



# Report

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## **Enhanced Day-Ahead Commitment (EDAC) Testing Cycle Report Market Trials**

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**EDAC Issue 0.1**

*This document provides the test results for the EDAC Market Trials testing cycle*

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## Document Control

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<b>Reference (Section and Paragraph)</b>	<b>Description of Change</b>

# 1. Introduction

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The Enhanced Day-Ahead Commitment (EDAC) Market Trials Test Plan document EDAC\_TST\_0005, Issue 2.0 dated June 22, 2011, defined the following objectives for the market trials:

- 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.
- 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.

## 1.1 Purpose

The purpose of this report is to consolidate the MT testing cycle results and to summarize the defects identified throughout the execution of the MT testing.

## 1.2 Scope

The scope of MT was defined as part of the EDAC Market Trials Test Plan and included the following elements:

Infrastructure testing:

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

Business process testing:

- Registration of new DACP data – Testing the procedures supporting the entry and maintenance of the market participant and facility registration data.
- 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) was based on test scenarios (i.e., unscripted testing) as follows:
  - a. Scenarios were designed to facilitate the creation of DACP settlements charge types during the defined period of S-MT.

- b. Scenarios were executed using an integrated test environment, a compressed settlement calendar, modified registration data and revised real-time inputs.
- c. Scenarios were dependent on the S-MT participants receiving a day-ahead schedule and then taking specific actions in real-time.

### 1.3 Out of Scope

The following business areas were not included within the scope of the MT testing cycle:

- 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.
- User Acceptance Testing (UAT) – Summary of test cases executed as part of UAT was made available to market participants.
- Site Acceptance Testing (SIT).
- System Technical Testing - Summary of test cases (for the Settlements systems only) was 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 report assists the IESO and the Market Participants in determining if the market trials testing objectives were satisfied.

## **1.5 Conventions**

The standard conventions used in this document are as follows:

- The word 'shall' denotes a mandatory requirement.
- Quotation marks are used to highlight process and component names.
- Italics are used to highlight the titles of publications, procedures, and forms.

**– End of Section –**

## 2. Conclusion

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The EDAC MT were successfully completed on July 7 for the Operations component of the trials and on August 31, 2011 for the formal Settlements component of the trials.

The successful completion of MT demonstrated 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).

All test cases for the Operations component of the MT were successfully executed and the results were as expected. During the S-MT testing all the revised and new charge types were triggered by at least one market participant. In addition IESO published settlement statements and data files, containing these new charge types, were successfully received and utilized by market participants.

There were 30 defects raised during the execution of the MT. As of August 31, 2011, the MT completion date, 18 defects had been closed and 12 defects (1-high, 7-medium, 4-low) were still open. Plans are in place to resolve all of the remaining high and medium defects prior to the EDAC in-service date. The status of all defects is reflected in Section 5 of this document.

– End of Section –

## 3. Test Overview

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### 3.1 Test Summary

The MT testing cycle comprised of the following distinct stages:

#### Connectivity Testing

The Connectivity Testing was designed for Market Participants using an application programming interface (API) to test their connection to the IESO Market Information Management (MIM) systems, specifically to the IESO upgraded Sandbox environment.

#### Ability Testing

MPs successfully tested their ability to connect to the IESO upgraded Sandbox environment to perform and submit bids and offers and to receive schedules and reports.

#### Operations Testing

The Market Trials Operations (MT-O) testing began on June 8, 2011. MT-O testing was executed by the Market Participants in the Sandbox environment. EDAC Testers were assigned specific roles and responsibilities to ensure successful business process integration between the IESO and the Market Participants. The test cases executed as part of the MT-O testing cycle are described in the EDAC\_MT\_Test\_Plan\_0005, and include references to the appropriate business procedures (i.e., the Market Manuals/Procedures), the test cases priority, and the expected test results. MT-O testing has been completed on July 7, 2011. Successful completion of the MT-O testing cycle included:

- Registration of new DACP data – testing the procedures supporting the entry and maintenance of the market participants and facility registration data
- Day-ahead, Pre-dispatch, and Real-Time Operations –testing the business processes related to three operational timeframes: day-ahead, pre-dispatch and real-time operations

#### Settlements Testing

Settlements Market Trials (S-MT) was performed on a fully integrated system in the IESO Sandbox. To facilitate this approach the IESO made specific preparations on both real-time and settlements systems and took specific actions to support the generation of the day-ahead charges.

Market Participants and the IESO executed the settlements test scenarios. The IESO facilitated the execution of scenarios by increasing or decreasing the real-time demand forecasts as identified in the market trials schedule. Market participants executed the scenarios within the demand windows that were applicable to each scenario (i.e., increased demand window or decreased demand window).

The Market Trials Settlements formal testing commenced on August 3, 2011 and was completed on August 31, 2011. The formal testing period was followed by an unstructured testing period until September 16, 2011.

### 3.2 Test Environment

Market Trials testing was conducted in the IESO Sandbox environment. Market Participants were able to connect and interact with the new and modified IESO systems that supported the enhanced DACP as planned.

### 3.3 Entry/Exit Criteria

The market trials entry/exit criteria were defined in the EDAC Market Trials Test Plan document.

#### 3.3.1 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.

Following the acceptance of the entry criteria on May 25, 2011, the market trials operations testing started on June 8, 2011.

#### 3.3.2 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.

The exit criteria is considered to be met once this report is made available to the market participants.

### 3.4 Test Case Status

The general execution results of the MT test cases were recorded in an IESO database (EDAC Test Tool), and the confidential market participant data and execution results sheets were filed internally. A summary of the test case results is presented in section 4 of this document.

The following conventions were used to indicate the final status of each test case:

**Table 3-1: Test Case Status**

Test Status	Test Status Description
<b>Fail</b>	The actual results and the expected results are different, indicating that a defect has been detected.  The result from a previous testing cycle has been accepted into UAT for regression testing. This failed test case can be categorized as out of scope if it has not been resolved during UAT.
<b>Pass</b>	The actual results and the expected results are the same, indicating that the test case has passed.
<b>In Process</b>	The test case is in the process of being executed.

<b>Not Applicable</b>	The test case is not valid for the testing cycle.
<b>Retest</b>	A defect has been fixed, or a change request has been implemented, which results in the need to re-run the test case.
<b>Blocked</b>	A test case cannot be executed because it is blocked by a <i>Critical</i> or <i>High</i> priority defect.
<b>Not Tested</b>	A test case that is ready for testing, but has not yet been executed yet.
<b>Conditional Pass</b>	Allows test cases with a <i>Medium</i> or <i>Low</i> priority defect to continue testing.

## 3.5 Defect Management

The EDAC Testing Team tracked all defects raised during the execution of Market Trials. The status of the market-facing defects was communicated to MT participants through the Market Trials Working Group (MTWG) under EDAC Stakeholder Engagement SE-73. The EDAC Testing Team and MTWG met through face-to-face meetings or teleconferences to discuss defects, provide input in order to prioritize the defects, and receive updates on the resolution of defects.

### 3.5.1 Defect Priority

#### Priority Level: Critical

- The defect results in the failure of one or more *Critical* priority test cases with no workaround. Normally, this blocks other *Critical* or *High* priority test cases. In this case, the EDAC Project team would consider suspending all testing. An ad hoc management meeting is required.
- *Critical* priority defects must be fixed.

#### Priority Level: High

- One or more *High* priority test cases are impacted by the defect and fail with no workaround.
- *High* priority defects must be fixed as soon as possible.

#### Priority Level: Medium

- One or more *Medium* priority test cases are impacted by the defect failure.
- The defect results in the failure of one or more *Critical* or *High* priority test cases, but there is a workaround.
- The defect does not result in a failure of a business process path, but causes any of the following:
  - The system/business process produces incorrect, incomplete, or inconsistent results.
  - The defect impairs the system/business process usability. The defect should be resolved in the normal course of development activities.

#### Priority Level: Low

- The defect does not result in a failure, does not impair usability, and the desired processing results are easily obtained by working around the defect.

- The defect is an irritant which should be repaired, but which can be deferred until more serious defects have been fixed.

**Priority Level: No Priority**

- These are defects that were resolved without being triage for a priority assessment.

– End of Section –

## 4. Testing Coverage Summary

### 4.1 Testing Execution Status - Operations

The MT-O test cases details are provided in the public EDAC Market Trials Test Plan.

**Table 4-1: Testing Execution Status**

Latest Test Execution Date	Test Case Priority	Test Case Number	Test Execution Status
08-Jun-11	Low	E-001-MT	Pass
08-Jun-11	Low	E-002-MT	Pass
08-Jun-11	High	E-003-MT	Pass
08-Jun-11	Critical	E-004-MT	Pass
08-Jun-11	High	E-005-MT	Pass
08-Jun-11	Low	E-006-MT	Pass
09-Jun-11	High	E-007-MT	Pass
09-Jun-11	Medium	E-008-MT	Pass
09-Jun-11	High	E-009-MT	Pass
09-Jun-11	Critical	E-010-MT	Pass
09-Jun-11	High	E-011-MT	Pass
08-Jun-11	Low	E-020-MT	Pass
08-Jun-11	Low	E-021-MT	Pass
09-Jun-11	High	E-022-MT	Pass
13-Jun-11	High	E-023-MT	Pass
13-Jun-11	Critical	E-024-MT	Pass
14-Jun-11	Critical	I-001-MT	Pass
14-Jun-11	High	I-002-MT	Pass
14-Jun-11	Critical	I-004-MT	Pass
14-Jun-11	High	I-007-MT	Pass
22-Jun-11	Critical	I-008-MT	Pass
22-Jun-11	Critical	I-009-MT	Pass
05-Jul-11	Medium	I-010-MT	Pass
05-Jul-11	High	I-011-MT	Pass
13-Jun-11	Critical	I-012-MT	Pass

Latest Test Execution Date	Test Case Priority	Test Case Number	Test Execution Status
13-Jun-11	Critical	I-013-MT	Pass
13-Jun-11	Critical	I-014-MT	Pass
13-Jun-11	Critical	I-015-MT	Pass
13-Jun-11	Critical	I-016-MT	Pass
22-Jun-11	Critical	I-018-MT	Pass
14-Jun-11	Medium	I-019-MT	Pass
20-Jun-11	Critical	I-020-MT	Pass
20-Jun-11	Critical	I-021-MT	Pass
13-Jun-11	Medium	O-001-MT	Pass
13-Jun-11	Medium	O-002-MT	Pass
20-Jun-11	Medium	O-003-MT	Pass
06-Jul-11	High	O-004-MT	Pass
13-Jun-11	Low	O-005-MT	Pass
05-Jul-11	Critical	O-007-MT	Pass
14-Jun-11	Critical	O-012-MT	Pass
06-Jul-11	Critical	O-014-MT	Pass
06-Jul-11	Critical	O-016-MT	Pass
21-Jun-11	High	O-017-MT	Pass
05-Jul-11	Medium	R-001-MT	Pass
05-Jul-11	Medium	R-002-MT	Pass
05-Jul-11	Low	R-003-MT	Pass
22-Jun-11	High	R-005-MT	Pass
22-Jun-11	High	R-008-MT	Pass

## 4.2 Testing Execution Status – Settlements

The execution of the Settlements Market Trials was not based on scripted test cases. As agreed as part of the EDAC Market Trials Test Plan, the S-MT objective was to enable the Market Participants to trigger, through various test scenarios developed by the IESO and MPs, all the modified or new charge types and then to retrieve the IESO published preliminary settlement statements and data files.

**Table 4-2: New/Modified Charge Types Triggered During Settlements Market Trials**

<b>EDAC RELATED CHARGE TYPES - NEW</b>	
<b>Charge type number</b>	<b>Charge type name</b>
1131	Intertie Offer Guarantee Settlement Credit
1134	Day-Ahead Linked Wheel Failure Charge
1136	Day-Ahead Export Failure Charge
1500	Day-Ahead Production Cost Guarantee Payment – Component 1 and Component 1 Clawback
1501	Day-Ahead Production Cost Guarantee Payment – Component 2
1502	Day-Ahead Production Cost Guarantee Payment – Component 3 and Component 3 Clawback
1503	Day-Ahead Production Cost Guarantee Payment – Component 4
1504	Day-Ahead Production Cost Guarantee Payment – Component 5
1505	Day-Ahead Production Cost Guarantee Reversal
1510	Day-Ahead Generator Withdrawal Charge
1550	Day-Ahead Production Cost Guarantee Recovery Debit
1560	Day-Ahead Generator Withdrawal Rebate
<b>EDAC RELATED CHARGE TYPES - MODIFIED</b>	
<b>Charge type number</b>	<b>Charge type name</b>
1135	Day-Ahead Import Failure Charge

– End of Section –

## 5. Defect Summary

### 5.1 Defect Status

There were a total of 30 defects identified during the Market Trials testing cycle. By completion of Market Trials, August 31, 2011, 18 defects were closed and 12 were still open with a plan in place to resolve them before EDAC in-service date.

### 5.2 Defect Details Summary

The table below lists all of the defects identified during the MT testing cycle, the status of those defects at the completion of Market Trials testing (i.e., August 31, 2011) and the status of those defects at the time when this document was last issued.

**Table 5-1: Defect Status**

Date Created	Defect ID	Defect Name	Priority	Defect Status	
				August 31 2011	October 4 2011
25-May-11	DEF-040	Max gen cap rounded in MIM	Medium	Closed	Closed
13-Jun-11	DEF-041	DAOS failed at DSI node.	High	Closed	Closed
13-Jun-11	DEF-042	ST of a PSU received a commitment to the 1 on 1 MLP. More than one PSU scheduled	High	Closed	Closed
13-Jun-11	DEF-043	DAOS failed at NSA node.	High	Closed	Closed
13-Jun-11	DEF-044	Timeout error when submitting dispatch data using API.	Medium	Open	Closed
13-Jun-11	DEF-045	Operating ranges in DAOS for deregistered PSU.	High	Closed	Closed
14-Jun-11	DEF-046	DAOS failing at NCUC node.	High	Closed	Closed
14-Jun-11	DEF-047	MPI errors	Medium	Open	Closed
15-Jun-11	DEF-048	DACE failing when there is a large mismatch between offers and demand.	High	Closed	Closed
20-Jun-11	DEF-049	Report site unavailable	High	Closed	Closed
20-Jun-11	DEF-050	MPI failures	High	Closed	Closed
21-Jun-11	DEF-051	Unable to submit both PU and PSU standing dispatch data	High	Closed	Closed

Date Created	Defect ID	Defect Name	Priority	Defect Status	
				August 31 2011	October 4 2011
21-Jun-11	DEF-052	Approval message for DGD and dispatch data not received in MPI/API.	High	Closed	Closed
21-Jun-11	DEF-053	DACP report times and report folder times inconsistent	Low	Open	Closed
22-Jun-11	DEF-054	Commitment Reports Delayed/Missing	High	Closed	Closed
22-Jun-11	DEF-055	DAOS Sequence failure	Critical	Closed	Closed
22-Jun-11	DEF-056	DACP Check Source ADE report doesn't include physical units associated with a PSU	Medium	Open	Closed
6-Jul-11	DEF-068	Market Manual 9.2	Medium	Closed	Closed
8-Jul-11	DEF-072	DA Adequacy Report published multiple times for a DACP failure	Low	Open	Closed
11-Aug-11	DEF-077	Inconsistent Rounding of CRS Intermediate Results (issue 52)	Medium	Open	Open
2-Aug-11	DEF-078	CRS Sandbox environment instability	Low	Closed	Closed
23-Aug-11	DEF-079	Predispatch DQSW is presented as a negative number	Low	Open	Closed
2-Aug-11	DEF-080	Fields in IOG Settlement Details modified from 5 to 2 decimals	Medium	Closed	Closed
2-Aug-11	DEF-081	IOG Offset process Incorrectly dividing DA_DQSW by 12 (issue 158)	Medium	Closed	Closed
2-Aug-11	DEF-082	ST portion of PSU_SUC for PCG Comp 5 not included in ST Comp 5 charge (issue 159)	Medium	Closed	Closed
24-Aug-11	DEF-083	DAOS run stopped when switching from PU to PSU	Low	Open	Closed
29-Aug-11	DEF-092	Limit DIGQ and DIPC to registered MaxGenCap (Design Change)	High	Open	Closed

Date Created	Defect ID	Defect Name	Priority	Defect Status	
				August 31 2011	October 4 2011
29-Aug-11	DEF-093	Documentation: Revise Charge Types and Equations (GWC)	Medium	Open	Closed
29-Aug-11	DEF-094	Documentation: Revise Format Specification and Data Files Document	Medium	Open	Closed
29-Aug-11	DEF-096	IOG Report for Market Participants (include all imports)	Medium	Open	Open

– End of Document –