737 "Solar Generation Facility Data" for solar generation facilities(http://www.ieso.ca/imoweb/pubs/forms/me_f1737_SolarGenerationFacilityData.xls)

Variable generators must provide the IESO with operational monitoring (details can be found in appendix E and F of Market Manual 1, Part 1.2):

- Operational monitoring that measures local weather must be collected from nacelle mounted meteorological data collection points such that no turbine is further than 5km from the nearest data collection point.
- Each wind facility shall provide operational monitoring that measures local weather from standalone meteorological towers that are located in areas that are representative of the microclimate and winds at hub height on the prevailing upstream side of the wind farm. Some wind facilities must provide data from multiple meteorological towers:

Facility Size	**Total number of meteorological towers per facility**
Less than 10MW	None
10MW to less than 100MW	1 minimum
100MW to less than 200MW	2 minimum
200MW to less than 300MW	3 minimum
300MW to less than 400MW	4 minimum

The IESO will provide solar generators with a list of required monitoring based on Market Manual 1, Appendix F. Each solar facility must have a minimum of two meteorological data collection points irrespective of the size of the facility. For larger solar facilities, there must be enough data meteorological collection points so that no solar array is further than 12km from the nearest data collection point.

8. Training

Training provides a series of instructor-led courses and self-study materials on the wholesale electricity market in Ontario. The course material is presented at varying levels to accommodate newcomers to the market, as well as those with industry experience.

It is important for market participants to receive training or be familiar with training materials when entering the IESO-administered markets. While it remains your responsibility to read and understand the Market Rules and Manuals, the IESO's course materials and training will help you in understanding your role in the power system and your responsibilities for complying with the Ontario market rules and associated policies, standards and procedures.

In-person courses provide an opportunity for the instructor to provide the information at the pace appropriate for the audience and to answer all your questions as they come up. Public courses are typically offered in the spring and fall. There are three day-long courses offered in person: Introduction to Ontario's Physical Market's, Inter-Jurisdictional Trading and Commercial Reconciliation. These are easily accessible in downtown Toronto.

Private training sessions are also available. These courses are more market participant specific and cover those areas discussed in the public courses as well as aspects more specific to the participant operating on the IESO-controlled grid. Private training sessions can be tailored to market participant's needs and can be held at your location. Course examples include: Being a Dispatchable Generator, IESO Administered Markets Overview, IESO the Market and Reliability. The IESO also offers a large number of training materials in the form of recorded presentations, Guides, Quick Takes and workbooks. These materials are all available on our website at http://www.ieso.ca/imoweb/marketplaceTraining/training.asp.

For more information you may visit our website or contact us at marketplacetraining@ieso.ca.

9. Summary

You will need to follow some or all the tasks outlined in this guide if your company is planning to join Ontario's IESO-administered markets. Our technical staff will assist with your connection assessment. We will also assign a Registration & Compliance Support – Project Manager to help you with participant authorization and facility registration tasks. Your metering service provider can work with our metering staff to register your meters.

Some tasks take longer than others and should be started early. We have included a timeline on Page 20 to help you see the time relationships.

10. Additional Information

If you have any questions, please call Customer Relations at (905) 403-6900 (Toll Free 1-888-448-7777) or email customer.relations@ieso.ca. Additional information is available on our website at www.ieso.ca.