

PUBLIC

EDAC_TST_0005



Enhanced Day-Ahead Commitment (EDAC) Market Trials Test Plan

EDAC Issue 1.1

*This document provides the Market Trials Test Plan for
the Enhanced Day-Ahead Commitment (EDAC) project.*

Public

Test Plan

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Reference (Section and Paragraph)	Description of Change

EDAC DRAFT

1. Introduction

1.1 Purpose

The purpose of this document is to describe the objectives, scope, approach, and focus of the Market Trials (MT) testing effort. This document only covers the EDAC Market Trials activities relating to market participants.

1.2 Testing Objectives

The *Enhanced Day-Ahead Commitment (EDAC) Market Trials Test Plan* establishes a common framework to ensure that the following testing objectives are satisfied:

- Demonstrate the readiness of both the IESO and Market Participant (MP) personnel and systems to participate in the enhanced version of the Day-Ahead Commitment Process (DACP).
- Ensure that market participants have the opportunity to demonstrate the integration of their business processes with the EDAC business procedures and technical deliverables, and to test whether the new EDAC systems obtain the expected results during a range of scenarios.

The specific objectives for the Settlements Market Trials phase of the EDAC project are:

- To demonstrate that the IESO can create and publish settlements statements and data files that include the new DACP charge types
- To allow market participants to verify that they can receive, and utilize in their systems, the settlements statements and data files containing the new DACP charge types
- To provide an integrated test environment that will allow market participants to create the new DACP charge types

1.3 Scope of Testing

1.3.1 In Scope

Market Trials infrastructure testing consisting of:

- Connectivity Testing – Designated for market participants using an Application Programming Interface (API) to connect to the IESO Market Information Management (MIM) system. This test allows market participants to test their API connections to the IESO Sandbox environment.
- Ability Testing – Testing the market participant’s ability to connect to the Sandbox, to submit bids and offers, and to receive schedules and reports.

Market Trials business process testing including:

- Registration of New DACP Data – Testing the procedures supporting the entry and maintenance of the market participant and facility registration data.

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- Day-ahead, Pre-dispatch, and Real-Time Operations – Testing the business processes related to three operational timeframes (i.e., day-ahead, pre-dispatch, and real-time operations).
- Settlements – Testing the business processes related to the settlements of the DACP. Settlements Market Trials (S-MT) is based on test scenarios (i.e., unscripted testing) as follows:
 - a. Scenarios are designed to facilitate the creation of DACP settlements charge types during the defined period of settlements market trials
 - b. Scenarios are executed using an integrated test environment, a compressed settlement calendar, modified registration data and revised real-time inputs
 - c. Scenarios are dependent on the settlements market trials participants receiving a day-ahead schedule and then taking specific actions in real-time

Note: All of the Market Trials structured test cases and scenarios are considered to be within the scope of Market Trials. Market participant unstructured Market Trials test cases are considered within the scope of Market Trials if the execution of the test case does not require support from EDAC testers. If the execution of the test case requires support from EDAC testers, then the test case should be deemed as a structured Market Trials test case.

1.3.2 Out of Scope

- Testing of the discreet functions, processes and systems that are responsible for the generation or receipt of information, or for the subsequent actions undertaken as a result of the sending or receipt of information within a market participant’s organization.
- Independent review of the implementation of the Day-Ahead Calculation Engine (DACE) and Settlements System (final report will be made available to market participants).
- User Acceptance Testing (UAT) – Summary of test cases executed as part of UAT will be made available to market participants.
- Site Acceptance Testing (SIT).
- System Technical Testing - Summary of test cases (for the Settlements systems only) will be made available to market participants.
- Testing of the Day-Ahead Fuel Cost Compensation credit (for the Settlements systems only). This process and charge type is not changing as a result of the EDAC project.

1.4 Who Should Use This Document

This Market Trials Test Plan will assist:

- The IESO EDAC Project Office in planning for Market Trials testing, and in evaluating and addressing any project risks posed by the Market Trials testing.
- The market participants in planning for and understanding the scope of testing activities that they will carry out in Market Trials.

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1.5 Assumptions and Limitations

The following assumptions have been made in the Market Trials Test Plan for the planning and execution of Market Trials testing:

- Market Trials test cases are based on the latest version of the Market Manuals and Internal Procedures revised for EDAC.
- Market Trials will be executed in a manner which, as much as possible, mimics the IESO day-ahead production timelines and data flows, as well as the associated real-time processes.
- The EDAC testing team will be accessible for inquiries and assistance.
- Settlements Market Trials will be performed on a fully integrated system in the IESO Sandbox. This requires the IESO to make specific preparations on both real-time and settlements systems and take specific actions to support the generation of the day-ahead charges. The outcome of these preparations, along with the absence of economic drivers for all test participants, will limit the ability of participants to develop and test offer/bid strategies during the execution of S-MT.
- The Settlements Market Trials will use a compressed settlements calendar.

Deleted: <#>A number of factors will limit the ability to carry out Market Trials in a truly integrated fashion. The use of real-time data flows (i.e., real-time constrained schedules, revenue meter readings, Operating Security Limits, operational telemetry, etc.) opposite the Day-ahead Schedules produced, will limit the relevance of the Settlement outcomes in the test environment.¶

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1.6 Conventions

The standard conventions used in this document are as follows:

- The word ‘trials’ refers to the specific tests or simulations that will occur during the EDAC Market Trials testing. Participants take part in these trial activities on a volunteer basis.
- The word 'shall' denotes a mandatory requirement.
- Quotation marks are used to highlight process and component names.
- Italics are used to indicate terms defined in the Market Rules, and to highlight the titles of publications, procedures, and forms.

1.7 Roles and Responsibilities

The roles and associated responsibilities involved with Market Trials testing are defined as follows:

EDAC Testing Team Lead:

- Develop and maintain the *Market Trials Test Plan*.
- Participate in the Defect Management process, where applicable.
- Collect daily status and defect reports.
- Provide updates to the EDAC Project staff and to market participants on the status of testing.

EDAC Testing Team:

- Provide overall testing and project support.
- Ensure adherence of the test cases to Market Manuals and Internal Procedures.
- Participate in the Defect Management process described in this document.
- Ensure readiness of the environment at the start of testing.
- Create and maintain test cases.
- Review test cases and results.
- Support the recording of all necessary information into the Market Trials test cases.
- Support and troubleshoot defects that arise during testing, and report the results of their investigation to the EDAC Testing Team Lead.
- Participate in training, as required, to support testing activities.

EDAC Testers:

- Support testing execution.
- Specific EDAC tester roles:
 - Market Entry desk.
 - Day-Ahead Operator desk.
 - Control Room desk.

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The roles and associated responsibilities for market participants involved with Market Trials testing are defined as follows:

Market Trials Working Group (the SE-73 Term of Reference):

- Identify their business processes that are impacted by EDAC.
- Create and maintain their business processes test cases.
- Provide the IESO with comments on test cases.
- Support testing execution.
- Review test results.
- Identify and report defects discovered during testing
- Notify the IESO of all changes to registration information that may occur during or after the registration process

Market Participant Testers:

- Support testing execution.

1.8 Glossary

Key Terms

Key terms related to this document include the following:

Day-Ahead Production Cost Guarantee (DA-PCG)	Minimum Generation Block Down Time (MGBDT)
Day-Ahead Operating System (DAOS)	MGBRT limit
Combined Cycle Plant (CCP)	MLP limit
Combustion Turbine (CT)	Schedule of Record (SOR)
Daily Generator Data (DGD)	Day-Ahead Operator (DAO)
Day-Ahead Calculation Engine (DACE)	Production Cost Guarantee (PCG)
Elapsed Time to Dispatch (ETD)	Pseudo Unit (PSU)
Eligible Energy Limited Resource (EELR)	Availability Declaration Envelope (ADE)
Energy Limited Resource (ELR)	Physical Unit (PU)
Daily Cascading Hydroelectric Dependency (DCHD)	

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Market Rules

The following terms are defined in Chapter 11 of the Market Rules:

Market Participant (MP)	Registered Market Participant (RMP)
Minimum Loading Point (MLP)	Minimum Generation Block Run-Time (MGBRT)
Operating Reserve (OR)	Automatic Generation Control (AGC)
Segregated Mode of Operation (SMO)	

Other Acronyms

Availability Declaration Envelope (ADE)	Quality Assurance (QA)
Enhanced Day-Ahead Commitment (EDAC)	Market Forecasts & Integration (MF&I)
Subject Matter Expert (SME)	Day-Ahead Commitment Process (DACP)
Control Room Operator (CRO)	Steam Turbine (ST)
Graphical User Interface (GUI)	Surplus Baseload Generation (SBG)
Commercial Reconciliation System (CRS)	Demand Forecasting System (DFS)
Information Publishing System (IPS)	Dispatch Data Management System (DDMS)
Short Notice Planned Outage (SNPO)	User Acceptance Testing (UAT)
Day-Ahead (DA)	Network Security Assessment (NSA)
Shift Control Engineer (SCE)	Control Room (CR)
Market Information Management (MIM)	IESO Development Kit (IDK)
Application Programming Interface (API)	Universal Resource Locator (URL)
Market Trials (MT)	Market Participant Interface (MPI)
Network Model Build (NMB)	

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2. Environment and System Access

2.1 Environment

Market Trials testing will be conducted in the IESO Sandbox environment. Market participants connected to the IESO Sandbox will interact with the new and modified IESO systems that support the enhanced DACP.

The IESO Sandbox will be upgraded to include all the changes resulting from the EDAC Project. There are three stages in upgrading the IESO Sandbox:

- During the first stage, only the components necessary for MIM API connectivity testing of the EDAC functionality will be released to the Sandbox.
- The second stage will provide for remaining MIM functionality and will be released before the beginning of Operations Market Trials.
- The third stage will provide the integration of the Commercial Reconciliation System (CRS) to the IESO Sandbox

During the first stage, the IESO will be releasing the new IESO Developer Kit (IDK) to the Sandbox environment. This release provides the market participants that participate in the EDAC Market Trials with the environment to perform connectivity testing with the MIM API. As a result of the changes introduced by the EDAC project, there are additional elements of dispatch data that can be uploaded/downloaded to MIM API using IDK. Changes are required to any market participants' applications that use IDK in order to utilize this new functionality. The new IDK will not require a certificate of authentication.

2.2 System Access

In order to obtain access to the upgraded IESO Sandbox (i.e., Stage 1 and Stage 2), market participants will have to submit an access request to the IESO. The process of granting system access to the upgraded IESO Sandbox is described below.

2.2.1 IESO Sandbox – Stage 1 Upgrade

Market Participants

If you have access to the current IESO Sandbox (i.e., you have a User ID) you must request access to the new Stage 1 functionality by sending an email to the IESO EDAC Project mailbox located at edac@ieso.ca. Your request must specify the following:

- Your existing User ID.
- Your IP address for the workstation where IDK is loaded.
- Your contact phone number.

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Once the request is processed, the IESO will provide you with the following:

- The URL of the Sandbox MIM (via email).
- A link to the IDK Implementation Manual (posted on the IESO Pending Changes and Technical Interfaces page).
- A password for Stage 1 (via telephone).
Note: This password is only valid for the duration of the development/connectivity testing. A new password will be required for Market Trials (see Stage 2 below).

2.2.2 IESO Sandbox – Stage 2 Upgrade**Market Participants:**

If you have access to the current IESO Sandbox (i.e., you have a User ID) you must request access to the new Stage 2 functionality by sending an email to the IESO EDAC Project mailbox located at edac@ieso.ca (regardless of whether you already received access to the upgraded IESO Sandbox during Stage 1). Your request must specify the following:

- Your existing User ID.
- Your public IP address or range of IP addresses, which will be used to connect to the IESO Sandbox (e.g., firewall external interface IP address).
- Your contact phone number.

IESO

Once the request is processed, the IESO will provide you with the following:

- The URL(s) to the Sandbox MPI and Reports for Stage 2 (via email).
- Password(s) to access the Sandbox MPI and Reports for Stage 2 (via telephone).

Notes:

1. If you don't have access to the current IESO Sandbox, you must follow the regular IESO process to obtain access and a User ID. Details regarding the regular IESO system access request process can be found on the IESO website or by accessing the following link:
http://www.ieso.ca/imoweb/pubs/forms/FORM_1276-IESO-Identity-System-Access-Management.doc
 Once you have completed this process and you have received a User ID, you must follow the process described above to obtain access to the upgraded IESO Sandbox (i.e., Stage 1 or Stage 2).
2. If your User ID/Password access does not grant you access to the MPI on the IESO Sandbox or you plan using templates to submit bids/offers then you may use your active digital certificate together with your Sandbox password to access the MPI on the IESO Sandbox. If your digital certificate password is not active, contact IESO at edac@ieso.ca to request a password reset.

2.2.3 IESO Sandbox – Stage 3 Upgrade**Market Participants:**

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[If you already have access to the Stage 2 IESO Sandbox you will have automatically access to the Stage 3 IESO Sandbox, otherwise request access as described in section 2.2.2 above.](#)

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3. Preparation and Execution

3.1 Entry/Exit Criteria

3.1.1 Entry Criteria

- A Market Trials Test Plan is in place.
- Successful completion of IESO internal testing cycles.
- Market-facing test cases are available for use in Market Trials.
- An environment is available that supports the execution as per the *Market Trials Test Plan*.
- Market Trials resources (both IESO and market participants) are available for testing.

3.1.2 Exit Criteria

- 100% of all test cases scheduled for Market Trials have been executed.
- [An integrated environment was provided for a period of 3 weeks to conduct scenarios during settlements Market Trials.](#)
- There are no *Critical, High, or Medium* priority defects outstanding (without a plan to resolve them).
- The Market Trials Results report is available to market participants.

3.2 Test Case Status

The following conventions will be used in order to classify test status during testing:

Table 3-1: Test Case Status

Test Status	Test Status Description
Fail	The actual results and the expected results are different, indicating that a defect has been detected.
Pass	The actual results and the expected results are the same, indicating that the test case has passed.
In Process	The test case is in the process of being executed.
Retest	A defect has been fixed, or a change request has been implemented, which results in the need to re-run the test case.
Blocked	A test case cannot be executed because it is blocked by a defect.
Not Tested	A test case that is ready for testing, but has not been executed yet.
Conditional Pass	Allows test cases with a workaround (i.e., a defect was raised for a

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step in the test case).

3.3 Test Suspension and Resumption

The EDAC Testing Team, in consultation with the Market Trials Working Group, may choose to suspend testing and later resume it.

Suspension can occur as a result of the following:

- Unavailability of hardware or software for more than five days.
- The discovery of a critical defect that will not allow any further testing.
- Unavailability of Market Trials resources for testing.

Resumption of testing can be triggered by the following:

- The availability of hardware or software.
- The resolution and successful implementation of the test case whose defect suspended testing, and the testing team being notified to continue testing.
- Market Trials resources becoming available.

3.4 Testing Cycle Completion

A *Testing Cycle* report will be provided at the completion of Market Trials. The report will be posted for input from market participants (actual results will be stored internally at the IESO for reasons of confidentiality). The report will include:

- A summary of the overall testing.
- The number of each class of defect.
- The overall test results and status.
- A summary of deferred defects with the plans to resolve them.

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4. Communication

The following methods will be used to communicate with market participants in preparation for, and throughout the execution of, EDAC Market Trials:

- Meetings ([MTWG](#))
- Conference Calls/Webcasts (with teleconference links).
- Email
- [JESO Portal](#).
- [Posted Schedules](#)
- [Reporting](#)

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4.1 Meetings

Face-to-face meetings will be held prior to the start of the Market Trials as part of the EDAC Stakeholder Engagement Plan (SE-73). A new EDAC working group, the Market Trials Working Group (MTWG), will be formed to facilitate the preparation and execution of the EDAC Market Trials (refer to Terms of Reference, EDAC Market Trials Working Group). The MTWG meeting schedule will be managed through the EDAC Stakeholder Engagement Plan (SE-73).

The connection details will be provided in a separate document.

4.2 Conference Calls

Daily [or weekly \(Settlements trials only\)](#) conference calls or webcasts with teleconference links will be held between the EDAC Testing Team and the Market Trials Working Group (MTWG) in order to manage the daily execution of Market Trials testing. The EDAC Testing Lead will chair two conference calls/webcasts each day as described below.

4.2.1 Start-of-Day Conference Call/Webcast

The purpose of this teleconference is to receive any changes to the test schedule resulting from defects or blocked test cases.

4.2.2 End-of-Day Conference Call/Webcast

The purpose of this teleconference is to:

- Review the *Test Execution* reports.
- Review the *Defect Summary* reports.
- Review individual market-facing defects as required.
- Review issues encountered during testing that may affect the schedule for the next testing day.

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4.3 Email

A separate mailbox was created for the purpose of Market Trials. Market participants must use this mailbox to send sensitive information regarding Market Trials preparation and execution to the EDAC Testing Team.

The Market Trials mailbox details will be provided in a separate document.

4.4 IESO Portal

The EDAC Stakeholder Engagement portal will be used by the EDAC Testing Team to post relevant information and materials pertaining to the preparation and execution of Market Trials.

The Market Trials portal details will be provided in a separate document.

4.5 Schedules

Appendix C: Operations MT Test Schedule Sample outlines the test cases to be executed during a typical two week period of Market Trials. An up-to-date schedule will be provided to all MT participants prior to the start of testing, and then updated/confirmed daily during the ‘Start-of-Day Conference call/Webcast’. The schedule may change to adapt to testing conditions, defects, and system availability.

Appendix D & E: Appendix C: Operations MT Test Schedule Sample outline the compressed settlements calendar and the settlements trials schedule. An up-to-date schedule will be provided to all MT participants prior to the start of testing, and then updated/confirmed weekly daily during the Weekly call/Webcast. The schedule may change to adapt to testing conditions, defects, and system availability.

4.6 Reporting

The progress of testing will be reported on a regular basis throughout Market Trials and will be the responsibility of the EDAC Testing Team Lead. Sample reports of testing progress are included in Appendix B: Reports.

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5. Defect Management

The EDAC Testing Team will track all defects raised during the execution of Market Trials. All market-facing defects raised will be reported to MT participants and the status of these defects will be communicated to MT participants through the SE-73 working group, which was set up for Market Trials. This group will meet through teleconferencing to discuss defects, provide input in order to prioritize the defects, and receive updates on the resolution of defects.

Defects reported by MT participants should include all available information in order to enable us to identify the source of the defect. This will allow us to correct the defect more easily. All data required to reproduce the defect (i.e., error messages and screen captures) should be included. The EDAC Testing Team will provide a form and mechanism for the submission of data related to defects.

A copy of the defect form that MT participants must complete is included in Appendix A: Defect Form. Completed defect forms, along with any supporting information, will be emailed to ***TBD***. The EDAC Testing Team will summarize all defects in order to respect confidentiality and post this summary to the EDAC Portal.

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5.1 Defect Definition

5.1.1 Critical

- The defect results in a stoppage in testing and no acceptable workaround exists.
- The enhanced DACP cannot be deployed with these defects outstanding ('showstopper').

5.1.2 High

- An acceptable workaround exists that allows Market Trials test execution to continue.
- The enhanced DACP can be deployed with this defect outstanding, provided that a plan is in place to resolve the defect.

5.1.3 Medium

- The defect has no significant impact on Market Trials test execution.
- The enhanced DACP can be deployed with this defect outstanding, provided that a plan is in place to resolve the defect.

5.1.4 Low

- The defect is minor or cosmetic in nature and does not impact the Market Trials test execution, or subsequent use by market participants or the IESO.
- The enhanced DACP can be promoted to production with these defects outstanding.
- These defects can be resolved at a subsequent release in accordance with business priority.

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6. Test Overview

The implementation of the enhanced DACP affects each market participant differently. The degree of impact is based on the nature of a given market participant's activities within the Ontario Market. For Market Trials testing, participants should use the same processes and systems that they intend to implement when the enhanced DACP is placed *In-Service*. This is to ensure that the successful completion of testing gives as realistic an indication as possible of the enhanced DACP's usability and readiness for operation in the live market.

The structured tests performed in the Market Trials will be led by the EDAC Project team. Participants will have opportunities during both phases to undertake unstructured testing and report findings or defects to the EDAC Project team.

Market Trials is the last phase of user testing prior to *In-Service* of the enhanced DACP. In order to facilitate this testing, a period of *Ability Testing* will ensure that participants are ready to participate in Market Trials. The test cases [and test scenarios](#) executed during Market Trials will be categorized into the process areas of the EDAC Project (i.e., Enrolment, Initialization, Optimization, Real-Time, and Settlements). [Operations](#) Market Trials test cases will be developed by the EDAC Project team and reviewed by Market Trials participants through SE-73 working groups (i.e., the PAG and MTWG). [Settlements Market Trials test scenarios guidelines will be developed by the EDAC Project team and reviewed by Market Trials participants through SE-73 MTWG.](#) Defects discovered during the Market Trials testing cycle will also be logged by the EDAC Project team, and defect reports will be shared with Market Trials participants through the regular meetings described earlier in this document.

6.1 Connectivity Testing

As the IESO receives delivery of new and modified systems, the IESO Sandbox will be made available so that market participants can connect in order to carry out their system and process development and testing. This IESO Sandbox is expected to be made available to market participants in early 2011 for API testing. At that time, the Market Participant Interface (MPI) will not be available. Reports are available for developers on the *Pending Changes* page of the IESO located at: http://iesoqa/imowebpub/201102/IMO_MAN_0023_v11.1.pdf

These reports will be populated by test systems for the use of market participants in late spring 2011.

Connectivity Testing will be available to market participants until the start of *Ability Testing*. A schedule of the Sandbox test environment availability for testing will be communicated through the SE-87 and SE-73 working groups.

6.2 Ability Testing

Market Trials participants will be enrolled into the IESO Sandbox test environment on an individual basis. Assuming approximately 20 potential Market Trials participants (i.e., eligible energy limited resources and PCG-eligible generators), *Ability Testing* is expected to last approximately 1 to 2 weeks. On completion of *Ability Testing*, a participant may continue to run unstructured tests of their own, while other participants are brought into the Sandbox test environment.

The IESO will lead *Ability Testing*, with scenarios to concentrate on a market participant's ability to:

- Connect to the system.
- Submit offers
- Receive schedules
- Retrieve Settlement reports and statements

All schedules, reports, and statements will be generated by the new and modified IESO systems.

Note: Settlement amounts may not always be relevant to the scenario being tested owing to the use of real-time data to feed into the Settlements equations.

6.3 Registration of New DACP Data for Testing

Registration of new DACP data for testing will be conducted prior to the commencement of *Ability Testing*, and will be reflected in the modified registration system in the IESO Sandbox. The draft registration processes released under the EDAC Project consist of new DACP forms, specifically forms 1004, 1181, 1702, and 1552. The data collected will be used as the initial set of registration data to populate the IESO test systems during Market Trials testing and can be changed by the MPs during execution of the *Ability Testing* stage.

During the fall of 2010, members of the Project Advisory Group (PAG) were asked to make use of the modified draft registration processes (i.e., market manuals and forms that are released under the EDAC Project and not under the IESO Baseline process) in order to register the new DACP-related data. The new data includes registration data as well as MP-specific information for the submission of day-ahead three-part offers.

This data has been used to populate the IESO test systems during the IESO's internal testing, which is scheduled to be complete in mid-2011. This data will also be used as the initial set of registration data at the beginning of *Ability Testing*, and can be changed by the market participant during the execution of the *Ability Testing* stage.

Business scenarios for consideration by Market Trials participants during this stage could be:

- Submitting and validating new technical data.
- Selecting operation as a Pseudo Unit.
- Deselecting operation as a Pseudo Unit.
- Selecting submission of three part offers.

6.4 Day-ahead, Pre-dispatch, and Real-time Operations

Day-ahead, pre-dispatch, and real-time operations testing will consist of IESO-led scenarios that will involve all applicable Market Trials participants. Scenarios will cover the market participant tasks that occur in the day-ahead, pre-dispatch, and real-time operating time frames. These scenarios may include:

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6.4.1 Initialization

Submission of three-part offers and Daily Generator Data (DGD):

- Dispatch Data
- DGD

Submission of three-part offers for Pseudo Units (PSU) and their associated Physical Units (PU):

- PSU
- PU

Retrieving and checking the calculated DGD data for PSUs:

- Submit the PU DGD.
- Retrieve the calculated PSU DGD (PSU DGD report after 10:00).
- Cross-check the calculation from the PU DGD to ensure the accuracy of the PSU DGD.

Resubmission of Eligible Energy Limited Resource (EELR) offers:

- The offers should be accepted anytime between 10:00 and 14:00.

6.4.2 Optimization

Retrieval of participant schedules and commitments:

- Private reports for MPs.
- Validation of reports.

Retrieval and checking of the Availability Declaration Envelope (ADE) values:

- Check Source/ADE report.
- Available after each run.

6.4.3 Real-Time

Carrying out a de-commitment of a resource committed day-ahead:

- Request to shut down and actual shutdown are theoretical simulations.
- MP removes offers, IESO removes constraints.
- If offer is removed first, it should be queued for approval as a withdrawal so the constraints should be removed first.

Participant withdrawal of a committed resource:

- With and without withdrawal code.
- Prior to 4 hours out of dispatch and within 4 hours of dispatch.

6.5 Settlement of DACP Testing

Settlements Market Trials (S-MT) will be performed on a fully integrated system in the IESO Sandbox. To facilitate this approach the IESO will make specific preparations on both real-time and settlements systems and take specific actions to support the generation of the day-ahead charges (more details are provided in section 8 below). The outcome of these preparations, along with the absence of economic drivers for all test participants, will limit the ability of participants to develop and test offer/bid strategies during the execution of S-MT.

Market participants and the IESO will execute the settlements test scenarios. IESO will facilitate the execution of scenarios by increasing or decreasing the real-time demand forecasts as identified in the market trials schedule. Market participants will execute the scenarios within the windows that apply (increased demand window or decreased demand window). Some participants may choose to execute some or all of the scenarios using a subset of their resources (to be nominated). Using this approach, not all participants will receive all applicable charge types.

– End of Section –

Deleted: Settlement of the DACP testing is dependent on the use of real data streams such as revenue meter data from the IESO production systems. For this reason, scenarios being tested will be constructed by modifying the day-ahead schedules and data (e.g., day-ahead offers, DGD, etc.) that act as inputs to the Settlement systems. Scenarios may include:¶
<#>Eligibility for a Day-Ahead Production Cost Guarantees (DA-PCG) based on real-time revenue meter data.¶
<#>Retrieval of data files and statements.¶
<#>Applicability of a start event variant based on day-ahead and real-time revenue meter data.¶
Note: The modification of day-ahead data and its associated real-time data may limit the number of scenarios run during this stage of Market Trials. Settlements test cases will be in version 2 of the *Market Trials Test Plan* (i.e., this document) after UAT completion.¶

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7. Operations Test Case Information

The most important part of the Market Trials Test Plan is the list of associated [Operations](#) test cases that will be executed during this test phase. Each test case specifies what will be tested and the expected results as per the Market Manuals.

The test cases for Enrolment, Initialization, Optimization, and Real-Time processes are summarized in [Section 7.1](#). This plan will be updated with Settlement test cases as they become available.

7.1 Test Cases

7.1.1 Enrolment

Table 7-1: Test Case Enrolment

EDAC Process	Test Case ID	Test Case Name
ENROLMENT	E-001-MT	Register minimum loading point (MLP)
	E-002-MT	Register minimum generation block run-time (MGBRT)
	E-003-MT	Receive daily cascading hydroelectric dependency (DCHD) and record eligible energy limited resource (EELR) resubmission flag
	E-004-MT	Register Quick Start Facilities
	E-005-MT	Register Primary Fuel Type
	E-006-MT	Register Secondary Fuel Type
	E-007-MT	Register combustion turbine (CT) and steam turbine (ST) relationships in a combined cycle plant
	E-008-MT	Register ST MLPs
	E-009-MT	Register ST Percentage Share of Pseudo Unit
	E-010-MT	Register ST Duct Firing Capacity
	E-011-MT	Register a PSU
	E-020-MT	Register Elapsed Time to Dispatch (ETD)
	E-021-MT	Register three-part offer eligibility
	E-022-MT	Receive declaration from CCP currently registered as a PSU to no longer participate in the PSU modelling as part of the day-ahead scheduling.
	E-023-MT	Pseudo Unit (PSU) is registered with DGD and dispatch data submitted on pre-dispatch day. MP retrieves the DACP reports to access the day-ahead schedule for the PSU following the completion of the DACP run(s).
E-024-MT	DA-PCG-eligible generator is registered then submits DGD and dispatch data on pre-dispatch day. MP retrieves the DACP reports to	

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EDAC Process	Test Case ID	Test Case Name
		access the day-ahead schedule for the PCG-eligible generator following the completion of the DACP run(s).

7.1.2 Enrolment Test Specification

The purpose of testing the Enrolment process area is to assess the registered characteristics of the physical facilities in order to ensure that they adhere to the established reliability, performance, and standards as defined in the Internal Procedures and Market Manuals.

The E-023-MT & E-024-MT test cases will concentrate on the functionality of the inputs that are fed through the applications to ensure that each validation is performed according to the Business Process area. These end-to-end test cases will be performed using existing data from existing passed test cases and leveraging off an expected Network Model Build (NMB) introducing new resources and MPs.

Test Case ID: E-001-MT

Test Case Description: Receive, validate, and record the MLP value for an existing resource.

Actor: Market participant, Market Entry

Procedure:

- Market Manual 9.1 Procedures for Submitting DACP Registration Data

Expected Results:

- MLP information is compiled on the registration information form.
- Market Entry receives MP’s completed registration information form.
- Market Entry records validated registration information data in the CDMS.

Test Case ID: E-002-MT

Test Case Description: Receive, validate, and record the MGBRT value for an existing resource

Actor: Market participant, Market Entry

Procedure:

- Market Manual 9.1 Procedures for Submitting DACP Registration Data

Expected Results:

- MGBRT information is compiled on the registration information form.
- Market Entry receives MP’s completed registration information form.
- Market Entry records valid registration information data in the CDMS.

Test Case ID: E-003-MT

Test Case Description: Receive DCHD and record EELR resubmission flag.

Actor: Market participant, Market Entry

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Procedure:

- Market Manual 9.1 Procedures for Submitting DACP Registration Data

Expected Results:

- DCHD information is compiled on the registration information form.
- Market Entry receives MP's completed registration information form.
- Market Entry records EELR resubmission flag:
 - IF Daily Cascading Hydroelectric Dependency = YES
 - THEN EELR Resubmission Flag = YES
 - ELSE EELR Resubmission Flag = NO

Test Case ID: E-004-MT

Test Case Description: Receive, validate, and record quick start flag for an existing resource.

Actor: Market participant, Market Entry

Procedure:

- Market Manual 9.1 Procedures for Submitting DACP Registration Data

Expected Results:

- Quick Start Flag is entered on the registration information form.
- Market Entry receives MP's completed registration information form.
- Market Entry records quick start flag.

Test Case ID: E-005-MT

Test Case Description: Receive, validate, and record primary fuel type for an existing resource.

Actor: Market participant, Market Entry

Procedure:

- Market Manual 9.1 Procedures for Submitting DACP Registration Data

Expected Results:

- Primary fuel type is entered on the registration information form.
- Market Entry receives MP's completed registration information form.
- Market Entry records primary fuel type.

Test Case ID: E-006-MT

Test Case Description: Receive, validate, and record secondary fuel type for an existing resource.

Actor: Market participant, Market Entry

Procedure:

- Market Manual 9.1 Procedures for Submitting DACP Registration Data

Expected Results:

- Secondary fuel type is entered on the registration information form.
- Market Entry receives MP's completed registration information form.
- Market Entry records secondary fuel type.

Test Case ID: E-007-MT

Test Case Description: Receive, validate, and record the CT and ST relationships for an existing combined cycle plant.

Actor: Market participant, Market Entry

Procedure:

- Market Manual 9.1 Procedures for Submitting DACP Registration Data

Expected Results:

- CT and ST relationships are entered on the registration information form.
- Market Entry receives MP's completed registration information form.
- Market Entry records the following:
 - For each CT and ST resource, set the General Unit Type field to "Combined Cycle".
 - For each CT resource, set the ST Association field to reference the ST at the combined cycle plant.
 - For each CT resource, set the Generator Turbine Type field to "Combustion".
 - For the ST resource, set the Generator Turbine Type field to "Steam".
 - For the ST resource, record the Steam Turbine MLPs for n-on-1 CT-to-ST Configuration.
 - For each CT and ST resource, set start date in order to handle time dependent revisions.

Test Case ID: E-008-MT

Test Case Description: Receive, validate, and record the ST MLPs for an existing combined cycle plant.

Actor: Market participant, Market Entry

Procedure:

- Market Manual 9.1 Procedures for Submitting DACP Registration Data

Expected Results:

- CT and ST relationships are entered on the registration information form.
- Market Entry receives MP's completed registration information form.
- Market Entry records the ST MLPs.

Test Case ID: E-009-MT

Test Case Description: Receive, validate, and record the ST percentage share of PSU.

Actor: Market participant, Market Entry

Procedure:

- Market Manual 9.1 Procedures for Submitting DACP Registration Data

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Expected Results:

- ST percentage share of the PSUs entered on the registration information form.
- Market Entry receives MP's completed registration information form.
- Market Entry records the ST percentage share of the PSU.

Test Case ID: E-010-MT

Test Case Description: Receive, validate, and record the ST duct firing capacity of a combined cycle plant that intends to use the PSU model.

Actor: Market participant, Market Entry

Procedure:

- Market Manual 9.1 Procedures for Submitting DACP Registration Data

Expected Results:

- ST duct firing capacity of a combined cycle plant is entered on the registration information form.
- Market Entry receives MP's completed registration information form.
- Market Entry records the ST duct firing capacity of a combined cycle plant.

Test Case ID: E-011-MT

Test Case Description: Receive, validate, and record a PSU (a combined cycle plant wishing to use the PSU model).

Actor: Market participant, Market Entry

Procedure:

- Market Manual 9.1 Procedures for Submitting DACP Registration Data

Expected Results:

- Declaration to use the PSU model is entered on the registration information form.
- Market Entry receives MP's completed registration information form.
- Market Entry completes the following steps:
 1. Create a PSU resource for each CT resource at the combined cycle plant in the Combined Cycle Information Table on the ST Resource registration page (maximum of four).
 2. For each PSU resource, record the Steam Turbine Percentage Share of Pseudo Unit field with the value provided by the market participant.
 3. To activate the Pseudo Units created, check the Pseudo Unit(s) Active box adjacent to the Combined Cycle Information Table on the ST Resource registration page.
 4. For each PSU resource, a unique Pseudo Unit Resource ID will be created and associated to each CT at the combined cycle plant in the Combined Cycle Information Table on the ST Resource registration page.
 5. For each PSU resource, a unique Pseudo Unit Resource Name will be associated to each CT at the combined cycle plant in the Combined Cycle Information Table on the ST Resource registration page.
 6. For the associated ST resource, record the Steam Turbine Duct Firing Capacity field with the value provided by the market participant.

Test Case ID: E-020-MT**Test Case Description:** Register Elapsed Time to Dispatch (ETD).**Actor:** Market participant, Market Entry**Procedure:** Market Manual 9.1 Procedures for Submitting DACP Registration Data**Expected Results:**

- ETD is entered into form.
- Market Entry receives MP's completed registration information form.
- Market Entry records ETD.

Test Case ID: E-021-MT**Test Case Description:** Register three-part offer eligibility.**Actor:** Market participant, Market Entry**Procedure:** Market Manual 9.1 Procedures for Submitting DACP Registration Data**Expected Results:**

- Three-Part Offer Eligibility Declaration is entered into form.
- Market Entry receives MP's completed registration information form.
- Market Entry enables the Three Part Offer Flag to allow the MP access to the new MPI/API submit/retrieve features (Speed No Load Costs and Start Up Costs). Market Entry records the Three-Part Offer Eligibility Declaration in the IESO registration system and informs MP the enabled status of the Day-Ahead Offer Template Use Flag.

Test Case ID: E-022-MT**Test Case Description:** Receive declaration from CCP currently registered as a PSU to no longer participate in the PSU modelling as part of the day ahead scheduling.**Actor:** Market participant, Market Entry**Procedure:** Market Manual 9.1 Procedures for Submitting DACP Registration Data**Expected Results:**

- Declaration to not use the pseudo unit model is entered on the form.
- Market Entry receives MP's completed registration information form.
- Market Entry records the Combined Cycle Plant as no longer being registered as a PSU. The CCP can no longer submit bids and offers in the day ahead scheduling using the pseudo unit model.

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Test Case ID: E-023-MT

Test Case Description: Pseudo Unit (PSU) is registered with DGD and dispatch data submitted on pre-dispatch day. MP retrieves the DACP reports to access the day-ahead schedule for the PSU following the completion of the DACP run(s).

Receive declaration from CCP currently registered as a PSU to no longer participate in the PSU modelling as part of the day ahead scheduling.

Actor: Market participant, Market Entry, DACP Operator

Procedure:

Market Manual 9.1 Procedures for Submitting DACP Registration Data

Market Manual 9.2 Submitting Operational and Market Data for the DACP

Market Manual 9.3 Operation of the Day-Ahead Commitment Process

Expected Results:

- Declaration to use the pseudo unit model is entered on the form.
- Three-Part Offer Eligibility Declaration is entered into form.
- Market Entry receives MP's completed registration information form.
- Market Entry completes the following steps:
 1. Enable the Three Part Offer Flag to allow the MP access to the new MPI/API submit/retrieve features (Speed No Load Costs and Start Up Costs). Market Entry records the Three-Part Offer Eligibility Declaration in the IESO registration system and informs MP the enabled status of the Day-Ahead Offer Template Use Flag.
 2. Create a PSU resource for each CT resource at the combined cycle plant in the Combined Cycle Information Table on the ST Resource registration page (maximum of four).
 3. For each PSU resource, record the Steam Turbine Percentage Share of Pseudo Unit field with the value provided by the market participant (section 1.2.8).
 4. To Activate the Pseudo Units created the Administrator will check the Pseudo Unit(s) Active box adjacent to the Combined Cycle Information Table on the ST Resource registration page.
 5. For each PSU resource, a unique Pseudo Unit Resource ID will be created and associated to each CT at the combined cycle plant in the Combined Cycle Information Table on the ST Resource registration page.
 6. For each PSU resource, a unique Pseudo Unit Resource Name will be associated to each CT at the combined cycle plant in the Combined Cycle Information Table on the ST Resource registration page.
 7. For the associated ST resource, record the Steam Turbine Duct Firing Capacity field with the value provided by the market participant (section 1.2.9).
 8. For the PSU resources created in the ST resource record, set effective date in order to handle time dependent revisions.
- The IESO Systems receives and validate the PSUs dispatch data. The IESO receives and validates physical unit dispatch data but does not consider it during the DACP.
- DGD submission is validated and accepted in MIM.
- Accepted DGD is available for DACP.
- The public and private reports are published.
- The Market Participant accesses the public and private reports to view the initial results and the day-ahead schedule for the PSU.
- The public and private reports are published.

- The Market Participant accesses the public and private reports to view the EELR Optimization results and the day-ahead schedule for the PSU.
- The PUs are constrained in Contract Manager for all hours that they received a day-ahead schedule.
- The PUs receive a Pre-dispatch schedule for all committed hours.

Test Case ID: E-024-MT

Test Case Description: DA-PCG-eligible generator is registered, then submits DGD and dispatch data on pre-dispatch day. MP retrieves the DACP reports to access the day-ahead schedule for the PCG-eligible generator following the completion of the DACP run(s).

Actor: Market participant, Market Entry, DACP Operator

Procedure:

Market Manual 9.1 Procedures for Submitting DACP Registration Data

Market Manual 9.2 Submitting Operational and Market Data for the DACP

Market Manual 9.3 Operation of the Day-Ahead Commitment Process

Expected Results:

- Quick start flag and ETD are entered into form.
- MLP and MGBRT information are compiled into form.
- Primary fuel type is entered into form.
- Three-Part Offer Eligibility Declaration is entered into form.
- Market Entry receives MP's completed registration information forms.
- Market Entry determines DA-PCG eligibility as follows:

IF

Quick Start = NO

AND MLP > 0 MW

AND MGBRT > 1 hour

AND ETD > 60 min

AND Registered Resource Primary Fuel Type is not 'URANIUM'

THEN

PCG Eligibility Flag = YES

ELSE

PCG Eligibility Flag = NO.

- Market Entry records DA-PCG eligibility as Yes in CDMS.
- Market Entry enables the Day-Ahead Offer Template Use Flag to allow the MP access to the new MPI/API submit/retrieve features (Speed No Load Costs and Start Up Costs). Market Entry records the Three-Part Offer Eligibility Declaration in the IESO registration system and informs MP the enabled status of the Day-Ahead Offer Template Use Flag.
- DGD submission is validated and accepted in MIM.
- After 10:00, the IESO receives and validates dispatch data (system validation in MIM).
- Dispatch data is used in the DACP and/or Pre-dispatch.

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- Accepted DGD is available for DACP.
- The public and private reports are published.
- The Market Participant accesses the public and private reports to view the initial results and the day-ahead schedule for the DA-PCG-eligible generator.
- The public and private reports are published.
- The Market Participant accesses the public and private reports to view the EELR Optimization results and the day-ahead schedule for the DA-PCG-eligible generator.
- The PCG-eligible generator is constrained in Contract Manager for all hours that it received a day-ahead schedule.
- The PCG-eligible generator receives a Pre-dispatch schedule for all committed hours.

7.1.3 Initialization

Table 7-2: Test Case Initialization

EDAC Process	Test Case ID	Test Case Name
Initialization	I-001-MT	EELR submits revised dispatch data with the DEL >0 MWh between 10:00 and 12:00 on the pre-dispatch day; dispatch data accepted.
	I-002-MT	Non EELR dispatchable generator submits revised dispatch data between 10:00 and 14:00 on pre-dispatch day with reason code. MP phones DACP Operator confirming reason code is valid. Submission is approved by DACP Operator.
	I-004-MT	Demonstrate the procedure for managing DGD submissions that exceed limits.
	I-007-MT	Dispatchable generator/ load submits dispatch data between 10:00 and 14:00 on pre-dispatch day in response to request for additional offers/bids with reason code OTHER. A corresponding text description is included.
	I-008-MT	Dispatchable generator, dispatchable load, import, or export submits dispatch data between 10:00 and 14:00 on pre-dispatch day with no reason code.
	I-009-MT	Dispatchable generator, dispatchable load, import or export submits dispatch data between 10:00 and 14:00 on pre-dispatch day with reason code OTHER but with no text description.
	I-010-MT	MP submits segregated mode of operation (SMO) request before 9:00 day-ahead
	I-011-MT	MP submits SMO request after 10:00 day-ahead.
	I-012-MT	Submitting dispatch data between 6:00 and 10:00 on pre-dispatch day.
	I-013-MT	Submitting dispatch data between 6:00 and 10:00 on pre-dispatch day. Error in data and it gets rejected.

EDAC Process	Test Case ID	Test Case Name
Initialization	I-014-MT	Physical unit associated with a PSU submits dispatch data before 10:00 on pre-dispatch day.
	I-015-MT	Dispatchable not quick start generator submits valid DGD between 6:00 and 10:00.
	I-016-MT	Physical unit associated with a PSU submits DGD before 10:00 on pre-dispatch day.
	I-018-MT	MP submits/revises dispatch data after 10:00 on pre-dispatch day with a reason code. Dispatch data automatically rejected at 14:00 (no action taken).
	I-019-MT	Import/Exports and linked wheels submit dispatch data after 10:00 on pre-dispatch day in response to IESO request for additional offers/bids.
	I-020-MT	PSU makes a change to physical unit offer between 10:00 and 14:00 on pre dispatch day.
	I-021-MT	PCG-eligible resource submits DGD after 10:00.

7.1.4 Initialization Test Specification

The purpose of testing the Initialization process area is to acquire, validate, and refine all inputs that will be used in the EDAC Optimization process.

Test Case ID: I-001-MT

Test Case Description: EELR market participant submits the initial dispatch data with a DEL value of 0 before 10:00 on the pre-dispatch day, causing the EELR to not be used in the initial DACP run. Between 10:00 and 12:00 on the pre-dispatch day, EELR submits revised dispatch data with the DEL >0 MWh; submitted data is validated and accepted to be used in the next run of the DACE.

Actor: Market participant, DACP Operator

Procedure:

- Market Manual 9.2 Procedures for Submitting Operational and Market Data for DACP

Expected Results:

- The EELR resource does not get scheduled in the initial DACP run.
- IESO receives, validates, and accepts submitted dispatch data with a revised DEL.
- The EELR resource will get scheduled in the next DACP run.

Test Case ID: I-002-MT

Test Case Description: Non EELR dispatchable generator submits revised dispatch data between 10:00 and 14:00 on pre-dispatch day with reason code. Submitted dispatch data is held for approval. Market participant notifies DACP Operator of their submission by phone. IESO assesses revised dispatch data including the reason code and approves submission. Revised dispatch data is used in

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next run of the DACE. This demonstrates the procedure for managing dispatch data submissions queued for approval.

Actor: Market participant, DACP Operator

Procedure:

- Market Manual 9.2 Submitting Operational and Market Data for the DACP

Expected Results:

- The IESO receives the dispatch data via OPGUI.
- DACP Operator receives phone call and reviews reason code according to Appendix A.1 of Market Manual 9, Part 9.2.

Dispatch data is used in the DACP and/or Pre-dispatch.

Test Case ID: I-004-MT

Test Case Description: Market participant submits DGD with a MLP exceeding the MLP Limit. Submission includes reason code with corresponding explanation. On receipt of a phone call from the MP, the DACP Operator reviews and approves the submission, logs the details, and includes the information in the hand-off notes. (DGD exceeding limits submitted after 16:00 will not be reviewed until a call is received after 08:00 the following day).

Actor: PCG-Eligible generator, DACP operator

Procedure:

- Market Manual 9.2- Submitting Operational and Market Data for the DACP

Expected Results:

- DGD is queued for approval in OPGUI.
- DACP Operator receives phone call and reviews reason.
- Data is available in DAOS and reports (Daily Generator Data report).
- Day-ahead schedules respect the approved MLP value.

Test Case ID: I-007-MT

Test Case Description: Dispatchable generator/load submits dispatch data between 10:00 and 14:00 on pre-dispatch day in response to IESO's request for additional offers/bids with reason code OTHER. A corresponding text description is included. Submission is assessed and approved. No phone call is required.

Actor: Market participant, DACP Operator

Procedure:

- Market Manual 9.2 Submitting Operational and Market Data for the DACP

Expected Results:

- Market participants are notified of IESO's request for additional offers/bids.
- DACP Operator receives dispatch data and reason code queued for approval in OPGUI.
- Dispatch data will be used in the next DACP run.

Test Case ID: I-008-MT

Test Case Description: Dispatchable generator, dispatchable load, import or export submits dispatch data between 10:00 and 14:00 on pre-dispatch day with no reason code. Dispatch data is automatically rejected and a validation error is issued.

Actor: Market participant

Procedure:

- Market Manual 9.2 Submitting Operational and Market Data for the DACP

Expected Results:

- Dispatch data is automatically rejected and not used in the DACP and/or Pre-dispatch. Validation error is issued.

Test Case ID: I-009-MT

Test Case Description: Dispatchable generator, dispatchable load, import or export submits dispatch data between 10:00 and 14:00 on pre-dispatch day with reason code OTHER but with no text description. Submission is automatically rejected.

Actor: Market participant

Procedure:

- Market Manual 9.2 Submitting Operational and Market Data for the DACP

Expected Results:

- Dispatch data is automatically rejected and not used in the DACP and/or Pre-dispatch. Validation error is issued.

Test Case ID: I-010-MT

Test Case Description: This demonstrates the procedure for implementing SMO. Market participant submits SMO request before 9:00 day-ahead, SMO is approved and included in DACP. Required outages are submitted. This also tests that segregated generation units are not included in the DA Schedule even though they have valid DA offers.

Actor: DACP Operator, market participant

Procedure:

- Market Manual 9.2 Submitting Operational and Market Data for the DACP

Expected Results:

- Offers present in the Ontario Market in case SMO is revoked.
- DACP Operator receives phone call and acknowledges SMO request. The DACP Operator receives outage request for units in IOMS.
- DACP Operator approves SMO unit outage(s) in IOMS. SMO is reflected in DA Schedule.
- DACP operator approves transmission outage slip in IOMS

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Test Case ID: I-011-MT

Test Case Description: Market participant submits SMO request after 10:00 day-ahead. Request is not approved until last run of DACP is completed and is not included in DACP. SMO is approved and included in pre-dispatch. This tests the procedure for SMO requests received after 10:00.

Actor: DACP Operator, market participant

Procedure:

- Market Manual 9.2 Submitting Operational and Market Data for the DACP

Expected Results:

- Offers present in the Ontario Market in case SMO is revoked.
- DACP Operator receives outage request slip, but does not approve the request until after the last DACE run.
- DACP Operator receives telephone call and acknowledges request.
- DACP operator approves SMO unit outages in IOMS.
- DACP operator approves transmission outage slip in IOMS.

Test Case ID: I-012-MT

Test Case Description: Market participant submits dispatch data for day 1 between 06:00 and 10:00 on pre-dispatch day. This tests that valid three part offers, bids, forecasts & schedules submitted before 10:00 will be used in the DACP.

Actor: Market participant

Procedure:

- Market Manual 9.2 Submitting Operational and Market Data for the DACP

Expected Results:

- The IESO receives and validates dispatch data
- Dispatch data is used in the DACP and/or Pre-dispatch.

Test Case ID: I-013-MT

Test Case Description: Market participant submits dispatch data between 06:00 and 10:00 on pre-dispatch day. There is an error in the data and it gets rejected. This tests MPI/API validation of bids and three part offers.

Actor: Market participant

Procedure:

Market Manual 9.2 Submitting Operational and Market Data for the DACP

Expected Results:

- The IESO (MPI/API) receives dispatch data. Dispatch data is not valid.
- Market participant is notified of validation error via the MPI/API.
- The IESO (MPI/API) receives and validates dispatch data.
- Dispatch data is used in the DACP and/or Pre-dispatch.

Test Case ID: I-014-MT

Test Case Description: Physical unit associated with a PSU submits dispatch data before 10:00 on pre-dispatch day. Tests that PU dispatch data received before 10:00 is not used in the DACP. Validating test results to be determined.

Actor: Market participant

Procedure:

- Market Manual 9.2 Submitting Operational and Market Data for the DACP

Expected Results:

- The IESO receives and validates physical unit dispatch data but does not consider it during DACP.
- Dispatch data is used in Pre-dispatch.

Test Case ID: I-015-MT

Test Case Description: PCG-eligible resource submits DGD between 06:00 and 10:00 day-ahead. The IESO systems validate and accept the submitted DGD.

Actor: Market participant, DACP Operator

Procedure:

- Market Manual 9.2- Submitting Operational and Market Data for the DACP

Expected Results:

- DGD submission is validated and accepted
- Accepted DGD is available for DACP.

Test Case ID: I-016-MT

Test Case Description: Physical unit resources associated with a PSU submit DGD before 10:00 on pre-dispatch day. The IESO computes the PSU parameters. The computed DGD is used in the DACP.

Actor: DACP Operator, PSU resource

Procedure:

Market Manual 9.2- Submitting Operational and Market Data for the DACP

Expected Results:

- DGD is validated and accepted.
- PSU DGD parameters are available for the DACP.
- The PSU DGD computed values are reflected in the report.
- The PSU DA Schedule respects the calculated DGD values in the report and the CT MGBRT, MGBDT, and Max Starts.

Test Case ID: I-018-MT

Test Case Description: Dispatchable loads and non energy limited dispatchable generators submit/revise dispatch data after 10:00 on pre-dispatch day with a reason code. IESO does not take any action during DACP. Dispatch data is automatically rejected after 14:00.

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Actor: Market participant

Procedure:

- Market Manual 9.2 Submitting Operational and Market Data for the DACP

Expected Results:

- DACP Operator receives dispatch data.
- Dispatch data is automatically rejected after 14:00 and is not used in the DACP and/or pre-dispatch.

Test Case ID: I-019-MT

Test Case Description: Import/Exports and linked wheels submit dispatch data after 10:00 on pre-dispatch day in response to IESO request for additional offers/bids with reason code OTHER. A corresponding text description is required. Submission is assessed and approved. No phone call required.

Actor: Marketer, DACP Operator

Procedure:

Market Manual 9.2 Submitting Operational and Market Data for the DACP

Expected Results:

- Market participants are notified of IESO request for additional offers/bids.
- DACP Operator receives dispatch data and reason code queued for approval in OPGUI.
- Dispatch data will be used in the next DACP run.

Test Case ID: I-020-MT

Test Case Description: PSU Market participant makes a change to physical unit offer between 10:00 and 14:00 on pre-dispatch day. No DACP Operator approval is needed. Submission is accepted.

Actor: PSU resource, DACP Operator

Procedure:

Market Manual 9.2 Submitting Operational and Market Data for the DACP

Expected Results:

- Change is received.
- Data is accepted.

Test Case ID: I-021-MT

Test Case Description: PCG-eligible resource submits DGD after 10:00 day-ahead. DGD used for following DACP days.

Actor: DAO, DA- PCG-eligible generator

Procedure:

- Market Manual 9.2- Submitting Operational and Market Data for the DACP

Expected Results:

- The submitted DGD is within the tolerance being used. The IESO systems receive and validate submitted DGD.
- Accepted DGD is not used in subsequent runs of the DAOS for the next day. Accepted DGD is available for next day's DACP.

7.1.5 Optimization

Table 7-3: Test Case Optimization

EDAC Process	Test Case ID	Test Case Name
OPTIMIZATION	O-001-MT	Demonstrate the procedure to notify market participants that initial results are delayed.
	O-002-MT	Demonstrate the procedure to notify market participants that energy limited resource (ELR) Optimization results are delayed.
	O-003-MT	Demonstrate the procedure to notify market participants that there will be no ELR Optimization run.
	O-004-MT	Demonstrate the procedure to notify market participants of a DACP failure.
	O-005-MT	MP retrieves DACP reports.
	O-007-MT	Demonstrate the procedure for Contract Manager failure.
	O-012-MT	Demonstrate the procedure to notify market participants that re-run criteria has been met.
	O-014-MT	Demonstrate the procedure to notify market participants that invalid results have inadvertently been published.
	O-016-MT	Declare and record DACP failure.
	O-017-MT	Automatic loading of constraints fails; manual loading of constraints and publishing completed.

7.1.6 Optimization Test Specification

The purpose of testing the Optimization process area is to produce a plan for operating the real-time grid and market on the next day, as well as to prepare inputs for and perform the day-ahead Optimization process that generates next day resource commitments and schedules.

Test Case ID: O-001-MT

Test Case Description: The DACP Operator will issue a notification that initial results are delayed via the Notification Solution.

Actor: DACP Operator, market participants

Procedure:

- Market Manual 9.3- Operation of the Day-Ahead Commitment Process

Expected Results:

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- Market participants receive notification via MPI or API that the initial DACP results have been delayed with the time to expect the results; EELR Resubmission window extended until HH:MM (ELR Optimization results will also be delayed).
- Market participant accesses the public and private reports to view the delayed initial results.

Test Case ID: O-002-MT

Test Case Description: The DACP Operator will issue the notification that EELR Optimization results have been delayed via the Notification Solution.

Actor: DACP Operator, market participants

Procedure:

- Market Manual 9.3- Operation of the Day-Ahead Commitment Process

Expected Results:

- Market participants receive notification via MPI or API that the EELR Optimization results are delayed with the time to expect the results.
- A market participant accesses the public and private reports to view the delayed EELR Optimization results.

Test Case ID: O-003-MT

Test Case Description: The DACP Operator will issue a notification that there will be no EELR Optimization run via the Notification Solution.

Actor: DACP Operator, market participants

Procedure:

- Market Manual 9.3- Operation of the Day-Ahead Commitment Process

Expected Results:

- Market participants receive notification via MPI or API that there is no EELR Optimization.

Note: If the DACP has not produced a valid ELR Optimization run, the DACP Schedule of Record (SOR) will be on the initial DACP run. Market participants can access the DACP SOR from the IESO report site.

Test Case ID: O-004-MT

Test Case Description: The DACP Operator will issue the notification of a DACP failure via the Notification Solution.

Actor: DACP Operator, market participants

Procedure:

- Market Manual 9.3- Operation of the Day-Ahead Commitment Process

Expected Results:

- Market participants receive the notification via MPI or API that the DACP has failed. The notification message informs the MPs of the date of the DACP failure and the date to expect the DACP to resume:

Message: "The Day-Ahead Commitment Process has failed for trade date YYYY/MM/DD. (Commitment will be as per Pre-Dispatch. No DA-PCGs or DA-IOGs will apply.) DACP will resume for trade date YYYY/MM/DD"

Test Case ID: O-005-MT

Test Case Description: Market participants retrieve public and private reports.

Actor: DACP Operator, market participants

Procedure:

- Market Manual 9.3- Operation of the Day-Ahead Commitment Process

Expected Results:

- The Public and Private reports are published.
- The market participant accesses the Public and Private reports to view the initial results.
- The Public and Private reports are published.
- The market participant accesses the Public and Private reports to view the EELR Optimization results.

Test Case ID: O-007-MT

Test Case Description: Contract Manager tool has failed. Contract Manager will not be returned to service until after 15:00. Market participants will be notified that the DACP Commitments reports will be delayed until further notice. The DACP Commitment reports are issued when Contract Manager has been returned to service.

Actor: DACP Operator, Shift Control Engineer (SCE), market participants

Procedure:

- Market Manual 9.3- Operation of the Day-Ahead Commitment Process

Expected Results:

- Market participants receive notification via MPI or API that the DACP Commitments reports will be delayed.
- The Commitments reports are published automatically on completion of the load.
- Market participants receive notification via MPI or API that the DACP Commitments reports were issued.

Test Case ID: O-012-MT

Test Case Description: The DACP Operator will issue the notification that an additional run has been scheduled due to the re-run criteria and when to expect the results, via the Notification Solution.

Actor: Market participant, DACP Operator

Procedure:

- Internal Manual 2.15-3 Operating during the DACP

Expected Results:

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- Market participant receives notification via MPI or API that an additional run has been scheduled. The notification reads:
Message: "An additional DACP run has been scheduled due to (give rerun criterion). Expect results by HH:MM."
Note: Market participants can also access the IESO website to view the notification message of an additional run.
- The results from the subsequent run are published for the market participant to view at the proposed time (by 15:00).

Test Case ID: O-014-MT

Test Case Description: The DACP Operator will issue the notification that invalid results have inadvertently been published, via the Notification Solution.

Actor: Market participant, DACP Operator

Procedure:

- Market Manual 9.3- Operation of the Day-Ahead Commitment Process

Expected Results:

Market participant receives notification from IESO that the previously published results are invalid.

Test Case ID: O-016-MT

Test Case Description: The DACE does not produce valid results so a DACP failure is declared. A failure notification is sent to market participants.

Actor: Market participant, DACP Operator

Procedure:

- Market Manual 9.3 - Operation of the Day-Ahead Commitment Process

Expected Results:

- Market participants will identify a DACP failure from the absence of the SOR reports after 15:00.
- The DACP commitments are not loaded as real-time constraints and the Commitment reports are not issued.
- Settlements and Customer Relations are notified of the DACP failure.
- MPs receive the notification via MPI or API that the DACP has failed. The notification message informs the MPs of the date of the DACP failure and the date to expect the DACP to resume. The notification message will read:

Message: "The Day-Ahead Commitment Process has failed for trade date YYYY/MM/DD; DACP will resume for trade date YYYY/MM/DD."

Test Case ID: O-017-MT

Test Case Description: The automatic loading of constraints into Contract Manager fails. The DACP Operator must load the constraints into Contract Manager and initiate publishing of Commitments reports manually.

Actor: DACP Operator

Procedure:

- Market Manual 9.3 Operation of the Day-Ahead Commitment Process

Expected Results:

- The SCE initiates repairs.
- Market participants receive notification via MPI or API that the DACP Commitments reports will be delayed.
- The data is available for calculations.
- The constraints are calculated.
- The constraints are loaded into Contract Manager.
- The DACP Commitments reports are published.
- Market participants receive notification via MPI or API that the DACP Commitments reports are published.

7.1.7 Real-time

Table 7-4: Real-time Test Cases

EDAC Process	Test Case ID	Test Case Name
REAL-TIME	R-001-MT	PCG-eligible resource requests withdrawal of offer for an already committed resource from the DACP for approval; MP receives authorization to withdraw.
	R-002-MT	PCG-eligible resource requests withdrawal of offer for an already committed resource from the DACP for approval; MP does not receive authorization to withdraw.
	R-003-MT	IESO de-commits a PCG-eligible resource to eliminate reliability issue.
	R-005-MT	Market participant submits new or revised dispatch data that expands their ADE with reason code "ERPO" outside mandatory window. IESO approves submission.
	R-008-MT	Market participant submits new or revised dispatch data that expands their ADE with reason code. IESO rejects submission.

7.1.8 Real-time Test Specification

The purpose of testing the Real-time process area is to verify the integration of day-ahead commitments in response to varying demand. Additionally, the Real-time process will also test the ability to manage committed resources and respond to ongoing grid conditions.

Test Case ID: R-001-MT

Test Case Description: PCG-eligible resource with a commitment from the DACP requests to withdraw its offer (from any time after DACP Schedule of Record has been issued until 2 hours prior

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to dispatch hour). The revised dispatch data and "withdrawal" reason code are submitted for approval. The Control Room Operator approves request, approves dispatch data submission, and removes constraints.

Actor: Market participant, Control Room Operator (CRO)

Procedure:

- Market Manual 9.4 Real-time Integration of the DACP

Expected Results:

- Revised dispatch data is queued for IESO approval in OPGUI.
- Control Room Operator receives telephone call from market participant and reviews "Withdrawal" reason code queued for approval in OPGUI.
- Revised dispatch data submission is approved. Withdrawal is affected for specified hours.

Test Case ID: R-002-MT

Test Case Description: PCG-eligible resource with a commitment from the DACP requests to withdraw its offer (from any time after DACP Schedule of Record has been issued until 2 hours prior to dispatch hour). The revised dispatch data and "withdrawal" reason code are submitted for approval. The Control Room Operator does not approve request.

Actor: Market participant, CRO

Procedure:

- Market Manual 9.4 Real-time Integration of the DACP

Expected Results:

- Revised dispatch data is queued for IESO approval in OPGUI.
- Control Room Operator receives telephone call from market participant and reviews "Withdrawal" reason code queued for approval in OPGUI.
- Revised dispatch data is not approved.

Note: Dispatch data will automatically be rejected at 14:00.

Test Case ID: R-003-MT

Test Case Description: PCG-eligible resource receives a commitment from the DACP. Following the commitment, IESO identifies a reliability issue, de-commits the PCG-eligible generation unit, and removes constraints from Contract Manager to eliminate the reliability issue. The IESO requests removal of offers for the specified hours.

Actor: Market participant, CRO

Procedure:

- Market Manual 9.4 Real-time Integration of the DACP

Expected Results:

- PCG-eligible generator receives notification by telephone of requirement to de-commit, shuts down the unit, and removes offers for future hours.
- Control Room Operator approves the changes to dispatch data queued in OPGUI.
- Unit not scheduled in future Pre-dispatch.

Test Case ID: R-005-MT

Test Case Description: Market participant submits new or revised dispatch data that expands their ADE with reason code "ERPO". IESO approval is needed. (IESO did not request additional bids and offers). IESO approves request. Reason code meets the requirements for expanding ADE.

Actor: Market participant, CRO

Procedure:

- Market Manual 9.4 Real-time Integration of the DACP

Expected Results:

- IESO receives dispatch data submission.
- The CRO can review the revised dispatch data and discuss the reason.
- The dispatch data is used in Pre dispatch.

Note: If the MP's revised submission is rejected, the CRO will request the MP to reinstate their previous dispatch data.

Test Case ID: R-008-MT

Test Case Description: Market participant submits new or revised dispatch data that expands their ADE with reason code. IESO approval is needed (IESO did not request additional bids and offers). IESO rejects request since it does not meet Availability Declaration Envelope requirements.

Actor: CRO, market participant

Procedure:

- Market Manual 9.4 Real-time Integration of the DACP

Expected Results:

- IESO receives dispatch data submission.
- The CRO can review the revised dispatch data and discuss the reason.
- Market participant reinstates their previous dispatch data in MPI/API.

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8. Settlements Test Scenarios

To perform the Settlements Market Trials (S-MT) on a fully integrated system, the IESO will make specific preparations on both real-time and settlements systems and take specific actions to support the generation of the day-ahead charges.

8.1 Settlements Market Trials Setup

8.1.1 Real-Time Systems

Given the lack of real-time telemetry in the IESO Sandbox system, the IESO plans to use a static data file as an input into the real-time dispatch systems. This static data will simulate a not quick-start resource as being synchronized and injecting 1MW into the IESO Control Grid (ICG) for all hours. To complement this action, the market participants have to modify their real-time/pre-dispatch offers in the Sandbox to include a very large ramp up/down rate (e.g., 999MW/min). These actions will result in the real-time constrained dispatch being a function of the economics of the submitted offer and not be limited by the ability of the resource to physically reach their economic point. To facilitate this generation of a constrained schedule, the IESO will also modify registration data in the IESO Sandbox environment on behalf of the market participant, (registered minimum loading point (MLP) and maximum ramp rates) which will allow the submission of high ramp rates and prevent the trigger of a start-up or shut down sequence in the real time dispatch engine, based on the disparity between the registered MLP and the injection amount in the static file.

Market participants will be asked to submit a list of Day-Ahead Production Cost Guarantee (DA-PCG) eligible generators that they plan on using during the S-MT to generate day-ahead charge types. The IESO encourages that market participants minimize this list to only a few resources within their fleet, as this will limit the necessary modifications to the registration data/simulated telemetry data, as well as limiting the number of total resources that are competing to get a day-ahead schedule (which should increase the chances of a market participants participating in Market Trials to receive a day-ahead schedule on any given day).

8.1.2 Settlements Systems

Given the fully integrated IESO Sandbox environment, it is expected that based on market participant submissions, all of the necessary variables (offers/bids, schedules, prices) will be available for settlement purposes, with the exception of real-time injection. The IESO will overwrite the real-time injection for each resource nominated by participants, to make it equal to the real-time constrained schedule generated on the IESO Sandbox. To accomplish this, the IESO will use a script file to take each five minute interval dispatch, divide it by 12 and substitute it into the injection variable (AQEI). The settlement result will make each nominated resource appear as if it was compliant with real-time dispatch.

8.1.3 Actions to Support the Generation of Day-Ahead Charges

The IESO will also modify the Ontario demand in between the day-ahead and real-time timeframes in order to increase the likelihood of generating specific day-ahead charge types:

- For PCG and Intertie Offer Guarantee (IOG) the IESO will enter an Ontario demand that is higher in the day-ahead than in real-time, which should have a tendency to lower real-time market clearance price (RT-MCP) generating guarantee payments for PCG and IOG. This scenario will also be used to generate export failure charges, since the lower demand in real-time should lower pre-dispatch market clearance price (PD-MCP) generating export failure charges.
- For a day-ahead import failure charge the IESO will enter an Ontario demand that is lower in the day-ahead than in real-time, which should increase PD-MCP generating import failure charges.
- For day-ahead linked wheel failure charges, either demand scenario will work as this will result in a failure charge on either the import or export leg of the linked wheel.

8.2 Settlements Market Trials Test Scenario Guidelines

The guidelines presented below are intended to aid the market participants in executing the S-MT test scenarios to generate the specific day-ahead charge types. These guidelines will be referenced in the individual test scenarios that market participants will be asked to carry out during the S-MT period. It is anticipated that market participants will be able to apply these guidelines and generate charge types through their day-ahead and real-time submissions with little manual intervention on behalf of the IESO. The following are a list of guidelines that may be translated to individual S-MT test scenarios:

Day-Ahead Production Cost Guarantee (DA-PCG) Charge

- 1.) Market participants must ensure that they have submitted dispatch data in the day-ahead (energy offers and daily generator data) for a nominated resource that is defined as PCG eligible based on their registration data.
- 2.) Provided that the PCG eligible resource is scheduled in the day-ahead, market participants can perform scenarios which will generate various related PCG charges. They include:
 - a. PCG Component #1 – provided that market participants submitted a day-ahead offer that includes a Speed-No-Load (SNL) cost as well as an incremental energy offer that is higher than the RT-MCP, a charge will be generated for component #1.
 - b. PCG Component #2 – provided the market participants alter their offers for real-time such the cost in the offer curves above the daily generation data (DGD) MLP is slightly increased or decreased and provided that the full amount of the day-ahead is not utilized in real-time, a positive or negative charge will be generated for component #2.
 - c. PCG Component #3¹ – provided that a Congestion Management Settlement Credit (CMSC) was generated in real-time for the unutilized portion of the energy curve of the day-ahead schedule, a charge will be generated for component #3.

¹ The IESO will not manipulate the real-time CMSC to simulate this scenario. Therefore, the charge for PCG component #3 may be difficult to produce.

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- d. PCG Component #4² – provided that market participants offer operating reserve in real-time which results in reserve schedules, and a energy schedule which does not fully utilize the day-ahead schedule; any revenue from the real time operating reserve schedule will generate a charge for component #4.
- e. PCG Component #5 - provided that market participants submitted a day-ahead offer that includes a Start-up (SUC) cost in the start hour, a charge will be generated.
- f. PCG Generator Withdrawal Charge – market participants can withdraw their resources from the day-ahead by cancelling offers with a withdraw reason code in any hours where a PCG eligible resource received a day-ahead schedule. This charge type should be executed for a demand scenario where the day-ahead Ontario demand is lower than in real-time. Provided the IESO approved the withdrawal and that the resulting pre-dispatch MCP is higher than the day-ahead offer amount for the MLP portion of the offer curve, a charge will be generated. If a generator does not inject for the entire day-ahead scheduled period, the Day-Ahead Generator Withdrawal Charge (DA GWC) is assessed using the real-time market clearing price.
- g. PCG Generator De-commitment by the IESO – the IESO will de-commit DA-PCG eligible resources in real-time. Although this will not generate a dedicated charge type, market participants can observe how de-commitment affects their PCG calculation (submission of forms related to fuel cost reimbursement will be omitted from this scenario given that the form and the associated procedure have not been altered by the EDAC project).

Day-Ahead Intertie Offer Guarantee (DA-IOG) Charge

- 1.) Market participants must ensure that they have submitted import offers in both the day-ahead and real-time, and have not submitted exports which when scheduled will offset any scheduled imports.
- 2.) Provided that the imports are scheduled in the day-ahead, market participants can perform test scenarios which will generate various related IOG charges. The test scenarios may include:
 - a. IOG Component #1 – provided that market participants submitted a day-ahead energy offer that is higher than the RT-MCP a charge will be generated for component #1.
 - b. IOG Component #2 – market participants should alter their offers for real-time, where the cost in the offer curves is slightly increased or decreased. Provided that the full amount of the day-ahead import is not utilized in real-time, a positive or negative charge will be generated for component #2.
 - c. IOG Component #3³ – any CMSC that was generated in real-time for a portion of the unutilized portion day-ahead schedule will generate a charge type.

² The IESO will not manipulate the real-time reserve and energy schedules to simulate this scenario. Therefore, the charge for PCG component #4 may be difficult to produce.

³ The IESO will not manipulate the real-time CMSC to simulate this scenario. Therefore, the charge for IOG component #3 may be difficult to produce

3.) Once successful, market participants may try other variations of the DA-IOG charge where they are offset by various amounts of either day-ahead imports or real-time imports.

Day-Ahead Import Failure Charge (DA-IFC)

- 1.) Market participants must ensure that they have submitted import offers in the day-ahead that receive a day-ahead schedule.
- 2.) In pre-dispatch, market participants can increase the import offered cost so that it does not get a schedule in pre-dispatch, which will generate a DA-IFC.

Day-Ahead Export Failure Charge (DA-EFC)

- 1.) Market participants must ensure that they have submitted export bids in the day-ahead that receive a day-ahead schedule.
- 2.) In pre-dispatch, market participants can decrease the export bid so that it does not get a scheduled in pre-dispatch, which will generate a DA-EFC.

Day-Ahead Linked Wheel Failure Charge (DA-LWFC)

- 1.) Market participants must ensure that they have submitted both an import offer and export bid that receive a day-ahead schedule. The linked wheel needs to be linked via a common NERC tag suffix, and include the correct “WI ” and “WX ” pre-fix.

In pre-dispatch, the IESO will curtail both legs of the linked wheel to limit the amount of the linked wheel scheduled pre-dispatch, which will generate a DA-LWFC.

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Appendix A: Defect Form

Instructions:

- Complete form (attach additional pages if required)
- Email form to edac@ieso.ca or fax to (905) 602-6902



EDAC Market Trials Defect Reporting Form

Date:

Submitted By (Company Name):

Defect Name:

Defect Description:

Steps to recreate:

Supporting Documentation:

Comments:

Appendix B: Reports

Test Case Coverage By Process - MT			
Process	Test Case ID	Test Case Name	Latest Execution Status
Enrolment	E-001_MT	Market Trials Test case sample	Fail
Total Test Cases in Enrolment:	1		
Total Pass:	0		
Total Conditional Pass:	0		
Total Fail:	1		
Total Blocked:	0		
Total Retest:	0		
Total Outstanding:	1		

Figure B-1: Test Coverage by Process – MT Report

Process Coverage Summary

Process	Total Test Cases	Pass	Fail	Blocked	Retest	Not Tested	In Progress	Conditional Pass	Not Applicable	Outstanding
Enrolment	45	9	1	12	0	22	0	1	0	36
Enrolment, Initialization, Optimization	4	0	0	2	0	2	0	0	0	4
Initialization	44	18	2	2	0	22	0	0	0	26
Optimization	52	18	0	6	0	26	0	2	0	34
Real Time	16	4	3	1	0	8	0	0	0	12
Grand Total	161	49	6	23	0	80	0	3	0	112

Figure B-2: Process Coverage Summary Report

Defect Tracking Report - MT

DefectID	Date Created	Defect Name	Testing Cycle	Priority	Assigned Date	Defect State	Resolution	Target Resolution Date	Root Cause Description
DEF-026	February 14, 2011	Sample Defect for Market Trials	MT	High	February 14, 2011	Open	Testing sample for Market Trials		

Figure B-3: Defect Tracking Report - MT

EDAC Defect Summary

Defect State	Critical	High	Medium	Low	No Priority	Total Outstanding
Assigned	0	1	0	0	1	2
Cancelled	0	0	0	0	0	0
Closed	0	0	1	3	5	9
Open	0	2	3	0	10	15
Re-open	0	1	0	0	0	1
Retest	0	0	1	0	0	1
Grand Total:	0	4	5	3	11	19

Figure B-4: EDAC Defect Summary Report

Appendix C: Operations MT Test Schedule Sample

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
DACP Day	January 10, 2011	January 11, 2011	January 12, 2011	January 13, 2011	January 14, 2011	January 15, 2011	January 16, 2011	January 17, 2011	January 18, 2011	January 19, 2011	January 20, 2011	January 21, 2011	January 22, 2011	January 23, 2011	January 24, 2011	January 25, 2011	January 26, 2011	January 27, 2011	January 28, 2011	January 29, 2011	January 30, 2011	January 31, 2011	February 01, 2011	February 02, 2011	February 03, 2011	February 04, 2011
DACP for Dispatch Day:	January 11, 2010	January 12, 2011	January 13, 2011	January 14, 2011	January 15, 2011	January 16, 2011	January 17, 2011	January 18, 2011	January 19, 2011	January 20, 2011	January 21, 2011	January 22, 2011	January 23, 2011	January 24, 2011	January 25, 2011	January 26, 2011	January 27, 2011	January 28, 2011	January 29, 2011	January 30, 2011	January 31, 2011	February 01, 2011	February 02, 2011	February 03, 2011	February 04, 2011	February 05, 2011
Current Dispatch Day:	January 10, 2011	January 11, 2011	January 12, 2011	January 13, 2011	January 14, 2011	January 15, 2011	January 16, 2011	January 17, 2011	January 18, 2011	January 19, 2011	January 20, 2011	January 21, 2011	January 22, 2011	January 23, 2011	January 24, 2011	January 25, 2011	January 26, 2011	January 27, 2011	January 28, 2011	January 29, 2011	January 30, 2011	January 31, 2011	February 01, 2011	February 02, 2011	February 03, 2011	February 04, 2011
Process																										
Enrolment			E-005		E-016																			E-023*	E-023*	
			E-006		E-011																			E-024**	E-024**	
			E-003		E-009																					
			E-004		E-010																					
			E-020		E-014																					
			E-021		E-015																					
			E-001		E-017																					
			E-002		E-018																					
			E-012		E-019																					
			E-013		E-022																					
		E-007																								
		E-008																								
Initialization								I-015	I-001	I-012					I-002	I-010	I-003									
								I-004	I-008	I-013					I-007	I-011	I-005									
								I-021	I-009	I-014					I-017	I-016	I-006									
									I-018	I-020																
									I-019																	
Optimization								O-011	O-001	O-005					O-004	O-017	O-007									
								O-019	O-002	O-006					O-012	O-020	O-018									
								O-021	O-003	O-013					O-015	O-022	O-025									
									O-008	O-014					O-016		O-026									
									O-009	O-023																
									O-010																	
								O-024																		
Real-Time								R-001	R-006						R-004	R-005	R-003									
								R-002								R-008										
								R-007																		
Scheduling Notes / BPIT Operations Notes:																										

Figure C-1: MT Test Schedule Sample

Appendix D: Compressed Settlement Calendar

DAY OF THE WEEK	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	
CALENDAR DAYS	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	01-Aug	02-Aug	03-Aug	04-Aug	05-Aug	06-Aug	07-Aug	08-Aug	09-Aug	10-Aug	11-Aug	12-Aug	
CALCULATIONS AND SETTLEMENT STATEMENTS ISSUED ON THE CURRENT CALENDAR DAY FOR THE FOLLOWING TRADE DAYS																				
CONDENSED SETTLEMENT CALENDAR	INITIAL CALCS (PM) Trade Day + 2 CD	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	01-Aug	02-Aug	03-Aug	04-Aug	05-Aug	06-Aug	07-Aug	08-Aug	09-Aug	10-Aug
	PRELIM CALCS Trade Day + 4 BD	19-Jul	20-Jul	21-Jul	22-Jul	23-Jul 24-Jul 25-Jul				26-Jul	27-Jul	28-Jul	29-Jul			30-Jul 31-Jul 01-Aug 02-Aug	03-Aug	04-Aug	05-Aug	06-Aug 07-Aug 08-Aug
	Settlement Statements & Data Files Available for:	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul 22-Jul 23-Jul				24-Jul	25-Jul	26-Jul	27-Jul			28-Jul 29-Jul 30-Jul 31-Jul	01-Aug	02-Aug	03-Aug	04-Aug 05-Aug 06-Aug

Appendix E: Settlements Market Trials Schedule Sample

<u>Date</u>	<u>Real-Time Demand Adjustment</u>	<u>Scenario #</u>	<u>Scenario Description</u>
<u>July 25 – July 29</u>	<u>Higher Real-Time Demand</u>	<u>3</u>	<u>DA-PCG Component 3</u>
		<u>5</u>	<u>DA-PCG Component 5</u>
		<u>6</u>	<u>DA-Generator Withdrawal Charge</u>
		<u>9</u>	<u>DA-IOG Component 3</u>
		<u>11</u>	<u>DA-EFC & LWFC</u>
<u>August 2 – August 5</u>	<u>Lower Real-Time Demand</u>	<u>1</u>	<u>DA-PCG Component 1</u>
		<u>2</u>	<u>DA-PCG Component 2</u>
		<u>4</u>	<u>DA-PCG Component 4</u>
		<u>7</u>	<u>DA-IOG Component 1</u>
		<u>8</u>	<u>DA-IOG Component 2</u>
		<u>10</u>	<u>DA-IFC & LWFC</u>