
Market Renewal Program (MRP): Market Participant Test Plan

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1. Introduction

The purpose of the MRP Market Participant Test Plan is to help prepare Market Participants to test the changes that MRP will introduce in the renewed market. This document provides an overview and objectives of the different MRP test phases, the applications that are in scope during each phase, what Market Participants should do to prepare, and how the IESO will communicate with Market Participants during the testing period.

2. Objective of Market Participant Testing

The objective of Market Participant testing is to provide external stakeholders an opportunity to become familiar with the changes being made to the various tools and interfaces that are impacted by MRP, to identify any defects within the IESO's tools, and to ensure that Market Participants' systems are able to interact with IESO's Market Systems.

3. Preparing for Market Participant Testing

The following is a list of what Market Participants should do to prepare for Market Participant Testing:

- Review and update your organization's user and/or system accounts, and its associated contact roles in Online IESO Sandbox.
- Register new Sandbox API accounts and IP addresses at least two weeks before starting your own Connectivity Testing.
- Review client and browser compatibility requirements that are outlined in Market Manual 6: Participant Technical Reference Manual (Note: MRP is not introducing any changes to this document, however this manual is in the process of being updated to reflect current system requirements in order to successfully connect to IESO systems).
- Review and begin to implement changes to your organization's development and test systems based on the API technical specifications for Dispatch Services and Market Information Management System (MIM), the list of IESO Charge Types and Equations, and the sample and schema files for MRP-impacted reports that are posted on the Market Renewal webpage.
- Send an email to market.renewal@ieso.ca to confirm that your organization will participate in MRP System Testing.
- Complete and sign the *Form of Acknowledgement and Undertaking* to obtain access to qTest.

qTest

The IESO is using a web-based tool called “qTest” to manage testing, including the recording and reporting on tests of new and updated changes to Market Systems. The IESO is using this tool for Market Participants to review and execute tests, log issues and potential defects, and report on testing progress. The IESO will also use this tool to publish test cases and expected results, monitor Market Participant Testing progress, assess and respond to issues and defects logged by Market Participants.

With qTest, Market Participants will be able to:

- view and export test cases created by the IESO to be executed during Connectivity Testing, Market Trials, and End-to-End Testing;
- record the execution and results of test cases that have been created by the IESO;
- document the results of your organization’s own exploratory testing;
- report issues and/or unexpected behavior for a particular test step; and
- receive timely notifications when test cases can be re-executed after defects have been fixed.

3.1 How to obtain access for qTest

The registration and setup of qTest accounts began in November 2023, and will continue to be available during Market Participant Testing.

Market Participants who are interested in participating as a tester and gaining access to qTest will need to send an email to IESO Customer Relations (customer.relations@ieso.ca) to express their interest. This email must be sent by an Applicant Representative, Authorized Representative, Rights Administrator, or Primary Contact of the Market Participant organization.

Once the IESO has verified that the email is from a registered user of the Market Participant organization, the Market Participant will receive a *Form of Acknowledgement and Undertaking* to sign. Similarly, only the Applicant Representative, Authorized Representative, Rights Administrator, or Primary Contact of the Market Participant can complete and sign this form, and access to qTest will only be granted to registered contacts from your organization¹. If a Market Participant requires more than three users to access the tool, they must attach a schedule to the *Form of Acknowledgement and Undertaking* identifying the additional users. The completed and signed *Form of Acknowledgement and Undertaking* is to be submitted back to IESO Customer Relations. Once the request has been reviewed and processed by the IESO, the requestor will be notified by email that access to qTest has been granted to the registered contacts in the request.

¹ The person expressing their organization’s interest in participating in testing and those signing the *Form of Acknowledgement and Understanding* do not have to be the same person. They are only required to be an Applicant Representative, Authorized Representative, Rights Administrator, or Primary Contact of the Market Participant organization.

3.2 Where to access qTest

Market Participants will access qTest via the Production environment of IESO Gateway. The URL link to the Production IESO Gateway can be found in [Section 6.1 List of URLs for the applications being used for Market Participant Testing](#).

3.3 Alternate Submission of Test Results to the IESO

In the limited circumstances where Market Participants are unable to use qTest, the IESO will make Excel templates available for the Market Participants to track test case execution, defects and progress. These files will be posted on the Market Renewal webpage at the beginning of each test phase to give participants an opportunity to view and prepare for the steps they will need to execute on their end. The spreadsheet must be sent back to customer.relations@ieso.ca by the deadline noted for each test phase. Please note that with this alternate approach, the time to process, analyze and respond to Market Participants will be longer than if results, issues and defects are reported using qTest. For more information, see [Section 7.1 Issues Reporting](#).

Registration of New API Accounts

Market Participants must register any new Application Programming Interface (API) accounts and/or Internet Protocol (IP) addresses to ensure that the IESO's firewall recognizes the connection from their systems during testing. The process to register new API accounts and IP addresses remains as is. Refer to Section 5 in [Market Manual 6: Participant Technical Reference Manual](#) for more information. It is recommended for Rights Administrators to register new API accounts and/or IP addresses at least two weeks prior to them performing Connectivity Testing. If Market Participants intend to use an existing Sandbox API account or IP address, no registration action is required.

Requesting Access to Applications and Establishing Contact Roles in Online IESO Sandbox

Requesting access to applications that are in scope for testing will follow the existing process as outlined in Section 8 of [Market Manual 1.3: Identity Management Operations Guide](#).

Resetting passwords can be performed on the IESO Gateway platform using its self-service feature. Market Participants should follow the instructions on Section 4 of the "[IESO Gateway User Guide](#)" on how to perform password resets.²

For a complete list of contact roles Market Participants will need to conduct testing, please refer to the Market Participant Testing section of the Market Renewal webpage and download the "List of Online IESO Contact Roles needed for Market Participant Testing" file. If "Y" is shown in the row, the Market Participant must ensure that someone in their organization is assigned to that contact role. The description of each contact role can be found on the [Guide for all Contact Roles](#) on the IESO website.

² There are no limits to the number of Sandbox user accounts for Online IESO, EMI, Dispatch Service, and IESO Reports Site. There is also no limit to the number of testers that can access IESO Sandbox applications to perform testing.

4. Market Participant Testing Schedule

The table below lists the estimated timelines for Market Participant Testing.

Table 4-1 | Market Participant Testing Schedule

Activity	Start Date and End Date
Market Participants to register their organization for qTest accounts	November 2023 and ongoing
Market Participants' Rights Administrators to register new API accounts and IP addresses in Online IESO Sandbox	Two weeks prior to the time Market Participants plan to perform Connectivity Testing and one week before Connectivity Testing ends
IESO to host Kick-off Meeting for Connectivity Testing	January 22, 2024
Connectivity Testing	January 29, 2024 to May 24, 2024
Market Participants to submit their Connectivity Testing test results to the IESO	Provide no later than May 24, 2024
IESO to host Wrap-Up Meeting for Connectivity Testing	June 7, 2024
IESO to host Kick-Off Meeting for Market Trials	July 2024
Market Trials	July 2024 to October 2024
Market Trials Phase 1: Functional Testing of Market Information Management (MIM) Web Services/Energy Market Interface (EMI) User Interface, IESO Reports, and Online Settlements Forms in Online IESO	Mid-July 2024 to Mid-September 2024
Market Trials Phase 2: Functional Testing of MIM/EMI, Dispatch Services, IESO Reports	Mid-September 2024 to Mid-October 2024
Market Participants to submit their Market Trials test results to the IESO	Provide no later than October 2024

IESO to host Wrap-Up Meeting for Market Trials October 2024

IESO to host Kick-off Meeting for End-to-End Testing January 2025

End-to-End Testing January 2025 to March 2025

Market Participants to submit their End-to-End Testing test results to the IESO Provide no later than March 2025

IESO to host Wrap-Up Meeting for End-to-End Testing April 2025

5. Test Phases

Connectivity Testing

Connectivity Testing is the initial phase of Market Participant Testing. Its objective is to ensure that Market Participants are able to access all the tools they will use during Market Trials and End-to-End Testing.

The scope of Connectivity Testing is to verify that Market Participants are able to successfully log in and connect with applications they will be using during Market Trials and End-to-End Testing. This includes verifying that they have sufficient permissions configured to access those applications and interfaces.

Market Participants will not be able to conduct functional testing of IESO tools during Connectivity Testing such as submitting bids or offers.

Connectivity Testing will commence on January 29, 2024 and end on May 24, 2024. During this phase, Market Participants will be able to:

- confirm that all test user accounts are assigned to current users of the Market Participant organization, and the correct contact roles have been associated to these accounts,
- confirm that all test API accounts have the correct IP addresses that have been whitelisted by the IESO, and that the correct contact roles have been associated to these test API accounts, and
- confirm that Market Participants can access IESO’s Market Systems. Market Participants will be able to test if their users (via the web interface) and/or their systems can successfully connect and access the following IESO applications in the Sandbox environment:
 - IESO Gateway,
 - Online IESO,

- Market Information Management (MIM) Web Services/Energy Market Interface (EMI) User Interface,
- Dispatch Services (DS) Web Services/DS Graphical User Interface (GUI)
- Outage Coordination and Scheduling System (OCSS), and
- IESO Reports Site.

These applications will be available and used by Market Participants throughout testing in 2024 and early 2025.

Market Trials

Market Trials is the second phase of Market Participant Testing, which will begin after Connectivity Testing ends. Its objective is for Market Participants to confirm that certain functionality of individual tools and interfaces are working as intended. Market Participants will confirm that they can successfully:

- submit bids and offers in the Energy Market Interface (EMI) and/or through MIM web services,
- receive dispatch instructions in the Dispatch Service GUI and/or through Dispatch Service Web Services,
- receive and download reports from the IESO Reports website and/or through their own API systems, and
- submit the new Fuel Compensation Settlement Form in Online IESO.

Market Trials will start from July 2024 and end in October 2024.

Market Trials in Online IESO Sandbox

To support Market Participants' execution of their own testing, the IESO will provide Market Participants the ability to submit registration forms in Online IESO Sandbox during Market Trials:

- registering as a Virtual Trader market participant type,
- registering resources as a Price Responsive Load (PRL),
- submitting Market Control Entity (MCE) information,
- updating Reference Levels and Reference Quantities,
- submitting and/or updating registration parameters for hydroelectric and non-quick start (NQS) resources, and
- updating Prudential Support.

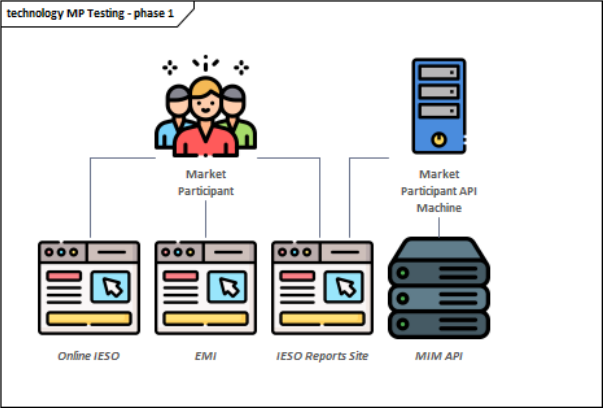
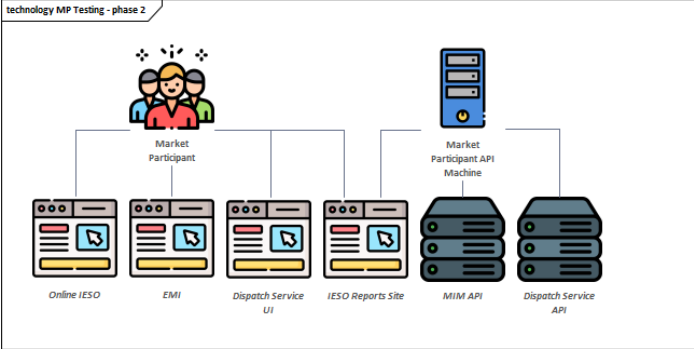
Please note that Registration and other workflows are being tested as part of IESO's internal testing and readiness activities. Consequently, the IESO will not be performing and completing the workflows associated with the forms submitted by Market Participants during Market Trials. The IESO will post training materials and host a webinar to outline the changes being made on these registration forms to supplement the knowledge of external users.

To support the testing of other systems during Market Trials, the IESO will migrate existing and create new registration data to enable Market Participants to execute key test cases with MIM and Dispatch Services. This includes migrating resource and facility data from Production to Sandbox, as well as importing cascade group and forebay information that is being collected offline from hydroelectric resources. Further details of this data migration will be provided to Market Participants prior to the Kick-Off Meeting of Market Trials next year.

Integration of Systems during Market Trials

Table 5-1 illustrates when and what systems will be integrated during market trials.

Table 5-1 | Market Trials Phases

Applications In-Scope	Timing of Market Trials Phase	Integration of Systems
Phase 1: EMI/MIM IESO Reports, and Online IESO	Mid-July 2024 to Mid-September 2024	
Phase 2: EMI/MIM, Dispatch Services, and IESO Reports	Mid-September 2024 to Mid-October 2024	

Market Trials-Phase 1: Market Trials in EMI/MIM, IESO Reports, and Online Settlement Forms in Online IESO

The first set of applications that will be available for Market Participants to test during Market Trials are the MIM system (through web services and EMI), IESO Reports Site, and Online IESO. During this phase, Market Participants will be able to view, submit, update, and/or cancel bids and offers through EMI and MIM web services, download select market and system reports from the IESO Reports Site, and submit the fuel compensation settlement form in Online IESO. This phase will run from mid-July 2024 until mid-September 2024. To help Market Participants with their testing, the IESO will post updated tool guides for MIM and Online Settlement Forms in Q2 2024.

Market Trials Phase 2: Market Trials in EMI/MIM, Dispatch Services and IESO Reports

The second phase of Market Trials will involve Market Participants verifying that they are able to receive dispatch instructions with the new and existing dispatch data parameters, as well as being able to download some of the new and updated reports. This phase will run from mid-September 2024 until mid-October 2024. Market Participants should resubmit their bids and offers in MIM as dispatch data from Market Trials Phase 1 will not be carried over, and this data is needed to support their testing of Dispatch Services and IESO Reports. In order to aid Market Participants during phase 2 of Market Trials, the IESO will post an updated participant tool guide for Dispatch Services in Q2 2024.

Settlement Statement and Data Files during Market Trials

Market Participants will be provided with sample settlement statement and data files in Q4 2024 to support the development and testing of their systems prior to End-to-End Testing in early 2025. These files will be available on the Market Renewal webpage and will reflect fictional data using fictitious organizations. Sample settlement statement and data files will be created for different resource types, and will contain the new and updated charge types that are listed in Issue 82.1 of the [IESO Charge Types and Equations](#) document. Additionally, the IESO will provide a supplementary document to help Market Participants understand the scenarios that were used to create the transaction records that are posted in these files.

End-to-End Testing

The objective of End-to-End Testing is to provide an opportunity for Market Participants to confirm their ability to execute key business processes and systems that are changing as a result of Market Renewal. All systems that are in scope will be connected at this time and as a result, Market Participants will be able to test the cycle of processes that start with the submission of bids and offers in the Day-Ahead Market all the way through the receipt of dispatch instructions in Real-Time and being able to download reports and settlement files in the IESO Reports Site.

Test cases will be structured to provide high-level instructions for Market Participants to execute specific activities in the Sandbox environment. At the same time, Market Participants are welcome to perform their own exploratory testing.

End-to-End Testing is scheduled to start in January 2024 and will end in March 2024.

Sandbox Setup during End-to-End Testing

The IESO will apply specific market conditions in the Sandbox environment to help drive certain outcomes during End-to-End Testing. These market conditions will change on a weekly basis to provide Market Participants an opportunity to participate in a wide range of scenarios.

The Sandbox environment will include, but not be limited to the following:

- Demand will be created based on set market conditions.
- Certain limits and constraints will be applied to satisfy specific test scenarios.
- Reference levels and reference quantities from reference level consultations for each resource will be available to the relevant Market Participant for that resource.
- Mock standing dispatch data will be provided for Market Participants that do not submit dispatch data in Sandbox.
- Cascade group and forebay registration data is being collected from hydroelectric resources to support their testing. Hydroelectric resources that do not provide this information will be treated as an independent resource.

Settlement Statement and Data Files in End-to-End Testing

The IESO will produce settlement statement and data files during End-to-End Testing that reflect Market Participant data and transactions in the Sandbox environment. However, to ensure that quality statement and data files are produced, Market Participants must provide measurement data at the delivery point to the IESO for trade dates that align with the bids and offers that they submit in Sandbox. Data collection will be limited to a set number of resources per organization. Market Participants who do not submit measurement data will still receive settlement statement and data files during End-to-End testing but these will be subject to measurement data using a trade date that is chosen by the IESO. Further details and instructions will be provided prior to the End-to-End Testing on how Market Participants can submit measurement data to the IESO prior to End-to-End Testing.

End-to-End Testing Weekly Schedule Outlook

During End-to-End Testing, the IESO will simulate one dispatch day per week. The set of market conditions and constraints that will be used to simulate the dispatch day will be updated every week. The IESO will communicate the details of the weekly schedule to Market Participants, including relevant information about the dispatch day to be simulated each week before the Kick-off Meeting for End-to-End Testing.

6. Test Environment Requirements

List of URLs for the applications being used for Market Participant Testing

Table 6-1 is a list of URLs for the applications being used for Market Participant Testing. It lists the URLs for the applications that can be accessed via the web interface and through a Market Participant's API system.

The URLs for MIM/EMI and Dispatch Services are new and will not work until Connectivity Testing begins on January 29, 2024. If Market Participants are using the web interface to access Online IESO, OCSS, EMI, and Dispatch Services, these applications will appear as separate tiles on the Sandbox environment of IESO Gateway. Note that there will be two tiles for EMI and two tiles for Dispatch Services, with one representing the application that is used for the current market and the other to be used for MRP Market Participant Testing.

Unlike the Sandbox applications that are in-scope for testing, the test case management tool (qTest) will be accessed via the Production environment of IESO Gateway.

Table 6-1 | List of URLs for the applications being used for Market Participant Testing

Application	New or Existing URL	User Account	URL
Online IESO	Existing	Sandbox	https://gateway-sbx.ieso.ca
Outage Coordination and Scheduling System (OCSS) (via GUI)	Existing	Sandbox	https://gateway-sbx.ieso.ca
Outage Coordination and Scheduling System (OCSS) (via web services)	Existing	Sandbox	https://webservices-sandbox.ieso.ca/ocss/OCSSWebServiceSOAP?wsdl
Energy Market Interface (EMI) (via GUI)	New (new MRP tile)	Sandbox	https://gateway-sbx.ieso.ca
Market Information Management (MIM) (via web services)	New	Sandbox	https://webservices-sandboxmrp.ieso.ca/emim

Dispatch Services (via GUI)	New (new MRP tile)	Sandbox	https://gateway-sbx.ieso.ca
Dispatch Services (via web services)	New	Sandbox	https://webservice-sandboxmrp.ieso.ca/dispatches
IESO Reports Site (via GUI)	Existing	Sandbox	http://reports-sandbox.ieso.ca/
IESO Reports Site (via web services)	Existing	Sandbox	TBD ³
qTest	Existing	Production	https://gateway.ieso.ca/

7. Test Execution

Kick-Off and Wrap Up Meetings

A kick-off meeting will be scheduled before the start of each test phase to provide Market Participants an overview of the test phase, the testing schedule, and a high-level description of the test cases that Market Participants will need to execute during this period. The kick-off meeting also signals when Sandbox applications and test cases become available in qTest.

A wrap-up meeting will be scheduled at the end of each test phase where the IESO will communicate what was learned during the test phase including what went well, what went wrong, and what could have been done better. The IESO will also describe the issues that were successfully corrected, and inform Market Participant of any open defects that will persist. If already known, the IESO will communicate when these issues are expected to be resolved, as well as next steps for Market Participants.

Test Support and Communication

If Market Participants have questions or feedback related to Market Participant Testing, they can submit an email to customer.relations@ieso.ca. Any questions submitted by Market Participants will be addressed during business hours (Monday to Friday from 9:00 AM EPT to 5:00 PM EPT). The MRP Business Advisors will act as liaisons between the IESO MRP Team and Market Participants, and provide guidance where possible to help triage issues and respond to testing inquiries.

7.1 Issues Reporting

³ The URL to access the IESO Reports Site (via API) will be provided prior to the start of Connectivity Testing.

Market Participants with access to qTest are expected to report their issues using the test case management tool itself. qTest will be monitored by the IESO QA team daily during the testing period. Market Participants will receive automated notifications from qTest if there is a change in the status of the issue they reported.

If Market Participants decide not to sign the *Form of Acknowledgement and Undertaking* and are unable to use qTest as a result, they can record the issues they encounter in the attached “Issue Log Template” spreadsheet found in Appendix 2 of this document. Through this alternate approach, Market Participants are required to email their test results and issue log to customer.relations@ieso.ca, and a ticket will be created on their behalf. Market Participants will need to wait for their assigned MRP Business Advisor to contact them on the status of their reported issues once they are resolved.

To help the IESO make corrections or provide advice, Market Participants should include as much information as possible when reporting an error or problem, such as:

- Market Participant Name,
- username of the tester,
- time and date of when the issue was encountered,
- function/operation of the software,
- a brief description of the issue,
- issue details,
- screenshot(s) as supporting evidence,
- browser type and URL used, and
- any other relevant information (for example, the sequence of events or actions leading up to the error).

7.2 Reporting Market Participant Test Results

As they execute and complete their assigned test cases, Market Participants are expected to submit their test results using qTest. qTest will be monitored by the IESO QA team on a daily basis during testing.

For Market Participants not using qTest, test results can be recorded using the test case spreadsheets that will be made available on the Market Renewal webpage. They can send the results back to customer.relations@ieso.ca with the subject line “MRP Market Participant Test Results.” However, as stated in Section 3.3 Alternate Submission of Test Results to the IESO, there may be a delay in processing and responding to these results.

7.3 Confidential Information

When reporting issues, please ensure that no confidential information regarding the Market Participant organization and/or resources are included in the email, supporting documents, and/or screenshots. If a Market Participant wishes to send confidential information, they can inform the IESO by sending an email to customer.relations@ieso.ca. An MRP Business Advisor will contact the Market Participant directly with further instructions.

8. Test Cases

Test cases will be provided to Market Participants prior to the beginning of each test phase. They can be downloaded from the Testing and Market Trials section of the Market Renewal webpage.

9. Additional Resources to Support Market Participants During Testing

qTest:

[qTest demo](#) and training deck (to be posted at a later date)

Settlements:

[IESO Updated Charge Types and Equations \(Issue 82.1\)](#)

Format Specifications for Settlement Statement Files and Data Files (to be posted in Q2 2024)

MIM and Dispatch Services:

[MIM Toolkit and MWT User Guide](#)

[API Technical Specifications for Dispatch Services and MIM](#)

Dispatch Services Tool Guide (to be posted in Q2 2024)

Web Based Dispatch Service, Market Participant's Guide_(to be posted in Q2 2024)

Submitting, Revising and Cancelling Energy Bids_(to be posted in Q2 2024)

Submitting, Revising and Cancelling Energy Offers_(to be posted in Q2 2024)

Submitting, Revising and Cancelling Schedules and Forecasts_(to be posted in Q2 2024)

Submitting, Revising and Cancelling Import Offers and Export Bids_(to be posted in Q2 2024)

Submitting, Revising and Cancelling Operating Reserve Offers_(to be posted in Q2 2024)

OCSS:

[Outage Coordination and Scheduling System \(OCSS\) CROW Web Client User Guide](#)

[Outage Coordination and Scheduling System \(OCSS\) CROW Web Client User Guide - Videos](#)

IESO Reports:

[IESO Reports API Guide \(updated version to be posted at a later date\)](#)

[Outbound Automated Document, Application Programming Interface \(IMO SPEC 0100\) \(updated version to be posted at a later date\)](#)

[IESO Reports Impacted by MRP](#)

Other Resources:

[Participant Technical Reference Manual \(updated version to be posted at a later date\)](#)

[Supported Client Platforms \(updated version to be posted at a later date\)](#)

Appendix 1 – Market Trials vs. End-to-End Testing

The chart below lists the differences between Market Trials and End-to-End Testing.

	Market Trials	End-to-End Testing
Objective	Confirm individual tools and interfaces are functioning as intended such as: <ul style="list-style-type: none"> • Submitting bids and offers in the GUI and through the Market Participant’s API system • Receive dispatch instructions in the GUI and through the Market Participant’s API system • Download new and updated IESO Reports from the GUI and Market Participant’s API system 	To provide an opportunity for Market Participants to confirm their ability to execute key business processes and systems that are changing as a result of Market Renewal as a whole
Integration of Systems	Phase 1: Online IESO, MIM, IESO Reports Site Phase 2: Online IESO, MIM, Dispatch Services, and IESO Reports Site	All systems in scope will be integrated.
Processes that can be tested	Phase 1: <ul style="list-style-type: none"> • Dispatch data submission Phase 2: <ul style="list-style-type: none"> • Dispatch data submission • Receipt of dispatch instructions • Commitments to a schedule 	Full cycle from submission of bids and offers in day-ahead to receipt of dispatch instructions.
Sandbox Environment Setup	The same set of market conditions will be applied throughout market trials.	A set of market conditions and constraints will be applied and updated weekly to simulate changing conditions in the Sandbox environment.

Appendix 2 – Issue Log Template

The attached spreadsheet is to be used by Market Participants who are unable to use qTest and will need to report their issues to customer.relations@ieso.ca.



Issue Log
Template.xlsx

**Independent Electricity
System Operator**

1600-120 Adelaide Street West
Toronto, Ontario M5H 1T1

Phone: 905.403.6900

Toll-free: 1.888.448.7777

E-mail: customer.relations@ieso.ca

ieso.ca

 [@IESO_Tweets](https://twitter.com/IESO_Tweets)

 linkedin.com/company/IESO