

NGESO ELEXON Joint Test Strategy

P344 – TERRE Parallel Run

17th July 2020

AGENDA

1. Introduction
2. Test Objectives
3. Test Scope
4. Test Approach
5. Test Phases
6. Test Schedule
7. Key Contacts



Introduction

Document Purpose and Target Audience

The purpose of this document is to set out NGESO and ELEXON's joint strategy for testing TERRE Parallel Run with industry participants. For the purposes of this document the term 'industry participant' includes ELEXON, NGESO, and any of the following who wish to participate in testing:

- Existing BSC Parties
- Prospective Virtual Lead Parties (VLPs) who are in the process of qualifying with NGESO and ELEXON
- Service providers who manage balancing and settlement interfaces on behalf of BSC Parties
- Interconnectors
- Licensed data users who consume market data published by ELEXON.

This Industry Test Strategy document focuses on readiness for entry to the new European Replacement Reserve (RR) market, being established by the TERRE industry project. GB Go-Live is expected to be at the end of October 2020

Introduction

What has been delivered so far?

- Ability for smaller market participants to access the Balancing mechanism market through Wider access
- ELEXON's settlement report, SAA-I014, includes new record and data types to show RR trading information (from version 009 onwards)
- Compliance with P384 and EBGL reporting obligations
- Publishing GBP to EUR Exchange Rates to BMRS, NGENSO and Industries participating.

What is changing as part of October 2020 Release?

- Ability for GB market participants and NGENSO to access the Replacement Reserve (RR) market
- ELEXON's Balancing Mechanism Reporting System will publish RR market data
- ELEXON's settlement calculations will include both RR and BM balancing actions

Introduction

What do market participants need to do?

- Ensure that you have registered interest to participate in RR if you are an existing BMU or begin pre-qualification if you do not have an existing BMU
- Comply with the EDT specification to submit RR offers/bids
- Understand the impact of the RR trades on existing BOA instructions
- Be aware of the implications of the daily exchange rate that will be applied to your prices and the clearing price provided by the Libra platform
- Be aware of your obligations as a Virtual Lead Party (VLP), if applicable
- Be ready to receive and process BMRS data and ELEXON settlement reports which include RR data. (Even if you do not have any RR trades, you will see some RR system data).

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Test Objectives

NGESO

- Verify market participants connectivity to National Grid
- Validate National Grid business processes to enable TERRE
- Validate data submissions from test participants to ensure common understanding of rules
- Validate conversion of test participants offers into appropriate formats
- Verify interoperability with the central LIBRA platform
- Validate creation, issue and receipt of dispatch instructions to market participants

ELEXON

- Verify ELEXON's connectivity to National Grid for receiving RR data
- Validate the publication of the daily GBP-EUR exchange rate to National Grid and other participants
- Validate ELEXON's processes for calculating the RR schedule and including RR data in settlement
- Validate publication of RR data to participants via BMRS messages and in settlement reports
- Enable market participants to design and test changes to their interfaces with ELEXON

JOINT

- Enable market participants to understand the processes and systems involved
- Verification of data Interfaces between **NGESO** and **ELEXON** (including currency exchange rate)
- Validate TERRE-BM interaction rules agreed as part of P344 consultation both **dispatch** and **settlement**
- Ensure that systems and processes not impacted by TERRE remain unaffected by changes
- Validate new and amended interfaces between **NGESO** and **ELEXON**, confirming that our assumptions about data content and format are aligned

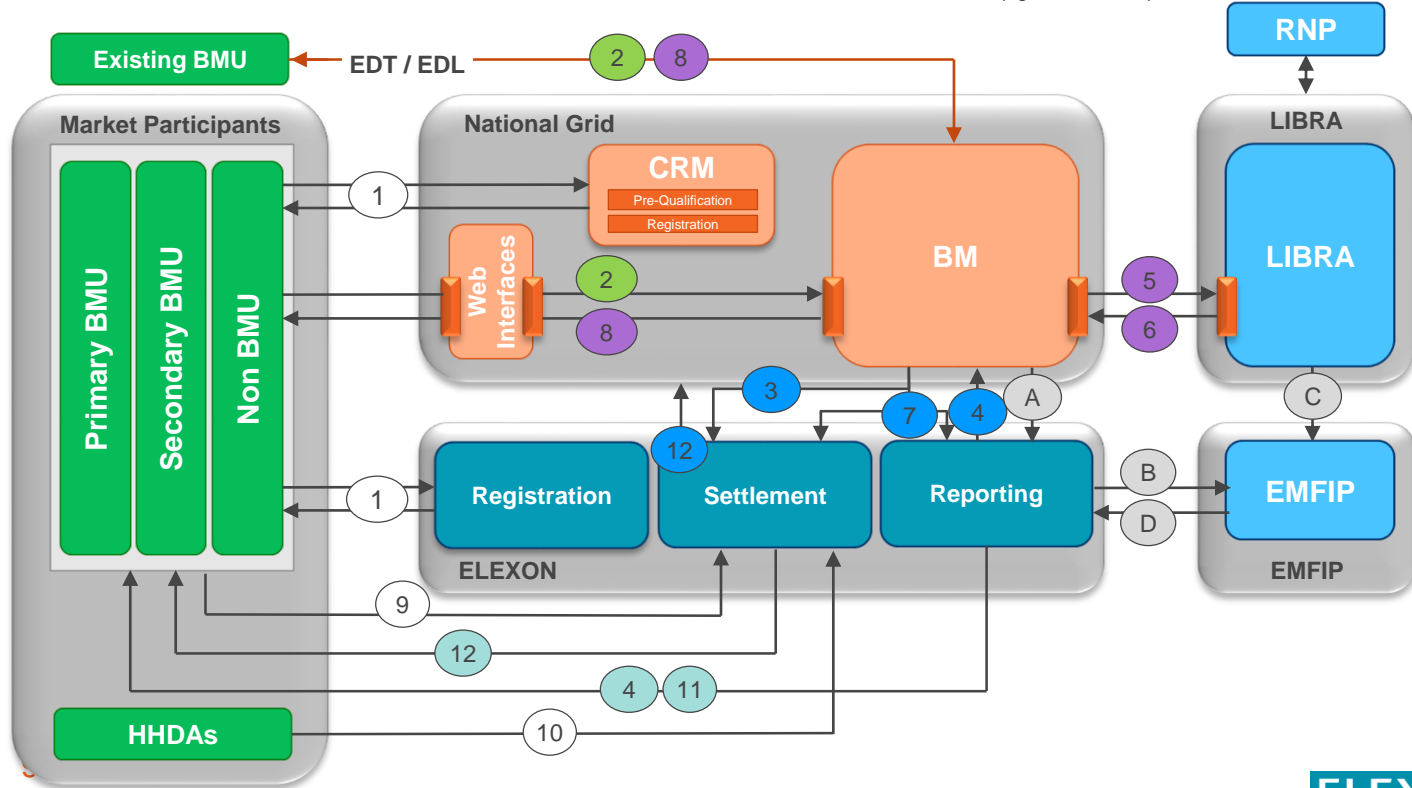
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Test Scope

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|-------------------------|------------------------------------|-------------------------------------|--|
| 1. Registration | 4. GBP > EUR Rate | 7. Auction Results > ELEXON | 10. HH Metered Volumes > ELEXON |
| 2. Bids > National Grid | 5. Bids > Libra | 8. Instructions > Mkt. Participants | 11. BM Reporting (incl. RR trades) > Mkt. Participants |
| 3. Bids > ELEXON | 6. Auction Results > National Grid | 9. Delivered Volumes > ELEXON | 12. Settlement Rptg. > Mkt. Participants |



Data Submission Testing

2. Mkt Participants (Bids) > BM

LIBRA Parallel Run

5. BM (Bids, ATC, DFR, TSO Needs) > LIBRA
6. LIBRA (Auction Results) > BM
8. BM (BOA-RR) > Mkt Participants

NG<->ELEXON Bilateral Testing

3. Bids > ELEXON
4. GBP-EUR Rate > National Grid
7. Auction Results > ELEXON
12. Settlement Reporting (CAB, ASB)

ELEXON<->MPs Bilateral Testing

4. GBP-EUR Rate samples > MPs
11. BM Reporting samples > MPs
12. Settlement Reporting samples > MPs

End to End Interface Testing

- Mkt. Participants (Bids) > BM
- IC (Schedule) > BM
- ELEXON (exchange rate) > BM (EUR)
- BM (Bids) > LIBRA
- BM (ATC, DFR) > Libra
- BM (TSO needs) > Libra
- LIBRA (Auction Results) > BM
- BM (Auction Results, Bids) > ELEXON
- BM Reporting > Mkt. Participants
- Settlement Reporting > Participants

Test Scope

What's included

Testing will include all the data flows illustrated in the diagram, including:

- RR bids and GB needs
- RR auction results and RR activations
- RR instructions
- Inclusion of RR activations in settlement calculations and reports.

What's excluded

- Interfaces with the EMFIP platform – changes were implemented in December 2019
- Settlement invoices / credit notes – ELEXON can provide an example on request

Test Scope

Data Flows and Interfaces

Ref	Data Flow	Description
2	RR Bids and GB Needs	Market Participants submits RR data into NGESO systems
3	RR bids and GB Needs	NGESO sends ELEXON copies of the data it submits to the RR market
4	GBP-EUR Exchange Rate	ELEXON publishes a daily exchange rate via API, for use by NG and other participants
5	RR Bids, ATC and TSO Needs	NGESO, after necessary pre-processing, submits the set of the offers to the LIBRA platform together with imbalance needs.
6	RR Auction Results	LIBRA communicates the RR Auction Results to NGESO
7	RR Auction Results	NGESO sends ELEXON copies of the RR auction results it receives
8	RR Instructions	NGESO processes the BOA files with RR Instructions
11	Balancing Mechanism Reporting	BMRS publishes the RR data received from NGESO, alongside BM data. It also publishes the RR schedule and indicative imbalance price.
12	Settlement Reporting	SAA uses RR data in settlement calculations and publishes it in the SAA-I014 report.

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Test Approach

Phase	Activities
Test Engagement	<ul style="list-style-type: none">▪ Initial engagement on test scope, plan and expected timeline.▪ Agree on joint test approach and planning, which will result in a single Joint Test Plan document.▪ Workshop with Market Participants.▪ Workshop between Elexon – NGENSO for Test scenarios and Data Requirements.
Test Planning	<ul style="list-style-type: none">▪ Publish detailed Test schedule and Joint Test plan▪ Agree on Entry & Exit Criteria such as Early visibility, Connectivity Test Phases.▪ Agree on Test data Specifications.▪ Align on Defect Management Process and Deliverables
Test Phases	<ul style="list-style-type: none">▪ Data Submission Testing: NGENSO and Market Participants▪ LIBRA Parallel Run: NGENSO, LIBRA and Market Participants▪ NG <> ELEXON Bilateral Testing▪ ELEXON <> Participants Bilateral Testing▪ Interconnectors Bilateral Testing▪ E2E Testing: NGENSO, LIBRA, ELEXON, Interconnectors and Market Participants
Test Closure	<ul style="list-style-type: none">▪ Test Summary Report & Signoff▪ Test Exit

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Test Phases

Data Submission Testing: NGENSO and Market Participants	
Description	Pre-requisites
<p>This phase will involve data submission from Market Participants for Bids and Operational Data and the processing of this data by BM system. The key objectives of this phase are:</p> <ul style="list-style-type: none">➤ Enable market participants to understand the processes and systems involved➤ Ensure there is end to end connectivity between Market Participant's test systems and NGENSO's test system➤ Verify Existing Market Participants (BMUs) can submit RR data to BM via EDT/EDL➤ Verify Existing Market Participants (BMUs) who wants to use the new web service for data transfer with BM can submit their data to BM via WA API➤ Verify New Market Participants (sBMUs) wishing to participate in RR Market can submit their data to BM via WA API➤ Validate data submissions from test participants in BM to ensure common understanding of rules➤ Ensuring the BM system in NG processes the submitted data.	<p>Market Participants need to:</p> <ul style="list-style-type: none">• Ensure they have procedures in place to submit their test data separate from data they are sending to production.• Provide Early Visibility of files to be sent to NGENSO• Comply with EDT specifications and send RR bids• Send RRBID, BOD, Operational(FPN,PN) & Dynamic data(MEL, MIL etc) to NGENSO <p>NGENSO will:</p> <ul style="list-style-type: none">• Set up connectivity testing with participants• Provide a test environment to receive and validate market participant files

Test Phases

LIBRA Parallel Run: NGESO, LIBRA and Market Participants	
Description	Pre-requisites
<p>This phase involves the request and response data flow of the participating TSO's (NGESO) and the common platform LIBRA. Mentioned below are the key objectives of this phase:</p> <ul style="list-style-type: none">➤ Verify interoperability with the central LIBRA platform➤ Verify Bid Submission from BM to LIBRA➤ Verify Exchange of LIBRA Auction Results from LIBRA to BM➤ Validate creation, issue and receipt of dispatch instructions to market participants i.e. Market Participants can receive BOAs (with RR Instructions) post processing of the Bids in LIBRA Parallel Run environment	<p>NGESO will:</p> <ul style="list-style-type: none">• Ensure LIBRA parallel run connectivity is ready.• Send scenario based and real time input files to LIBRA within the stipulated and finalized timeslots.• Be ready to receive the MOL, scheduling and balancing files from LIBRA.• Send RRs and BOAs to market participants <p>Market Participants need to:</p> <ul style="list-style-type: none">• Have their test systems ready to receive RRs and BOAs from NGESO• MP need to provide RR Bid Data for specific Delivery Period based on the Specific Test Schedule.

Test Phases

NG ↔ ELEXON Bilateral Testing

Description

This Phase focus on Dataflows between NGENSO and Elexon Systems with Test Data as per Test Data specifications agreed between NGENSO and Elexon. Mentioned below are the key objectives of this phase:

- Exchange rate data from ELEXON and conversion of prices.
- Transmission of new RR data flows to ELEXON (BMRS)
 - Hourly RR Data sent to BMRA and SAA which contains all RR Bids submitted by GB parties for that RR Auction Period.
 - Replacement Reserve Activation Data for each Replacement Reserve Auction Period
 - GB Need Met Data for each Replacement Reserve Auction Period
 - Interconnector Schedule Data for each Interconnector for each Replacement Reserve Auction Period.
 - Secondary BM Units are included in the Existing Interfaces of Final Physical Notifications (FPNs), Dynamic Data Set, Bid Offer Data and BOAs.
 - Hourly Data sent to BMRA and SAA: Replacement Reserve Auction Result Data.
 - Amended BOA interface includes RR Flag and RR Instruction (similar to a BOA) with one or more Acceptable volume pairs.
- Ability of CAB system to process a SAA-I014 file that includes RR Data.

Pre-requisites

NGESO will:

- Subscribe to ELEXON's exchange rate API in its test BMRS environment
- Set up its test environment to sent test BM data flows to ELEXON's test environment
- Provide a test LIMS server where ELEXON can send SAA-I014 files

ELEXON will:

- Provide a test environment which can receive BM data from NGENSO and publish messages via BMRS
- Ensure the exchange rate API is published from the test BMRS system
- Ensure the files received from the test BM are processed, and an ACK

Test Phases

ELEXON <> Participants Bilateral Testing

Description	Pre-requisites
<p>This phase of testing will focus on giving market participants the opportunity to test new and amended data flows from ELEXON.</p> <p>Sample files will be based on test data received from NGESO during the previous phase. We will then establish connectivity with participants so that they can consume data flows during the End-to-End testing phase.</p> <p>Mentioned below are the key objectives of this phase:</p> <ul style="list-style-type: none">➤ Enable participants to test loading system-generated sample messages from TERRE BMRS (TIBCO and XML formats)➤ Enable participants to test loading system-generated sample SAA-I014 settlement reports, with some TERRE data populated➤ Provide early visibility of sample files➤ Provide sample files that are based on test data received from NG, once this is available from earlier testing phases.➤ Provide connectivity to consume a sample of BMRS data flows directly from the test BMRS system	<p>ELEXON will:</p> <ul style="list-style-type: none">• Set up its test environment to produce sample BMRS data flows and SAA settlement reports• Circulate sample files by email, or via the ELEXON portal or other secure mechanism• Provide a test BMRS server where participants can obtain sample messages directly <p>Market participants need to:</p> <ul style="list-style-type: none">• Notify ELEXON of which types of sample files they wish to receive• Be ready to load sample files which are compliant with the BSC Interface Definition Design• Be ready to consume BMRS flows directly via their preferred channel: website, API, data push or TIBCO.

Test Phases

E2E Testing: NGESO, LIBRA, ELEXON and Market Participants

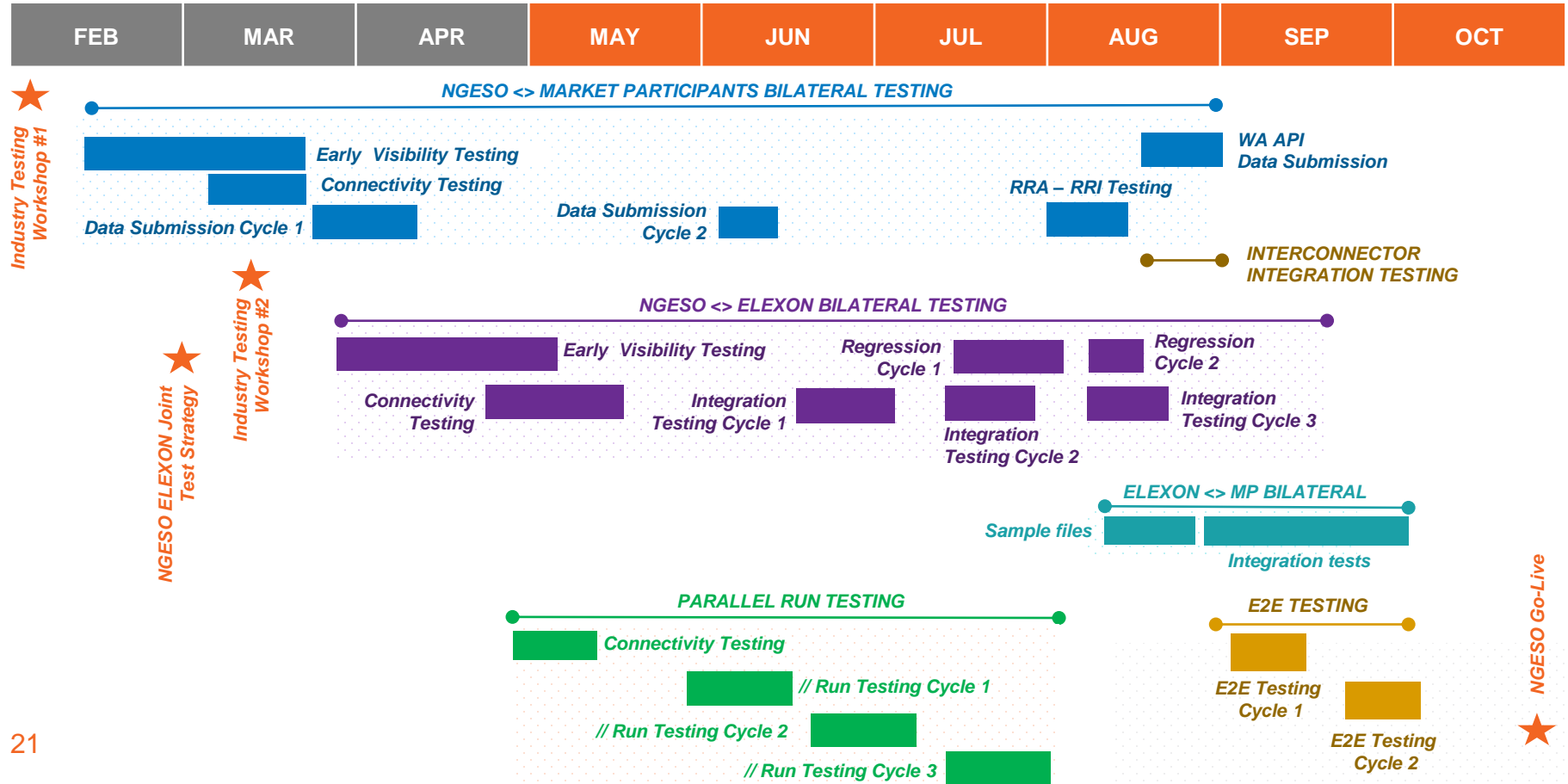
Description	Pre-requisites
<ul style="list-style-type: none"> • Simulate an end to end full process testing involving Market Participants (MP), LIBRA and ELEXON with agreed E2E Test Data Specifications and Test Window in order to: <ul style="list-style-type: none"> ✓ Test the exchange of information including submitted data quality. ✓ Test and validate operational business process including fallback & exception procedure ✓ Validate TERRE process timings • This phase will test the whole RR trading process for GB participants: submitting bids, NGESO forwarding GB information and participating in the RR auction, NGESO instructing participants, ELEXON performing settlement calculations and ELEXON publishing RR trading data to participants. • Ensure the below interfaces work as per TERRE requirement in an E2E landscape <ul style="list-style-type: none"> ✓ Mkt. Participants (Bids) > BM ✓ IC (Schedule) > BM ✓ ELEXON (exchange rate) > BM (EUR) ✓ BM (Bids) > LIBRA ✓ BM (ATC, DFR) > Libra ✓ BM (TSO needs) > Libra ✓ LIBRA (Auction Results) > BM ✓ BM (Auction Results, Bids) > ELEXON ✓ BM Reporting > Mkt. Participants (accessed via high grade lines or the internet) ✓ Settlement Reporting > Mkt. Participants (accessed via FTP) 	<p>All of the pre-requisites for earlier phases also apply to end to end testing.</p> <p>In addition:</p> <ul style="list-style-type: none"> • NGESO and LIBRA will confirm which trading days and auction periods are included in the test • All participants in testing need to be ready to send and receive data for those periods in a realistic timeframe • ELEXON will publish RR trading data on test BMRS • For a selection of trading days during the E2E test period, ELEXON will provide a settlement report (II run), approximately five working days after the trading day

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Test Schedule – Industry Testing



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THANK YOU