Public

Swissgrid Ltd
Bleichemattstrasse 31
P. O. Box
5001 Aarau
Switzerland

T +41 58 580 21 11
info@swissgrid.ch
www.swissgrid.ch

Balance Group Acceptance Test
Test Specification

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Author	Günter Schlesiger, Michel Pasquier, Christoph Ruffing, Rolf Tolksdorf, Lambert van Vught, Eric Reuter

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1 Introduction

This document describes the tests to be performed successfully by all Balance Group Managers (BGM) before productive scheduling using the Swissgrid balance group system can be released.

It also describes the requirements for test systems operated by Swissgrid and DNV GL.

2 Reference documents

- Swissgrid: Technical balance group requirements Version 2.0 (part of the balance group contract)
- ENTSO-E references on website https://www.entsoe.eu/resources/edi-library/
    - ENTSO-E: Scheduling System ESS Version 2 Release 3
        - Scheduling System ESS Implementation Guide V2R3
    - ENTSO-E Status Request Document (ESRD) V2R0
    - ENTSO-E: Core Components (ECC) and ENTSO-E Code List (ECL)
- VSE: Glossary for the rules governing the Swiss electricity market

3 Test procedure

1. ESS formal and process tests (schedule operation):

The tests are conducted via the ESS test centre in collaboration with our test partner DNV GL. Here the formal correctness of the structure of TPS schedule messages is tested in accordance with ESS and the «Technical Balance Group Regulations». At the same time it is checked if the BGR evaluates correctly the XML messages issued by Swissgrid and their correct implementation within the defined balance group regulations.

These tests must be successfully conducted once by every BGM or the person designated by him. There is no need to repeat the test for additional balance group (BG) registrations.

2. Communication and configuration tests using the Swissgrid balance group system:

These tests are used to check the communication channels (standard and standby connection) between the BGM and Swissgrid balance group systems, as well as to verify correct system configuration (EIC code of the BGM, schedule relationships etc.).

These tests must be performed successfully once for each BGM (Balance Group Manager) and for each communication channel.

4 ESS formal and process management (schedule operation):

4.1 Description of the test scenarios

- Please telephone or e-mail DNV GL if you have any questions on operating the ESS test centre. The contact information is available at http://bg.dnvgl-test.com
- For all other questions, please e-mail info@swissgrid.ch
- The tests are registered and performed via http://bg.dnvgl-test.com
- Schedule messages are e-mailed to swissgrid-bg-test@dnvgl.com
- **Important:** The test system checks the sender's e-mail address in order to assign a specific test scenario to the schedule message!
- **10XCH-SWISSGRIDC** must be used as the test system's receiver EIC code.
- Any EIC codes can be used for the fictitious trading partners and neighbouring control areas. They are not checked by the ESS formal test platform. Only the plausibility (number of characters, test character) must be guaranteed.
- Times in schedule messages must be specified in UTC (see «Technical Balance Group Requirements»). Times for test scenarios are specified in CET/CEST.
- Important for certifying the parties is an agreement on the way the XML-documents must be created and verified. For ESS V2R3 the references are to a DTD.
- Balance Group with metering points:
    - Test chapter 4 and 5: CONS time series in the schedule message is optional.
    - Test chapter 6: CONS time series in the schedule message is mandatory.

4.1.1 Messages using ESS v2r3

The following table describes the required DtdVersion and DtdRelease versions of the different messages as it is when using ESS 2.3

	ESS 2.3		
Message	**DtdVersion**	**DtdRelease**	**DOCTYPE**
AcknowledgementDocument	2	3	<!DOCTYPE AcknowledgementMessage SYSTEM "../schedulev2r3/dtd/acknowledgement-xml.dtd">
AnomalyReport	2	3	<!DOCTYPE AnomalyReport SYSTEM "../schedulev2r3/dtd/anomaly-xml.dtd">
ConfirmationReport	2	3	<!DOCTYPE ConfirmationReport SYSTEM "../schedulev2r3/dtd/confirmation-xml.dtd">
ScheduleMessage	2	3	<!DOCTYPE ScheduleMessage SYSTEM "../schedulev2r3/dtd/schedule-xml.dtd">

With ESS 2.3 all references must be to DTD's, forced by mentioning the DOCTYPE.

4.1.2 Status Request

The Status Request is independent of the used ESS version. But a BGM who is using ESS v2r3 gets back the requested information in ESS v2r3 format.

	ESR 2.0		
Message	**DtdVersion**	**DtdRelease**	**Style sheet-reference**
StatusRequest	2	0	<?xml-stylesheet type="text/xsl" href="../statusrequestv2r0/stylesheet/request-xsl.xsl"?>

4.1.3 Applied Formal Tests

- Unless otherwise specified, the TPS schedule messages in the test scenarios are tested for the following:
  - Correctness of the XML message according to ESS V2R3
    - Standardized XML reference to DTD (as mentioned in the previous paragraph) for ESS v2r3 messages.
  - Compliance with the Technical Balance Group Requirements (including file name)
  - Day-ahead, intra-day and post scheduling adjustment notification times
  - EIC codes (plausibility)

- Terms:
  - D: Schedule day
  - Other terms: See VSE document «Glossary for the rules governing the Swiss electricity market»

4.2 Formal test for TPS schedule messages

4.2.1 Day-ahead, formal test, external and internal trade, unlimited capacity

Scenario: 1a
Execution: for new registered BG obligatory
Purpose: Day-ahead, formal test, external and internal trade, unlimited capacity
Timing: D-1 before 14:30

#	System Under Test	DNV GL Test System
1	BGM sends a TPS: • Day-ahead (process type A17) • At least 1 time series with external trade, unlimited capacity (business type A06) • At least 1 time series with internal trade (business type A02) • Sender EIC code of BG	
2		For formally correct TPS: Sends a positive ACK message • Reason code A01
Note: • The schedule message and schedule time series must have the same version number (this is verified by the ESS formal test platform). • Day-ahead schedule message must be drawn up for the next day (tomorrow) • There may not be any other business types specified except A02 and A06		

4.2.2 Intra-day, formal test, external trade, unlimited capacity

Scenario: 1b
Execution: for new registered BG obligatory
Purpose: Intra-day, formal test, external trade, unlimited capacity
Timing: after D-1 16:30, before D 23:00

#	System Under Test	DNV GL Test System
1	BGM sends a TPS: • Intra-day (process type A17) • At least 1 time series with external trade, unlimited capacity (business type A06) • Sender EIC code of BG	
2		For formally correct TPS: Sends a positive ACK message • Reason code A01
Note: • Schedule message must contain only external time series (business type A06) • Intra-day schedule message must be drawn up for the current day • There may not be any other business types specified except A06		

4.2.3 Post scheduling adjustment; formal test, internal trade

Scenario: 1c
Execution: for new registered BG obligatory
Purpose: Post scheduling adjustment; formal test, internal trade
Timing: D+1 before 17:00

#	System Under Test	DNV GL Test System
1	BGM sends a TPS: • Post Scheduling Adjustments (Process Type A17) • At least 1 time series with internal trade (business type A02) • Sender EIC code of BG	
2		For formally correct TPS: Sends a positive ACK message • Reason code A01
Note: • The post scheduling adjustment schedule message must be drawn up for the previous day (yesterday) • There must be no values > 0 in any time series outside the control area (external time series) • Once schedule operation is up and running, values > 0 will be available from upstream processes for time series outside control areas. However, they may no longer be changed in the post scheduling adjustment process. Since there are no prior schedule data in this test scenario, the time series outside the control area cannot contain values > 0		

4.3 Matching process intraday

Here two tests are available to validate the difference between internal and external trade, related to the timing for making changes.

4.3.1 Matching process intraday (Internal Trade)

Scenario: 2
Execution: for new registered BG obligatory

Purpose: Matching process intraday (Internal Trade)
Timing: D before 22:15 (the values between 23:00 and 24:00 should be changed)

#	System Under Test	DNV GL Test System
1	BGM sends a TPS: • Intra-day (process type A17) • At least 1 time series (internal trade, BusinessType = A02) with any values > 0 • Sender EIC code of BG	
2		For formally correct TPS: Sends a positive ACK message • Reason code A01
3		Sends an anomaly message: • Reason code A09 (schedule differences) • The ANO contains 2 time series: 1. The original time series 2. The counterparty's fictitious time series, containing other values in positions 93 – 96
4	BGM sends a corrected TPS: • Intra-day (process type A17) • Time series with the corrected values from the counter-message in positions 93 – 96 • Message and time series version are increased	
5		Tests the schedule correction For formally correct TPS: Sends a positive ACK message • Reason code A01
6		For TPS with correct content: Sends an intermediate confirmation: • Reason code A06
Note: • The scenario is based on the assumption that the schedule message for a trade partner contains only one schedule time series: i.e. it is assumed that all schedule time series are processed with different market players. • Intra-day schedule message must be drawn up for the current day		

4.3.2 Matching process intraday (External Trade)

Scenario: 3
Execution: for new registered BG obligatory

Purpose: Matching process intraday (External Trade)
Timing: D before 22:15 (the values between 23:00 and 24:00 should be changed)

#	System Under Test	DNV GL Test System
1	BGM sends a TPS: • Intra-day (process type A17) • 1 time series (external trade with control area '10YDE-RWENET---I' BusinessType = A06) with any values > 0 • Sender EIC code of BG	
2		For formally correct TPS: Sends a positive ACK message • Reason code A01
3		Sends an anomaly message: • Reason code A09 (schedule differences) • The ANO contains 2 time series: 3. The original time series 4. The counterparty's fictitious time series, containing other values in positions 93 – 96
4	BGM sends a corrected TPS: • Intra-day (process type A17) • Time series with the corrected values from the counter-message in positions 93 – 96 • Message and time series version are increased	
5		Tests the schedule correction For formally correct TPS: Sends a positive ACK message • Reason code A01
6		For TPS with correct content: Sends an intermediate confirmation: • Reason code A06

Note:
- The scenario is based on the assumption that the schedule message for a trade partner contains only one schedule time series: i.e. it is assumed that all schedule time series are processed with different market players.
- Intra-day schedule message must be drawn up for the current day

4.4 Intra-day timing (Internal Trade)

Scenario: 4
Execution: for new registered BG obligatory

Purpose: Intra-day timing (Internal Trade)
Timing: D before 23:00

#	System Under Test	DNV GL Test System
1	BGM sends a TPS with: • Intra-day (process type A17) • BusinessType A02 (Internal Trade) • At least 1 time series for the current day containing values > 0 • Sender EIC code of BG	
2		For formally correct TPS: Sends a positive ACK message • Reason code A01 • Notification time not tested
3		For TPS with correct content: Sends an intermediate confirmation: • Reason code A06
4	BGM sends a late intra-day change: • Intra-day (process type A17) • BusinessType A02 (Internal Trade) • The 1st time series contains value changes for time t < Z-15 minutes (intraday message deadline exceeded) • Message and time series version are increased	
5		Sends a negative ACK message • Reason code A03 and time series reason code A57
6	BGM sends a correctly timed intra-day change: • Intra-day (process type A17) • BusinessType A02 (Internal Trade) • The 1st time series contains value changes for time t > Z-15 minutes (intraday message deadline observed) • Message and time series version are increased	
7		For formally correct TPS: Sends a positive ACK message • Reason code A01
8		For TPS with correct content: Sends an intermediate confirmation: • Reason code A06

Note:
- Intra-day schedule message must be drawn up for the current day

4.5 Post scheduling adjustment

Scenario: 5
Execution: for new registered BG obligatory

Purpose: Post scheduling adjustment
Timing: D+1 before 17:00

#	System Under Test	DNV GL Test System
1	BGM sends a TPS with schedule date yesterday but with value changes in a schedule outside the control area, with: • Version of message and schedule time series incremented • Post scheduling adjustments (process type A17) • At least 1 time series for an internal trade, containing values > 0 • At least 1 time series for an external trade, containing values > 0 • Sender EIC code of BG	
2		Sends a negative ACK message • Reason code A02 and time series reason code A57 (due to schedule change in schedule outside control area)
3	BGM sends a correct TPS with schedule date yesterday with: • Version of message and schedule time series incremented • Post scheduling adjustments (process type A17) • At least 1 time series for an internal trade, containing values > 0 • At least 1 time series for an external trade, containing values = 0 • Sender EIC code of BG	
4		For formally correct TPS: Sends a positive ACK message • Reason code A01
5		For TPS with correct content: Sends an intermediate confirmation: • Reason code A06

4.6 Imposed time series procedure

Scenario: 6
Execution: for new registered BG obligatory

Purpose: Imposed TS procedure for new registration
Timing: D-1 before 14:30

#	System Under Test	DNV GL Test System

1	BGM sends a TPS: • Day-ahead (process type A17) • BusinessType can be A02 (Internal Trade) or A06 (External Trade) • At least 1 internal or external time series • Sender EIC code of BG • Values > 0 • No time series for fictitious balance group «BG-Imposed»	
2		For formally correct TPS: Sends a positive ACK message • Reason code A01
3		Sends an intermediate confirmation with reason code A07 at message level and an additional imposed time series with reason code A30 at imposed time series level
4	BGM sends a TPS: • Day-ahead (process type A17) • BusinessType must be the same as in previous TPS • Sender EIC code of BG • New time series added to BG-Imposed according to ICNF with the option to change the time series identification	
5		For formally correct TPS: Sends a positive ACK message • Reason code A01
6		For TPS with correct content: Sends an intermediate confirmation: • Reason code A06
Note: • Day-ahead schedule message must be drawn up for the next day (tomorrow) • The schedule message and schedule time series must have the same (incremented) version number. • EIC of BG-Imposed is **12XBG-IMPOSED—O** • The BGM can change the time series ID indicated in the ICNF for BG-Imposed once		

4.7 Schedule message across auctioned border

Scenario: 7
Purpose: Schedule message – external trade, explicit capacity

Execution: for new registered BG obligatory

Timing: D-1 or D

#	System Under Test	DNV GL Test System

1	BGM sends a day-ahead or intra-day TPS with:
	• 1 Time series with external trade, explicit capacity:
	  • Business type A03
	  • Process type A17
	  • Capacity agreement ID = «ID1»
	  • Capacity contract type = «A05» meaning total
	  • Value of time series > 0
	• Sender EIC code of BG	

2		Tests business type, capacity contact type and capacity agreement ID For formally correct TPS: Sends a positive ACK message • Reason code A01
3		For TPS with correct content: Sends an intermediate confirmation • Reason code A06
Note: • If the business type is not A03, the scenario is aborted and the test system sends a negative ACK message with reason code A03 and time series reason code A62 • Day-ahead schedule message must be drawn up for the next day (tomorrow) • Intra-day schedule message must be drawn up for the current day		

4.8 Single sided schedule procedure

Scenario: 8
Execution: for new registered BG obligatory

Purpose: Day-ahead (after anomaly message), external trade, unlimited capacity
Timing: D-1 after 14:30

#	System Under Test	DNV GL Test System
1		Sends an anomaly message: • Reason code A28 (counterpart time series missing) and Reason Text “Time series expected” • The ANO contains 1 time series: 1. The missing time series The counterparty's fictitious time series, containing values > 0 in position 33 – 80 (08:00 – 20:00), position 1 – 32 and 81 – 96 values = 0
2	BGM sends a TPS: • Day-ahead (process type A17) • 1 time series with external trade, unlimited capacity (business type A06) ○ the time series from the received ANO with all the specified values from the received ANO (all day) • Sender EIC code of BG	
3		Tests the schedule correction For formally correct TPS: Sends a positive ACK message • Reason code A01
4		For TPS with correct content: Sends an intermediate confirmation: • Reason code A06
NOTE: • A Counterparty has sent in time series which is not yet sent in by the BGM (simulation) • Day-ahead schedule message must be drawn up for the next day (tomorrow)		

5 Optional Tests

5.1 Status Request procedure

Scenario: 9
Execution: optional
Purpose: Status Request requesting status of TPS
Timing: D

#	System Under Test	DNV GL Test System
1	BGM sends a TPS: • Intra-day (process type A17) • exact 1 time series (internal trade) with any values > 0 • Sender EIC code of BG	
2		For formally correct TPS: Sends a positive ACK message Reason code A01
3	BGM sends a Status request • RequestedTimeInterval same as in ScheduleMessage • Sender EIC code of BG • SubjectParty: EIC code of party • SubjectRole: A01 • ProcessType: A17	
4		Sends an anomaly message: • Reason code A09 (schedule differences) • The ANO contains 2 time series: 1. The original time series 2. The counterparty's fictitious time series, containing other values in positions 93 – 96
5.	BGM sends a corrected TPS: • Intra-day (process type A17) • Time series with the corrected values from the counter-message in positions 93 – 96 • Message and time series version are increased	
6		For formally correct TPS: Sends a positive ACK message Reason code A01
7	BGM sends a Status request • RequestedTimeInterval same as in ScheduleMessage • Sender EIC code of BG	

#	System Under Test	DNV GL Test System
8		Sends an intermediate confirmation: • Reason code A06

Note:

- Intra-day schedule message must be drawn up for the current day
- Status Request can be sent only after a TPS has been sent.
- A Status Request is not dependent whether an answer file from the regular process was already sent or not.
- When this optional scenario is started it must be followed completely

6 Communication and configuration tests (schedule operation)

6.1 General

- The communication and configuration tests are performed with the productive Swissgrid balance group system
- Configuration tests must be performed separately for each balance group
- Standard as well as standby connections (if applicable) are each tested once during communication tests. E-mail communication is always the first to be tested.

6.2 Communication and configuration testing of the e-mail connection

Execution: Only relevant for new registrants

Communication path: E-mail

Purpose: To verify the e-mail communication path and balance group configuration (EIC code, business relationships)

Timing: D-1 before 10:00

#	System Under Test	Swissgrid BG Productive System
1	BGM sends via e-mail a day-ahead TPS containing all business relationships of the BGM with this BG including CONS time series for BG with metering points: • Use only internal business relationships • All values must be set to 0	
2		Incoming message test Sends a positive ACK message (reason code A01) if everything is in order. Sends no ACK or a negative ACK message with the relevant reason codes if a schedule message error or system configuration error has been identified.
3	Evaluation of ACK message and feedback on correct receipt to Swissgrid. If necessary, make corrections and repeat test from Step 1.	–
Note: • The TPS contains all currently known internal business relationships within Swissgrid (both directions, values = 0) • Use Business Type A02 • The TPS does not contain any external business relationships.		

6.3 Communication test of FTP link

Execution: Only relevant for new registrants

Communication path: FTP over Internet

Purpose: To verify the FTP communication path

Timing: D-1 before 10:00

#	System Under Test	Swissgrid BG Productive System
1	BGM sends via FTP link a day-ahead TPS containing all business relationships of the BGM with this BG including CONS time series for BG with metering points: • Use only internal business relationships • All values must be set to 0	
2		Incoming message test Sends a positive ACK message (reason code A01) if everything is in order. Sends no ACK or a negative ACK message with the relevant reason codes if a schedule message error or system configuration error has been identified.
3	Evaluation of ACK message and feedback on correct receipt to Swissgrid. If necessary, make corrections and repeat test from Step 1.	–
Note: The TPS contains all currently known internal business relationships within Swissgrid (both directions, values = 0) Use Business Type A02 The TPS does not contain any external business relationships.		