

The Retail Electricity Market

Technology

Introduction

- ❑ The following presentation is a brief description of the technology behind the Market Design and how it works on a day to day basis
- ❑ A background of the Market Design technology and its progression to its present state will also be outlined in this presentation
- ❑ The purpose of this presentation is to make New Entrants aware of the technologies deployed in the Retail Electricity Market and the requirements that must be met in order to gain entry to the Market.

Agenda

- ❑ Background
- ❑ Technologies Deployed
 - On ESB Networks side
 - On Market Participants (MP) side
- ❑ Technological Interaction
- ❑ Summary of Technical Requirements
 - What are the technical requirements for New Entrants?
- ❑ Documentation

Background

Background

- ❑ Due to Market Opening, it was determined that a new more robust system was needed to cope with such large scale changes to the day to day operation of the Retail Electricity Market
- ❑ SAP IS-U was the IT Support System chosen by MOIP to implement new processes required to support Market opening within ESB Networks
- ❑ SAP IS-U was implemented to cater for the messaging end of the market design, that is to generate and dispatch Market Messages on behalf of ESB Networks
- ❑ SAP IS-U also communicates with other internal systems to cover areas such as work management, outages etc.

Background

- ❑ Each Market Participant is responsible for their own back end systems
- ❑ Market messages are sent between the Market Participants and ESB Networks
- ❑ Messages are coded using XML schema, and encrypted via digital signature before being transmitted to or from Market Participants
- ❑ The Messaging HUB (TIBCO Hub) is designed to route messages to and from Market Participants

Background

- ❑ Until October 2012, an application called the MPCC (Market Participant Communication Component) was created for Market Participants (MPs) and ESB Networks to send Market Messages in a secure and reliable manner
- ❑ In October 2012 this was replaced and an EMMA (Electricity Market Message Application) was installed for all Market Participants (MPs) and ESB Networks to send Market Messages in a secure and reliable manner
- ❑ Due to the use of https and communication via the internet, it was deemed a requirement for Market Participants to have a persistent internet connection to aid effective messaging communication

Technologies Deployed

Technologies Deployed

- ❑ As outlined previously a number of new technologies were deployed by both ESB Networks and Market Participants to allow for Market Opening to begin implementation
- ❑ The following slides describe each technological component in more detail and how each is involved in the messaging process

Technologies Deployed on ESB side

Technologies Deployed on ESB side

□ SAP IS-U

- As outlined previously SAP IS-U was implemented to provide the connection between the external messaging and the internal systems used by ESB Networks
- The SAP system is also responsible for validating messages received from Market Participants and relaying information received via market messages to other internal systems within ESB Networks

Technologies Deployed on ESB side

❑ The Messaging HUB (TIBCO)

- The messaging HUB is managed by Capita (formerly Northgate Managed Services (NMS)) on behalf of Networks and is responsible for routing XML market messages in and out of SAP
- The HUB is able to identify an MP by the ID which was assigned to that MP when entering the Market
- It can then determine the message destination based on the information contained for this ID
- The HUB also routes incoming messages directly to SAP

Technologies Deployed on ESB side

- The HUB checks that messages have been routed correctly by ensuring a Receipt Acknowledgement has been received for each message sent
- If a Receipt Acknowledgement has not been received the HUB will automatically re trigger the message

Technologies Deployed on ESB side

□ Extranet Website – access enables Suppliers to:

- Retrieve data associated with an MPRN e.g. the Meter Point Address etc. to facilitate the COS Process and the collection of customer meter reads
- Be advised of **new MPRNs** (new connections to the electricity network) and their associated datasets.
- Use a look up facility that enables them to view the **Appointment timeslots** available for a specific Meter Point (**MPRN**) and Work Type combination.
- To view market messages on Message Monitoring tab relevant to a particular registered MPRN.
- Prepayment Tab – used by those MPs involved in the Prepay solution detailed in WP19
- Access arranged through RMDS

<https://www.esbextra.ie/netlogon/jsp/logon.jsp>

Technologies Deployed on ESB side

❑ Secure File Transfer Service

- Debt Flagging
 - Used during the CoS process to flag Debt from Old Supplier to New Supplier via MRSO
- Downloadable Meter Points File
 - Regularly refreshed files containing all Metered and Unmetered Meter Point details, updated & available for download on 10th of each month, by authorised Supplier contacts.
 - Access to the ESB Networks Secure File Transfer Service enables files to be downloaded through an encrypted tunnel.
 - Access arranged through RMDS

<https://secure.esb.ie/SFE/Logon.aspx?ReturnUrl=%2fSFE%2fdefault.aspx>.

Technologies Deployed on ESB side

- ❑ **Secure File Transfer Service** (cont...)
 - Prepayment
 - MPs use the SFT on a weekly basis to forward a list of MPRNs where PrePayment meters are required to be installed by ESN
 - KMS notify MPs of cancelled meter install requests using the SFT service

Technologies Deployed on ESB side

❑ **PAYG Meter and Liberty Client PrePayment Solution**

- Directive from CER led to implementation of Prepayment solution for hardship customers only, in Q4 2011.
- This is only used by MPs who offer the Working Practice 9 PrePayment solution.
- MPs are allocated PAYG meters based on their customer Market share.
- Customer meter is replaced by a PAYG meter, which operates both as meter of record and PrePayment meter.

Technologies Deployed on ESB side

- ❑ **PAYG Meter and Liberty Client PrePayment Solution**
(cont ...)
 - Liberty client PrePayment system requires MPs to:
 - Develop relationship with payment providers (payzone, paypoint, etc)
 - Acquire the ROI market variant of Liberty Client software & licence(s)
 - If a New Entrant or existing MP wishes to investigate qualifying for this offering, contact RMDS

Technologies Deployed on MP side

Technologies Deployed on MP side

- ❑ A simple Webform application on the **EMMA (Electricity Market Message Application)** may be used by MPs with low volumes of Market Messages to send/view messages. Alternatively an MP can implement and use their own back end systems to process messages to/from the EMMA
- ❑ How the EMMA operates:
 - EMMA resides on a server that has a resolvable name and is permanently connected to the internet
 - EMMA can use the WebForms interface to allow MPs to populate and send messages to Networks
 - When a Market Participant wishes to send a message to Networks they move the message to the Outbound directory on the EMMA (either via Webforms or directly)

Technologies Deployed on MP side

- Xml documents that the EMMA finds are valid for the current version of the schema will be picked up from the Outbound directory, then packaged up and sent to the Hub
- Messages that originate from ESB Networks will be received by the EMMA and unpackaged. If the contents of the Market Messages are valid they will be stored in the Inbound directory ready for subsequent processing by the MP
- The EMMA is provided to Market Participants by ESB Networks via a third party service provider – Capita (formerly Northgate Managed Services (NMS))

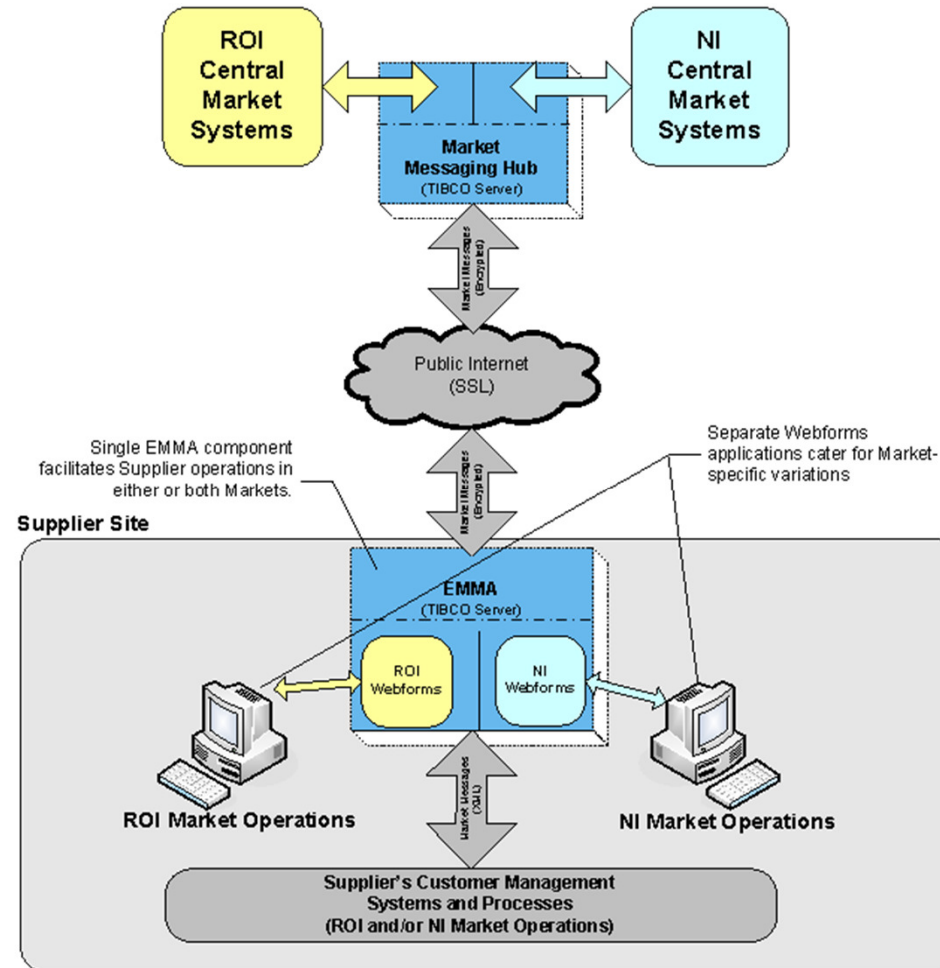
Technologies Deployed on MP side

- ❑ The HUB and Supplier EMMA components are common systems in use for both ROI and NI Retail Market operations
- ❑ Both the HUB and the EMMA are Tibco based solutions

Technological Interaction

Technological Interaction

How does it all fit together?



Technological Interaction

Networks sends a message to a Market Participant:

- ❑ The message is created in SAP IS-U using information retrieved from within SAP IS-U and numerous other internal systems
- ❑ SAP IS-U passes the message to the Messaging HUB for routing to the required Market Participant

Technological Interaction

Market Participant sends a message to Networks

- ❑ The MP creates the Market Message in either their backend system or in the Webforms application
- ❑ The MP then moves the message to the Outbound directory that the EMMA is polling
- ❑ If the EMMA finds that the xml file passes schema validation it is picked up from the directory, packaged up and sent
- ❑ The message is then received by the HUB, decrypted and passed into SAP
- ❑ SAP validates the message content and either passes the message information on for processing or rejects the message if it fails validation

Summary of Technical Requirements for New Entrants

Tech Requirements for New Entrants

To summarise, the following are the general technological requirements for New Entrants wishing to enter the Market:

- Windows Server(s) - Refer to TIBCO Installation and Deployment Guide
- Constant Internet connection
- Static or Fixed IP Address
- SSL (Secure Socket Layer) Certificates - Refer to TIBCO Installation and Deployment Guide

Tech Requirements for New Entrants

The following are the requirements if a New Entrant is to implement the EMMA:

- A dedicated machine must be available
- Provision of a contract with an ISP for Internet connectivity. This link can be permanent or dial-up
- Provision of any necessary hardware, cabling and software to support the link
- Provision of a HTTP URL with a static IP address and resolvable domain name e.g. <http://127.0.0.1/mpcc.cgi> and <http://mp.ie/mpcc.cgi>
- Provision and configuration of a firewall
- Completion and return of the Market Participant Registration Details form

Documentation

- ❑ All relevant technical documentation can be found on the RMDS website or from RMDS on request

www.rmdservice.com/market_design_10_0/index.htm