Retail Market Procedure
MP NI 506
Ability Testing

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1.   **OVERVIEW**

1.1   **Purpose**

MP NI 501 Market Entry Process and MP NI 502 Re-certification refer to Ability Tests to be executed by a Supplier.

This procedure describes the test framework for Ability Testing and provides guidance for a Supplier to prepare for and execute Ability Testing. The purpose of this procedure is to:

1.1.1   Define the overall approach to be adopted for Ability Testing;

1.1.2   Define the entry and exit criteria for Ability Testing;

1.1.3   Define the scope of Ability Testing;

1.1.4   Identify the responsibilities of each party;

1.1.5   Describe how Ability Testing will be managed and controlled by the Test Control Centre ("TCC"); and

1.1.6   Outline the management controls and procedures required.

Testing will be concentrated on the Supplier systems and processes which interact with the central market systems operated on behalf of NIE.

The objective of Ability Testing is to confirm that the Supplier can exchange messages effectively with NIE and can perform discrete retail market transactions.

The TCC will interoperate with the Supplier in the Ability Tests using the Electricity Market Messaging Application ("EMMA") infrastructure.

1.2   **Document Structure**

The remainder of this procedure is structured as follows:

1.2.1   **Section 2 – "Scope, Principles and Organisation of Testing"**, sets out the scope and principles of Ability Testing;

1.2.2   **Section 3 – "Entry and Exit Criteria"**, describes the criteria that Suppliers must satisfy to enter and exit Ability Testing;

1.2.3   **Section 4 – "Test Data and Test Environment Requirements"**, gives an overview of the Supplier requirements to provide test data, test environment and test resources;

1.2.4   **Section 5 – "Testing Process Definition"**, describes the testing process;

1.2.5 **Section 6 – "Definition of Testing Deliverables"**, describes the content of the test schedule, test scripts, test results, incident report and the Exit Report;

1.2.6 **Section 7 – "Test Management and Control"**, describes key management activities, controls, procedures and concepts that will be used in Ability Testing;

1.2.7 **Section 8 – "NIAUR"**, describes the role of NIAUR.

2. **SCOPE, PRINCIPLES AND ORGANISATION OF TESTING**

2.1 **Introduction**

A Supplier is required to exchange market messages with NIE through the Electricity Market Messaging Application ("EMMA") in accordance with the TIBCO Licence.

2.2 **Scope of Ability Testing**

The scope of Ability Testing will include:

2.2.1 Any Supplier system which provides an interface to EMMA;

2.2.2 Supplier implementation of EMMA;

2.2.3 Central Systems, namely:

    2.2.3.1 The use of EMMA and associated Gateways;

    2.2.3.2 NIE systems which interface with EMMA and associated Gateways; and

    2.2.3.3 Market web-site. The scope of Ability Testing shall exclude:

2.2.4 Supplier and NIE business processes;

2.2.5 Any testing associated with the Single Electricity Market Arrangements (SEM).

2.3 **Principles for Ability Testing**

The overall approach for Ability Testing will be guided by the following high-level principles:

2.3.1 Clearly defined roles and responsibilities will be specified for all parties in each test;

2.3.2   A clearly defined, structured approach to test preparation and execution will be employed;

2.3.3   Effective co-ordination and management of testing between the TCC and the Supplier is required to ensure effective conduct and completion of testing;

2.3.4   To provide predictability of results, Ability Testing will be conducted using simulated data provided by the TCC;

2.3.5   Required resource levels and skills will be specified as early as possible;

2.3.6   Staff involved in testing will, where possible, be those individuals who are expected to perform their operational tasks during day to day operations;

2.3.7   Each Ability Testing Test Scenario execution will involve the participation of a single Supplier. Where a Test Scenario requires additional roles, TCC will simulate these roles;

2.3.8   Ability Testing will be conducted within a test environment assigned for the purpose.

2.4 Organisation of Testing

The following diagram illustrates how Ability Testing is organised.
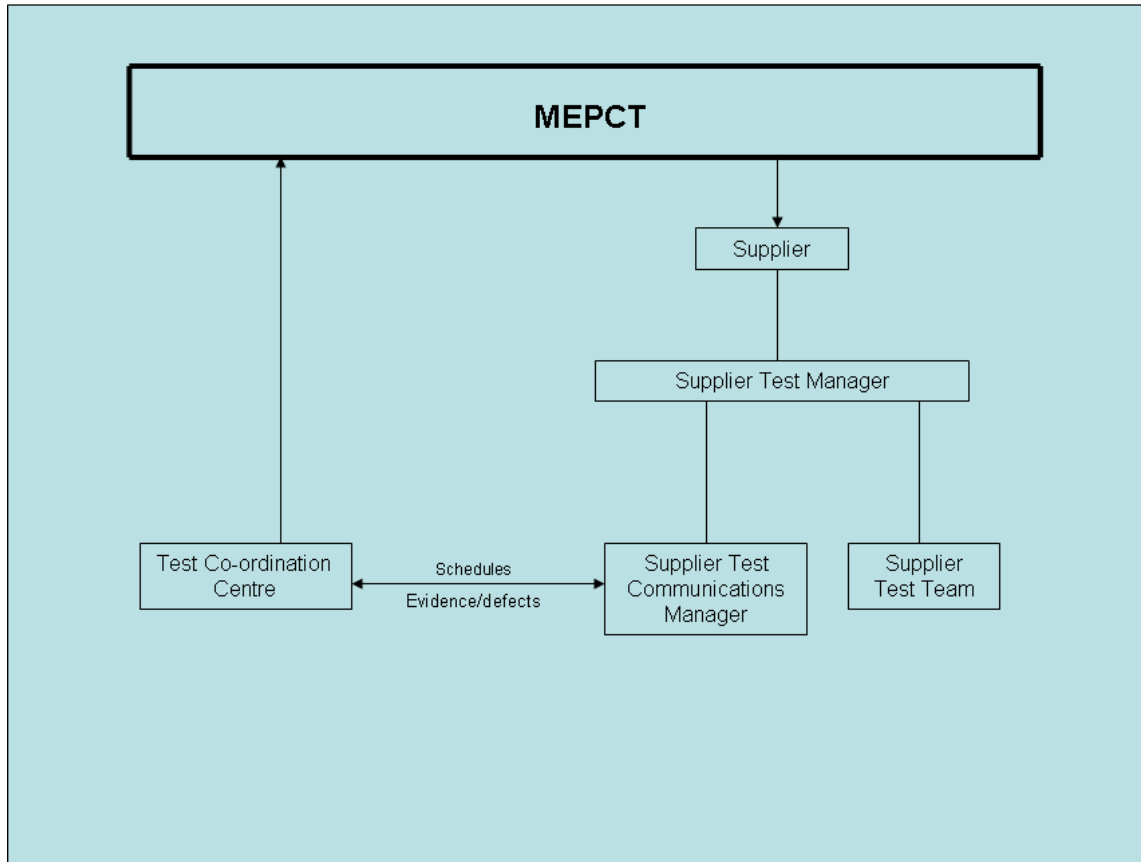
2.5 The TCC

The TCC acting on behalf of the Market Entry Process Co-ordination Team ("MEPCT") will work closely with the Supplier throughout test execution and will be responsible for the following activities:

2.5.1   Acting as a help desk (in relation to testing) and a single point of contact during testing for a Supplier;

2.5.2   Receiving test results and defect reports from a Supplier and test witnesses;

2.5.3   Agreeing with the Supplier a defect action plan; and

2.5.4   Providing advice and guidance on Certification matters.

2.6 Supplier

A Supplier is responsible for test execution and for reporting progress and defects to the TCC. A Supplier will have a nominated testing manager and a nominated communication manager responsible for providing a single point of contact to and from the TCC. The same person may perform these roles.

The testing manager will be responsible for the overall co-ordination and management of all testing activities for the Supplier.

3.   ENTRY AND EXIT CRITERIA

This section describes the criteria that a Supplier must satisfy to enter and complete each stage of the Ability Testing.

3.1   Entry Criteria

Prior to the commencement of the Ability Test, the following entry criteria will need to be satisfied:

3.1.1   The Supplier will have completed a Market Entry Application Form;

3.1.2   A Test schedule will have been completed and agreed;

3.1.3   A test environment being available as required for the Ability Testing;

3.1.4   Data required for the Ability Tests having been pre-populated into the systems required for the Ability Tests;

3.1.5   Facilities and resources for test management, co-ordination, witnessing and reporting being ready and available;

3.1.6   The Supplier having submitted a Declaration of Readiness to begin Ability Testing; and

3.1.7   Where a Supplier has a reduced scope of market participation, then the Supplier will not be required to perform tests which are outside this scope.

3.2   Exit Criteria

The following exit criteria must be satisfied in order to complete the Ability Tests:

3.2.1   The Supplier has successfully sent all required messages to NIE through EMMA;

3.2.2   The Supplier has successfully received all required messages from NIE through EMMA; and

3.2.3   The Supplier will have provided all required Ability Testing evidence to TCC.

4.   TEST DATA AND TEST ENVIRONMENT REQUIREMENTS

4.1   Test Environment

The Test Environment for Ability Testing will consist of the following components:

4.1.1   The relevant NIE systems as are necessary to support the Test Scenarios;

4.1.2   EMMA and associated Gateways; and

4.1.3   Supplier systems which interface in their environment with EMMA.

The Test Environment proposed by the Supplier will be a replication of that used, or intended to be used, as stated in the information provided to the TCC.

Suppliers will be responsible for the following:

4.1.4   Provision of hardware on which to run the applications they will use to interface with EMMA;

4.1.5   Provision and support of software applications which they will use to interface in their environment with EMMA;

4.1.6   Populating the above environment with the data required for Ability Testing;

4.1.7   Provision of support for the above environment through Ability Testing.

4.2   **Test Data**

Ability Testing will be executed using data provided by TCC.

The TCC will define the minimum requirements for test data for each Test Scenario.

5.   **TESTING PROCESS DEFINITION**

This section describes the planned approach for Ability Testing based on: test groups, scenarios, test scripts, test execution results and test reporting.

5.1   **Test Groups and Scenarios**

A Test Scenario describes a specific Test. A Test Group provides a logical grouping of related Test Scenarios.

5.2   **Test Scripts**

The TCC will provide Logical Test Scripts which provide step-by-step process requirements, data requirements and expected results for each Test Scenario. Process requirements will be generic and will be based on the baseline Retail Market Procedures, Market Message Implementation Guides and Baseline Core Components.   Data requirements will be specified in a manner which is independent of any computer system or software. The Supplier may create a set of Physical Test Scripts based on the Logical Test Scripts provided by the TCC.

5.3   **Test Data Definition**

The Logical Test Scripts will describe the pre-requisite data requirements for a Test Scenario, the Test Data Definition will identify, for each execution of a Logical Test Script, specific data to be used. Examples of this data are the MPRN and the Meter Configuration or Reading Data Values to be used. It is planned that Ability Testing will be conducted using data which will be provided by the TCC.

5.4   **Test Execution and Results**

The Suppliers will be responsible for execution of tests in accordance with the schedule issued by the TCC. Test Results will be documented by the Supplier and reported to the TCC. The Supplier will also report to the TCC on any deviations from the expected results. Each test schedule will be provided in advance of test execution as part of test preparation.

5.5   **Test Reporting**

The TCC will collate all test results and will also monitor deviations from the expected results. At the completion of Ability Testing, the TCC will produce a report of the testing completed.

5.6   **Readiness Declaration**

Prior to the commencement of the Ability Testing the Supplier will confirm to the TCC that the relevant Entry Criteria have been satisfied by submitting a Readiness Declaration.

5.7   **Test Execution and Reporting**

The Supplier will execute each step of the Logical Test Scripts for which they are responsible in accordance with the Test Schedule or as directed by the TCC.

The Supplier will document the completion of each step and will create and retain evidence of the completion of each message step.

During test execution at an agreed time each Business Day the Supplier will confirm the test steps completed to enable the TCC to update the Detailed Test Schedule.

The TCC are responsible for determining whether a deviation has occurred. Whenever a defect is encountered it will be documented on a Defect Report, assigned a severity classification by the TCC and communicated to the Supplier. The classification of severity is set out in the section Defect Logging and Classification.

5.8   **Defect Management**

The TCC will review defects as they are received in order to assess allocation for ownership and resolution.

For defects in severity Classes 1, 2 and 3, a Defect Action Plan will be agreed as soon as possible with the Supplier. For defects in severity Class 4, a Defect Action Plan will be agreed by the end of Ability Testing with the Supplier and recorded in the Exit Report.

The Supplier will report progress daily to the TCC against the Defects which have been allocated to the Supplier for resolution.

The TCC will review on a daily basis the progress of Defect Action Plans in severity Classes 1, 2 and 3.

Where a Supplier has failed to meet its responsibilities under a Defect Action Plan TCC may suspend further testing until a resolution is agreed. Where no resolution is agreed TCC may escalate the matter to NIAUR.

5.9   **End of day procedure**

At the completion of testing for a day the TCC will

5.9.1   Review Test Progress for the day;

5.9.2   Review Defects that have occurred;

5.9.3   Confirm Defect Action Plans;

5.9.4   Review progress against Defect Action Plans;

5.9.5   Agree any changes to the test schedule;

5.9.6   Preview Testing for the next Business Day.

5.10   **Schedule Management**

The TCC will liaise with the Supplier to ensure timely rescheduling of appropriate tests where there has been a delay during execution or where defects are reported which necessitate re-execution of tests. Rescheduling will be agreed with the Supplier on, or before, the day on which testing is due to take place.

5.11   **Witnessing**

The TCC may witness any tests or part of tests at the Supplier site during test execution. NIE shall provide notice to the Supplier by no later than 5pm on the previous Business Day.

The witness will not seek any visibility of the Supplier internal systems but will require reasonable access to ascertain the actions documented in the Logical Test Scripts are being followed correctly and in accordance with the Ability Testing principles.

The Supplier shall ensure that the following facilities are providing during TCC's visit to the Supplier: a clear desk, telephone and internet access for the use of the witness during

the visit, as well as access to the testers themselves during testing. This desk must be within the same building in which the tests are executed.

5.12   Test Scenario Completion

A Test Scenario will be completed when all the steps of a Logical Test Script have been completed successfully or when it is agreed between the TCC and the Supplier that it is not possible to complete all the steps of a Logical Test Script successfully.

5.13   Execution of Tests

Under the management of the TCC, Suppliers will be expected to follow the scheduled execution of script scenarios, ensuring that all successful actions, unsuccessful actions and defects are reported.

6.   DEFINITON OF TEST DELIVERABLES

6.1   Logical Test Script

The Logical Test Scripts developed by the TCC will provide step-by-step requirements for each Test Scenario within Ability Testing.   Some Test Scenarios may require multiple Logical Test Scripts.

The Logical Test Scripts will form the basis for:

6.1.1   Test Scheduling;

6.1.2   Development of Physical Test Scripts or equivalent by Suppliers;

6.1.3   Test Data Definition; and

6.1.4   Progress Reporting.

Logical Test Scripts will provide step-by-step process requirements, data requirements and expected results for each Test Scenario. Process requirements will be generic and based on the Retail Market Procedures. Data requirements will be specified in accordance with the Baseline.

A Logical Test Script will contain:

6.1.5   Identification materials including:

6.1.5.1   Logical Test Script Number

6.1.5.2   Test Script Title

6.1.5.3   Test Stage, Group and Scenario

6.1.5.4   References to applicable Retail Market Procedures and Business Specifications for Market Messages

6.1.5.5   Document Control and History

6.1.5.6   Test Description

6.1.6   General Test Data Requirements including:

6.1.6.1   Meter Point and Messaging Data requirements

6.1.7   Step-by-step requirements including:

6.1.7.1   Test Reference and Step Number

6.1.7.2   Supplier responsible for executing step and sending messages

6.1.7.3   Supplier responsible for receiving messages

6.1.7.4   Logical Business Day for execution of step, expressed as an offset from the day on which the execution of the Logical Test Script shall start

6.1.7.5   Instruction as to the action to be taken by Supplier

6.1.7.6   Description of the Expected Result

6.2   Test Schedule

The Test Schedule covers the test execution period, matching each Logical Test Script Day to a calendar day. Tests may be designed to take account of weekends and Bank Holidays. It is initially produced prior to the commencement of Ability Testing and agreed with the Supplier.

During the test execution period, the Test Schedule will be updated on a day-to-day basis to reflect testing progress.   It will also be used to reschedule testing as determined by TCC.

6.3   Test Results

The Supplier is required to retain evidence of test results and also to provide evidence to the TCC confirming the completion of each Test Scenario.

Evidence of test results may be a report, a copy of a message, email (including attachment) or file produced or a copy of a screenshot.

6.4   Exit Report

The Exit Report is produced by the TCC at the end of Ability Testing for a Supplier. It will summarise:

6.4.1   The Test Scenarios that have been completed;

6.4.2   The Test Scenarios that have not been completed with reasons;

6.4.3   Defects raised, closed and outstanding according to responsibility for clearance, category and severity classification;

6.4.4   Defect   actions due   to   be   completed   but   outstanding according to responsibility for clearance, category and severity classification.

7.   TEST EXECUTION MANAGEMENT AND CONTROL

7.1   Introduction

This section describes the key management activities, controls and procedures that will be used to support Ability Testing. Specifically, this section includes the following:

7.1.1   Release Management;

7.1.2   Defect Logging and Classification;

7.1.3   Regression Testing;

7.1.4   Reporting and Communication; and

7.1.5   Support and Queries.

7.2   Release Management

Throughout testing, each Supplier is expected to have adequate release management controls in place which will apply when required.

7.3   Defect Logging and Classification

Defects are defined as being observed discrepancies between expected and actual test results; these may be functional (system-related), non-functional or operational (process-related). Each time a deviation from a Logical Test Script is identified, a detailed defect report will be logged and resolved in accordance with this document.

The TCC will log all reported defects electronically using an appropriate defect management tool.

Defects will be assigned a **category** that reflects the type of defect and a **severity classification** that reflects the impact that it has on the systems/processes. Severity classifications will be used to determine how quickly a defect needs to be analysed and resolved.

From time to time, it may be possible to defer the fixing of a defect by implementing a workaround.   It should be noted that workarounds should only be viewed as temporary arrangements with a view of resolving them in the long-term.

7.4   **Categorisation**

Defects will be categorized as being:

7.4.1   **Category M – "market process definition error"** - the market process is incorrect as the expected results cannot be produced; or

7.4.2   **Category P – "Supplier process or system error"** – given the correct input data, the system or process did not generate the expected results; or

7.4.3   **Category S – "test script/data error**" - the market or system requirement or expected result is not correctly reflected in the test script or test data documentation; or

7.4.4   **Category E – "execution error"** - the process did not execute in accordance with the expected results (e.g. the expected results were correct but were not achieved because incorrect data was used)

7.5   **Severity Classification**

The classification of severity should be as follows:

7.5.1   **Class 1** - Defects which render the **entire system or process unusable**. All testing activities shall be immediately stopped.   The evaluation and correction of the defect will be completed before testing is resumed.

7.5.2   **Class 2 -** Defects which render unavailable a **critical function** of the system or process. They include drastic program or system errors such as application failures, inability to perform data transfers, failure to access databases, and inability to display information to the users. These types of defects do not permit the continuation of a Test. Testing shall be stopped and evaluation and correction of the defect will be completed before Testing is resumed. Defects which fall into this category will include those which would prevent the correct processing of:

          7.5.2.1   Meter Point Registrations;

          7.5.2.2   Readings;

          7.5.2.3   UoS Billing or Data Aggregation.

7.5.3   **Class 3 -** Defects which produce **erroneous results** from any material function of the systems and are not Class 1 or Class 2 defects. These are defects which prevent a Test from completing with the expected results. Testing will continue and either:

          7.5.3.1   The defect will be evaluated, corrected and re-tested prior to the end of the current testing stage; or

7.5.3.2   A workaround will be agreed and implemented which enables the expected results to be realised by the end of the current testing stage. In this case the defect remains outstanding.

7.5.4   **Class 4 -** This class of **minor or cosmetic** defect includes items which do not significantly affect the usability of the systems, such as an error in text or view displayed, spelling errors, documentation or data errors which do not materially affect the results achieved. Testing will continue.

For all defects, a Defect Action Plan will be agreed whereby each defect will be evaluated and corrected in a mutually agreed time.

All defects will be resolved within the timescales agreed in the Defect Action Plan and following resolution for defects classed as 1, 2 and 3, the Test Scenario will be continued or repeated as appropriate. If defects are not resolved within the timescales agreed in the Defect Action Plan this will trigger an escalation process.

7.6   Regression Testing

When a defect occurs it is expected that a Supplier will execute regression testing in accordance with documented test strategies and procedures.

The testing timescales will have a significant impact on the approach adopted for regression testing. There may be little time available to perform regression tests in addition to planned tests. Therefore the Supplier will determine which regression tests to perform based upon a risk assessment and base the acceptance of Defect Action Plans on this assessment.

7.7   Implications

If there are difficulties implementing a change or an inability to meet the agreed timescales, this must be highlighted as early as possible to enable the testing team to take appropriate action and/or reschedule the tests if necessary.

7.8   Support and Queries

The TCC will support the Supplier by:

7.8.1   Responding to queries as described below;

7.8.2   Accommodating any reasonable request to meet to provide guidance or explanation of the Ability Testing process or deliverables.

8.   NIAUR

The role of NIAUR during Ability Testing will include:

8.1   Providing arbitration on disputes not resolved by TCC and NIE.