



# **Smart Metering and the MDM/R Guide to Testing and Cutover**

**Marketplace Training**

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## Smart Metering and the MDM/R: Guide to Testing and Cutover

### **AN IESO PUBLICATION**

We have prepared this guide to assist in our training of MDM/R service recipients. We remind users of this guide that they are responsible for complying with all of their obligations under the MDM/R Terms of Service and associated policies, standards and procedures relating to the subject matter of this guide, even if such obligations are not specifically referred to in this guide. While we have made every effort to ensure the provisions of this guide are accurate and up-to-date, users must be aware that the specific provisions of the MDM/R Terms of Service or particular document govern.

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## Table of Contents

<b>1. Introduction .....</b>	<b>2</b>
<b>2. Connectivity Testing .....</b>	<b>4</b>
WHAT IS CONNECTIVITY TESTING? .....	4
HOW DO YOU PREPARE FOR CONNECTIVITY TESTING? .....	4
WHO IS INVOLVED IN CONNECTIVITY TESTING AND WHAT DO THEY DO? .....	6
WHAT IS THE TIMEFRAME FOR CONNECTIVITY TESTING? .....	7
CONNECTIVITY TESTING TIPS.....	7
WHAT IS THE 'EXIT CRITERIA' FOR CONNECTIVITY TESTING – HOW DO WE KNOW WHEN IT IS COMPLETE? .....	8
<b>3. Optional Unit Testing .....</b>	<b>9</b>
WHAT IS UNIT TESTING? .....	9
HOW DO YOU PREPARE FOR UNIT TESTING? .....	9
WHO IS INVOLVED IN UNIT TESTING AND WHAT DO THEY DO? .....	10
WHAT IS THE TIMEFRAME FOR UNIT TESTING? .....	10
UNIT TESTING TIPS .....	10
WHAT IS THE 'EXIT CRITERIA' FOR UNIT TESTING – HOW DO WE KNOW WHEN IT IS COMPLETE? .....	11
<b>4. System Integration Testing (SIT).....</b>	<b>12</b>
WHAT IS SIT? .....	12
HOW DO YOU PREPARE FOR SIT?.....	12
WHAT IS SELF-CERTIFICATION? .....	13
WHO IS INVOLVED IN SIT AND WHAT DO THEY DO? .....	13
WHAT IS THE TIMEFRAME FOR SIT? .....	14
SIT TIPS.....	14
WHAT IS THE 'EXIT CRITERIA' FOR SIT – HOW DO WE KNOW WHEN IT IS COMPLETE? .....	14
<b>5. Qualification Testing.....</b>	<b>15</b>
WHAT IS QUALIFICATION TESTING (QT)? .....	15
HOW DO YOU PREPARE FOR QUALIFICATION TESTING?.....	15
WHO IS INVOLVED IN QUALIFICATION TESTING AND WHAT DO THEY DO? .....	15
WHAT IS THE TIMEFRAME FOR QUALIFICATION TESTING?.....	16
QUALIFICATION TESTING TIPS.....	16
WHAT IS THE 'EXIT CRITERIA' FOR QUALIFICATION TESTING – HOW DO WE KNOW WHEN IT IS COMPLETE? .....	16
<b>6. Cutover to Production.....</b>	<b>17</b>
WHAT IS CUTOVER? .....	17
HOW DO YOU PREPARE FOR CUTOVER? .....	17
WHAT IS SELF-CERTIFICATION? .....	17
WHO IS INVOLVED IN CUTOVER AND WHAT DO THEY DO? .....	17
WHAT IS THE TIMEFRAME FOR CUTOVER? .....	18
CUTOVER TIPS .....	18
WHAT IS THE 'EXIT CRITERIA' FOR CUTOVER – HOW DO WE KNOW WHEN IT IS COMPLETE? .....	18
<b>7. Additional Information .....</b>	<b>19</b>
<b>Appendix.....</b>	<b>20</b>
DEFINITIONS AND ACRONYMS.....	20

## **1. Introduction**

Before local distribution companies (LDCs) can participate in Ontario's smart metering initiative, they need to successfully complete Meter Data Management and Repository (MDM/R) testing. You<sup>1</sup> will test the communication paths and interfaces between the MDM/R and your source systems – your Customer Information System (CIS) and Advanced Meter Control Computer (AMCC). You will also be able to test your own systems and rehearse and refine your existing and new business processes.

The testing helps ensure that:

- The MDM/R can receive and process your files
- You can receive and process files from the MDM/R
- The files follow the required technical specifications
- Network protocols and security are in place
- Your organization ID (ORG ID) and relationships with your billing agent or advanced metering infrastructure (AMI) operator are correctly set up
- Your staff and agent organizations can respond to errors, exceptions and acknowledgements in the MDM/R reports or files
- You have the necessary business processes to operate in the production environment

This guide explains the four types of testing you will carry out with us:

- Connectivity testing
- Unit testing
- System Integration testing (SIT)
- Qualification testing (QT)

In addition, the guide explains the steps required for you to cutover to production.

Please see the appendix for a list of definitions and acronyms.

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<sup>1</sup> In this guide, 'we', 'us' and 'our' refer to the IESO, and 'you' and 'your' refer to LDCs

### Registration and Enrolment Stages

The *Preparation, Registration and Enrolment Manual* describes activities in terms of four stages. The activities we discuss in this guide relate to the final two stages, Stages 3 & 4:

**Stage 3** includes:

- Specific registration requirements
- Systems development
- LDC internal testing or Unit testing

You will complete connectivity testing during this stage. After you have demonstrated that your systems can connect, you will be provided access to the sandbox system to conduct your own unit testing.

**Stage 4** includes formal enrolment systems testing and cutover to production. Activities at this stage include:

- System integration testing (SIT)
- Qualification testing (QT)
- Cutover to production

## 2. Connectivity Testing

### What is connectivity testing?

Connectivity testing confirms that the LDC and agent source systems are capable of two-way communication with the MDM/R.

We first test connectivity in three environments: sandbox, enrolment (also called quality assurance or QA) and production. In each environment:

- You will first send test file FILE\_ID 0000 from your system to the MDM/R file transfer service (FTS) using your AS2 protocol client
- You will receive a Message Disposition Notice (MDN) in reply
- In return, we will send a test file from the MDM/R's AS2 client to your system, and we will expect to receive a MDN in reply

You will also verify that you can connect to the MDM/R's Disaster Recovery (DR) environment. Testing for the MDM/R DR environment involves only demonstrating that the network address is reachable. It does not involve an actual file transfer.

We use connectivity testing to:

- Confirm correct configuration of all network components, including AS2 software, firewalls, domain name system (DNS) and communication via service providers over the internet
- Confirm correct configuration of LDC/agent relationships
- Ensure the correct MDM/R file names are being used
- Verify digital certificates and security – connectivity testing does not test user ID and passwords, or access to the MDM/R Graphical User Interface (GUI)
- Verify that the file meets the technical specifications (see *MDM/R Technical Interface Specifications*, available on our smart metering web site at <http://www.ontario-sme.ca/sme-file-library>)

### How do you prepare for connectivity testing?

Before you begin connectivity testing, you must purchase and install any AS2 client listed on the website of the Drummond Group at <http://www.drummondgroup.com/html-v2/as2-companies.html>.

You should review the *MDM/R File Transfer Services and Web Services Configuration Workbook*, available on our smart metering web site at <http://www.ontario-sme.ca/sme-file-library>.

You will need to have started your smart metering registration by completing the following four submissions:

You submit:	You receive:	Why?
MDM/R Registration Application Form	We will assign your LDC a unique organization identification number (MDM/R ORG ID) and will send it to you via email.	You need to use this unique identifier in the name and header record of your test file.
First draft of your project plan	We will help you develop your plan and will provide written acceptance via email.	The project plan helps us coordinate our resources to ensure that the MDM/R systems will be configured and that IBM / IESO staff will be available to support you for your connectivity testing and throughout the remainder of your enrolment activities.
LDC Organizational Relationships and Authority Delegation Form	We will email you a confirmation that your LDC will be configured and ready for testing on all systems	All MDM/R environments are configured for your technology based on submission of this form. MDM/R systems use 'relationships' to allow third party organizations such as billing agents or AMI operators to access your data.
AS2 Configuration Form and your digital certificates	<p>We will send you the confidential MDM/R network and security information in the form of an AS2 configuration template and the MDM/R digital certificates.</p> <p>We will also verify the information you provided to us and confirm receipt by email</p>	The MDM/R and the LDC systems need this technical information for configuration and setup of network servers and firewalls.

**File Name:**

In preparation for connectivity testing, you must produce two test files. The file name should be <ORG\_ID\_1>.<ORG\_ID\_2>.0000.00.<DATETIME>.DAT

The name of the test files must comply with the MDM/R file naming conventions specified in the MDM/R Technical Interface Specifications ('the TIS'). For example, as specified in the TIS, the <DATETIME> should follow this format: YYYYMMDDhhmmss

Since the name of the files cannot be the same, you need to change the TIME.

**File Content:**

Files should have the following content or file name record:

<FTSN><FILENAME></FTSN>.

**File Size:**

One file should be small (or have no content other than that specified above), and the other should be large, 5 to 10 MB, however this size can be determined by the LDC depending upon each LDC's requirements. Determine the potential size of the largest file intended to be sent through FTS.

For example:

You are ORG10000, sending files on your own behalf for April 8,2010 at 10:52 a.m. EST

Your file name would be:

ORG10000.ORG10000.0000.00.20100408105200.DAT

The contents would be:

<FTSN>ORG10000.ORG10000.0000.00.20100408105200.DAT</FTSN>

- Contact us to confirm the schedule that you identified in your project plan – you will have received approval for your project plan when you entered Stage 3 of your enrolment process. Once your request and forms are processed, a connectivity test invitation is sent to your identified contact to confirm the date/time of the test.
- Schedule and coordinate connectivity tests with us for your AMI and billing agents.

**Who is involved in connectivity testing and what do they do?****LDC/Agents**

Connectivity testing involves your IT technical support, application support, and an LDC test coordinator. The LDC must:

- Test every server that will establish an FTS connection to the MDM/R using an AS2 client
- Ensure that all connectivity testing is completed before unit testing and your SIT testing begins

- Ensure that digital certificates are replaced and re-tested at least two weeks before their expiry date

### **IESO**

We will:

- Provide you with the information you need for registration and AS2 configuration
- Provide you with the MDM/R's digital certificates

### **IBM**

IBM is the current operational service provider (OSP) for the MDM/R and is responsible for:

- Scheduling the connectivity testing and notifying you of this schedule
- Carrying out the connectivity testing with each LDC
- Providing technical expertise and support
- Maintaining connectivity

### **What is the timeframe for connectivity testing?**

- You must begin the registration and exchange of technical information before beginning connectivity testing. You need to provide us with the forms and digital certificates at least 4 weeks prior to your expected connectivity test date.
- Although the tests could be completed within a day, our experience has shown that you should allow 1-2 weeks to allow time to resolve system or network configuration issues if they arise
- Testing should be completed at least one week before you begin unit testing
- If there are any changes or modifications to your AS2 client or digital certificates, connectivity testing must be re-done
- We will ask you to re-verify connectivity to the production system when preparing for cutover – this will involve the exchange of at least one MDM/R test file (File\_ID 0000)
- We recommend re-testing connectivity to the MDM/R DR environment every six months after cutover -- we will discuss this with you during your cutover process.

### **Connectivity testing tips**

- This is a test of the file transfer system (FTS) only – it does not involve testing the MDM/R interfaces
- You must follow the AS2 technical specifications
- You must configure your firewalls to allow traffic flow between your LDC or your agents and the MDM/R, as described in the *MDM/R File Transfer Services and Web Services Configuration Workbook*
- Ensure your appropriate staff attends connectivity testing, i.e. Network, Firewall, IT personnel

- Many organizations experience problems with their digital certificates. Some of the most common problems are:
  - You must use your MDM/R ORG ID as the common name (CN) in your digital certificate (ORGxxxx)
  - The MDM/R requires certificates in 'Distinguished Encoding Rules' ('DER' -file extension: '.der') file format. If your certificate is in 'Privacy Enhanced Mail' ('PEM') format, you must convert it to DER.
  - You cannot test connectivity to the MDM/R using test certificates – you must use real certificates.
  - Expiration of certificates- you must ensure that this is maintained regularly

### **What is the 'exit criteria' for connectivity testing – how do we know when it is complete?**

You have successfully completed connectivity testing once you have been able to send files via FTS to the sandbox, enrolment, and production environments, and you have been able to establish a connection with the disaster recovery environment.

## 3. Unit Testing

### What is unit testing?

The successful completion of Unit Testing is an important milestone in the MDM/R Integration Project Plan to ensure every LDC is prepared for formal SIT, QT and Cutover to production MDM/R operations. During your system development and the validation of your existing, new or changed business processes, you need to test your interfaces with the MDM/R. You will normally use the sandbox environment for Unit testing however your project manager will confirm this when you are ready to begin testing. LDCs typically spend 3 to 6 months Unit Testing..

During unit testing, you will send and receive files using FTS in the sandbox environment.

### How do you prepare for unit testing?

Before you begin unit testing:

- You must have completed connectivity testing with the MRM/R Testing system
- You must be familiar with the *MDM/R Specifications & Standards*. Your system interfaces must meet *MDM/R* technical interface specifications
- You have documented all existing business processes and developed new or changed existing business processes.
- You have a testing environment and a plan to create and submit test data
- You have developed a Unit Test plan based on your daily business processes managed from the Metering Department, Customer Service/Care and Billing and Collections. Your plan should include basic meter to bill scenarios as well as more complex scenarios such as the 'crossed meter scenario', or 'account change correction scenario' that will be exercised during QT. On our website, <http://www.smi-ieso.ca>, a page has been dedicated to Unit Testing which contains materials that may compliment your existing test scenarios. You are encouraged to review "Recommendations for Unit Test Scenarios" as well as the MDM/R baseline SIT and QT scripts
- You have contacted your AMI Operator and Billing Agent and engage them in your test activities
- You need to submit User Access Request Forms to acquire GUI UserIDs for your testing team. You may also require hands-on GUI training. Include the training in your MDM/R project plan and check our website to confirm the dates and registration information.

At the conclusion of Unit Testing and prior to the start of SIT all LDCs will submit a completed *Self Certification for Enrolment Testing* form as well as evidence confirming the successful testing of all MDM/R interfaces and meter-to-bill business scenarios.

Familiarize yourself with the self certification requirements so that they can be incorporated into your Unit test plans.

### **Who is involved in unit testing and what do they do?**

#### **LDC**

Depending on the scope on your testing, you need to determine who needs to be involved. You might decide to involve your technical team at an early stage and your business staff when testing your business processes. You may also involve your AMI Operator to help with the preparation of test data and your Billing Agent to ensure that all of your business processes are thoroughly exercised. Email us with any questions or problems you encounter.

#### **IESO**

We can:

- Provide support on a best efforts basis to review your test plans and help you analyze exception results. Note: our support for formal Enrolment Testing (including SIT and QT) must take precedence over unit testing.
- Provide hands-on GUI training.
- Process User Access Request Forms and give your team members user Ids and passwords for the MDM/R GUI.

#### **IBM**

IBM will:

- Configure your organization and relationships with other organizations
- Enable all interfaces and reports
- Provide you with support on a best efforts basis during normal working hours – support for Enrolment Testing and Production must take precedence over unit testing

### **What is the timeframe for unit testing?**

Unit testing takes place after connectivity testing, and before SIT. You will determine the timeframe for unit testing and include it in your project plan. Typically, LDCs can spend three to six months in Unit Testing. Ensure that you allow sufficient time between the end of Unit Testing and the start of SIT for you to complete your Self Certification for Enrolment Testing and for us to review and verify your form as well as the test evidence that you provide.

#### **Unit testing tips**

- We normally use the sandbox environment for regression testing, testing new patches, fixing defects, and LDC unit testing. There may be limited available capacity depending on the concurrent activities on the sandbox. Contact us in

advance if you need to test with more than 100 USDP IDs. Note: we may ask you reduce volumes if capacity is limited.

- There are two different types of universal SDP IDs:

**Test universal SDP IDs** are issued by the sandbox MDM/R system, they are temporary and they are removed from the sandbox system nightly. Use these to test the universal SDP ID Assignment Request / Response Interface only - do not synchronize these test IDs.

**Production universal SDP IDs** are issued by the production MDM/R system, they are permanent, and they are copied to all MDM/R systems (sandbox, QA) nightly. Use these for testing everything except the universal SDP ID Assignment Request / Response Interface. You must schedule a request for production IDs with us because we must arrange to open up the network gateway during your request.

- Once the MDM/R has issued a permanent universal SDP ID for a specific SDP, you can never receive a new universal SDP ID for the same SDP.
- Become familiar with the correct structure of MDM/R file names. One important element is the file version. File format versions start at 00 and increase as new versions of each file format are introduced. Check the MDM/R *Technical Interface Specifications* for descriptions of valid versions for each file.

#### **What is the 'exit criteria' for unit testing – how do we know when it is complete?**

Because unit testing is designed by you, the exit criteria are largely determined by you. We do however require each LDC to submit evidence of their successful Unit Test data to support their answer to S3.4.12 of the Self-Certification for Enrolment Testing which asks "Have you successfully tested the meter to bill process to support your business scenarios outlined in the Technical Interface Specification, Section 2.3.10?". We will provide you with a spreadsheet template that has been pre-populated with the minimum expected scenarios as well as a list of files required to complete our evaluation. Test samples can be submitted throughout Unit Testing or, at the latest, the information must accompany the final self-certification due two weeks prior to the scheduled start of SIT.

Our obligation, as the SME, is to evaluate your self-certification along with evidence produced during your Unit Testing to ensure that you have thoroughly tested all MDM/R interfaces and that you meet the minimum requirements to not only enter enrolment testing but to successfully complete SIT, QT and Cutover to production MDM/R operations. Once our evaluation is complete, we will confirm your SIT start date and return a signed copy of your self-certification by email.

### 4. System Integration Testing (SIT)

#### What is SIT?

The overall objective of SIT is to test the interfaces and ensure that your systems can operate with the MDM/R and handle the meter to bill lifecycle.

In SIT, all of the MDM/R interfaces are tested using the MDM/R enrolment system -QA. IBM will provide test scripts for your AMCC adaptor. These test scripts span the lifecycle that includes the LDC's customer information system (CIS), the advanced meter control computer (AMCC) interface, and MDM/R processing, through to generating an output file of billing quantities.

The tests are designed to be completed in approximately 10 business days.

In SIT, key interfaces defined in the *MDM/R Technical Interface Specifications* are tested, including:

- Universal SDP ID assignment request/response
- Periodic audit synchronization
- Incremental synchronization
- Meter read data collection
- Billing quantity request (pull) and/or Billing cycle schedule (push)
- Billing quantity response
- Web services and IVR (optional)

For each interface test you will receive:

- Receipts, errors, exceptions and acknowledgments via MDM/R
- Scheduled and triggered reports (daily throughout SIT)

#### How do you prepare for SIT?

Before you begin SIT:

- Your internal system development and testing must be completed
- You must have completed connectivity testing with the MDM/R enrolment system.
- Since you will be required to use the MDM/R GUI (graphical user interface) during SIT, your staff may require hands-on GUI training. Include the training in your MDM/R project plan and check our website to confirm the dates and registration information. Request individual accounts for everyone who will access the MDM/R GUI during your test.
- Unit testing must be completed before starting SIT.
- You must submit your self-certification as well as samples of test results (see below) to us for verification.
- You must receive our acceptance of your self-certification.

### **What is self-certification?**

Self-Certification for Enrolment Testing is your assessment and declaration of your readiness to successfully complete the Meter Data Management and Repository (MDM/R) Enrolment testing. Your certification also confirms the readiness of any of your agent organizations.

In addition to the Self-Certification for Enrolment Testing Form you will be required to provide evidence of your successful Unit Test results to support your answer to S3.4.12 of the Self-Certification for Enrolment Testing which asks “Have you successfully tested the meter to bill process to support your business scenarios outlined in the Technical Interface Specification, Section 2.3.10?”. We will provide you with a spreadsheet template that has been pre-populated with the minimum expected scenarios as well as a list of files required to complete our evaluation.

Submit a draft of your self-certification form approximately four weeks before you plan to begin SIT and a final signed form two weeks before you begin SIT. Test evidence can be provided at any time throughout Unit Testing or, at the latest, the information must accompany the final self-certification. Once accepted by the IESO you may then send the same authorized form to the Ontario Energy Board.

### **Who is involved in SIT and what do they do?**

#### **LDC/Agents**

You, along with IBM, are responsible for executing the test scripts and verifying the results.

Because all system components are tested in SIT, your IT technical support, application support, metering support, and business support staff are all involved in the testing. (Please note, the business support is for checking MDM/R report contents – SIT does not involve checking your LDC business processes).

You also need a SIT coordinator.

The testing team is required to attend daily SIT meetings, to review scheduled activities and respond to any issues encountered during the previous day.

#### **IESO**

IESO will:

- Accept your Self-Certification for Enrolment Testing and confirm your SIT start date.
- Provide you with SIT test scripts at least two weeks before the beginning of SIT.
- Coordinate a walk-through of the test scripts with you and IBM immediately before testing begins.
- Provide you with a preliminary copy of our standard QT scripts. Although QT scripts are not required for SIT, we provide them at this point so that you can review them and include additional tests based on your business needs.

- At the beginning of SIT, we will provide you with a copy of a sample cutover strategy document. Although this is not required during SIT, we want to give you enough time to consider your specific cutover requirements.
- Schedule and attend daily SIT meetings

### **IBM**

IBM will:

- Lead and manage SIT
- Along with the LDC, execute and verify the test results
- Track the testing progress
- Report progress, successes and failures to us

### **What is the timeframe for SIT?**

SIT is normally a 10-business day exercise. It occurs after connectivity testing, unit testing, GUI training and our acceptance of your readiness self-certification.

We follow your project plan dates when we schedule SIT, and we would have discussed the dates with you before scheduling. We would have placed you in an 'enrolment wave' based on the timelines in your project plan and the overall availability of resources within the wave to support your organization.

If you find you cannot meet your deadlines, let us know as soon as possible, and send us a revised *Project Plan*.

### **SIT tips**

- You should ensure that the default setting for the Validating, Estimating and Editing (VEE) service in the synchronization file is **not** set to '01' . This setting will turn off both validation and estimation.
- Review the test scripts and anticipate your data preparation needs (USDPs to request, meter read data files to submit, involvement of your agents)
- When exiting SIT, you should continue to send meter reads to the MDM/R enrolment system and verify that they are successfully processed. It is important to populate the MDM/R with historical data as part of the data preparation for qualification testing.

### **What is the 'exit criteria' for SIT – how do we know when it is complete?**

You have successfully completed SIT once you, the IESO and IBM all agree that you have:

- Successfully executed all test scripts
- Resolved outstanding issues or documented plans for resolving issues including any workarounds

## 5. Qualification Testing (QT)

### What is qualification testing (QT)?

Qualification testing ensures that your business processes can support scenarios from sending meter reads through to receiving billing quantities from the MDM/R – it is described as an ‘end-to-end’ test.

Please be aware that qualification testing runs five short billing cycles within about a one-month timeframe – therefore, you should expect that your staff will be extremely busy with this testing, and plan accordingly.

### How do you prepare for qualification testing?

Before you begin QT:

- You must successfully complete SIT (QT normally follows within a week after SIT).
- Identify your QT testing team and confirm that they are able to navigate through the MDM/R GUI. If they were not involved in SIT, they may require individual accounts for GUI access and hands-on GUI training. Check our website for training dates, location and registration information.
- You should be familiar with the MDM/R reports that relate to processing the files and data you send to the MDM/R.
- Submit your cutover strategy to us.

### Who is involved in qualification testing and what do they do?

#### LDC/Agents

You are responsible for executing the test scripts and verifying results.

Since key business processes will be tested, your testing team should include support from IT, metering, CSR and billing, and business support staff. It is your decision as to whether your agents are involved in qualification testing.

It is important that you determine which staff members will be responsible for responding to and handling each report. The ability to handle MDM/R reports is critical both during this test and in operations in the production environment. QT testing is a valuable hands-on training opportunity for them.

You will need to communicate to us the set of test scripts to be added or changed.

The testing team needs to attend the daily QT meetings, to review daily activities, and respond to issues encountered during the previous testing day.

#### IESO

We will:

- Create the final set of qualification test scripts by including any additional tests that you identify
- Coordinate a walk-through of the test scripts with you immediately before testing begins
- Execute the test scripts with you, and help verify and analyze the results
- Coordinate the tests, track the testing progress, and report status
- Schedule and attend daily QT meetings.

### **IBM**

IBM will:

- Provide technical support
- Work with us to resolve variances discovered during testing

### **What is the timeframe for qualification testing?**

Once you have completed SIT, you can begin QT.

As mentioned above, qualification testing runs five billing cycles in about a one-month timeframe – therefore, you should expect that your staff will be extremely busy with this testing and should plan accordingly.

### **Qualification testing tips**

It is important that you determine which of your staff members will be responsible for responding to and handling each report.

### **What is the 'exit criteria' for qualification testing – how do we know when it is complete?**

You have successfully completed qualification testing once you the IESO and IBM all agree that you have:

- Successfully executed all test scripts
- Resolved outstanding issues or documented plans for resolving issues, including any workarounds
- Received our approval of your cutover strategy

### **What is a Cutover Strategy?**

The IESO will provide a cutover template to you prior to entering qualification testing. The cutover template asks the LDC to address questions such as when and how often will the LDC send incremental synchronizations? When will the LDC submit billing quantity requests? As well as several other related to your transition to production operations. The IESO will review your submitted cutover strategy with you prior to exiting qualification testing.

## 6. Cutover to Production

### What is Cutover?

Cutover is the transition from testing to initial production operations. We expect that most LDCs will continue to build up the number of meters registered with the MDM/R over time. During cutover you bring the first or entire group of SDPs into production. How you use the data for production is up to the individual LDC – some may start Time Of Use (TOU) billing right away, while others may wait.

### How do you prepare for cutover?

Before you begin cutover activities, you must:

- Complete qualification testing
- Request production MDM/R GUI accounts for individuals who will need access
- Have our approval of your cutover strategy
- Submit your cutover readiness self-certification to us (see below)

### What is self-certification?

Self-certification for cutover is your assessment of your readiness to move into production, as well as your assessment of your agents' readiness to move into production.

Use the *Self-Certification – Cutover Readiness Self-Assessment Form* to complete your assessment

### Who is involved in cutover and what do they do?

#### LDC/Agents

Because all system components are used in cutover, your IT technical support, application support, metering support, and business support staff are all involved. You also need a cutover coordinator.

During cutover, you will:

- Re-verify connectivity to the production environment
- Ensure receipt of the production MDM/R GUI user IDs
- Let us know if you have new users who need MDM/R GUI training
- Let us know if there have been any changes in your organizational relationships with agents or if you need to change any of your registered contacts as you move into production
- Complete and sign the LDC-SME Agreement and review the *MDM/R Terms of Service* and the other documents on the [Manuals, Procedures and Forms](#) page of our SMISP web pages

- Identify any additional system or business requirements you may have (e.g., new hardware, new business process)
- Create your initial production periodic audit synchronization files as well as your first meter read data files and send them to us for approval

### **IESO**

We will:

- Review and accept your cutover strategy
- Review and accept your *Self-Certification – Cutover Readiness Self-Assessment Form*
- Confirm the schedule for cutover execution
- Coordinate all cutover activities

### **IBM**

IBM will:

- Ensure that you are properly configured in the production environment
- Receive and validate the periodic audit synchronization and meter read files
- Verify the historical meter load for you if you choose to load meter reads

### **What is the timeframe for cutover?**

Cutover occurs after you have completed qualification testing. You should allow one to two weeks for cutover.

### **Cutover tips**

- You must have your initial periodic audit synchronization files and meter read data files ready for your first day of cutover.

### **What is the 'exit criteria' for cutover – how do we know when it is complete?**

You have successfully completed cutover once you have completed loading meter reads and are operating in the production environment. We will confirm by email.

## 7. Additional Information

For additional information, please refer to the Smart Metering documents available at <http://www.ontario-sme.ca/sme-file-library> or contact the Registration and Enrolment Team at:

[MDM/R.Registration@ieso.ca](mailto:MDM/R.Registration@ieso.ca)

[Fax: \(905\) 403-6996](tel:(905)403-6996)

## Appendix

### Definitions and Acronyms

Acronym/Term	Definition
AMCC	The advanced meter control computer that retrieves or receives and temporarily stores meter read data before it is sent to the MDM/R
AMI	Advanced metering infrastructure
AS2	'Applicability Statement 2' – a specification used by the Internet Engineering Task Force for electronic data interchange over the internet and used by MDM/R file transfer services (FTS).
AS2 client	<p>An application your organization uses to send files to and from the MDM/R.</p> <p>Your LDC needs to buy and install an AS2 client, (see the Technical Interface Specifications document, available on our smart metering web pages at <a href="http://www.ontario-sme.ca/sme-file-library">http://www.ontario-sme.ca/sme-file-library</a>)</p>
CIS	Customer Information System
DNS	Domain Name System – a system that provides a number of data translation services, including (most importantly for the MDM/R) translating domain names into numeric Internet Protocol (IP) addresses used by the FTS system.
FTS	File transfer service – manages file transfers between the LDC or LDC agent and the MDM/R using the AS2 specification and your AS2 client.
MDM/R	Meter Data Management and Repository
ORG ID	Your organization's identification number

Acronym/Term	Definition
OSP	Operational service provider – IBM provides operational service and support for the MDM/R
SME	The government of Ontario has designated the IESO as the smart metering entity (SME) under the provisions of the <i>Electricity Act</i> .
Testing environments	We have two testing environments for smart metering: sandbox, and enrolment (also known as 'quality assurance'), The production and disaster recovery environments are used for connectivity testing only.