Business Process

BP_SO_5.5 Interconnector under Test

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1 ASSUMPTIONS

Assumptions made during the design of this process include:

- This is an all-island business process, meaning the same process will be used across both jurisdictions on the island, Ireland and Northern Ireland. It can conducted by the relevant team in either Dublin or Belfast;
- The following business processes addresses all requirements, including roles, tools, and activities that will enable the TSO to achieve scheduling objectives; and
- All required systems, including MMS and Interconnector Management Platform (ICMP) are in place. They offer all required functionalities to support business needs.

2 PROCESS REFERENCES

2.1 RELATED RULES REFERENCES

The following table provides references to the documents that govern the design of this business process.

Document Title	Relevant Section	Description
SONI Grid Code	• OC10 System Tests	OC10 System Tests outlines the requirements for Users to carry out System Tests including the timelines for submission of test proposals.
	• OC11 Testing, Monitoring and Investigation	OC11 Testing, Monitoring and Investigation deals with testing that may be required under the relevant codes and agreements not covered by OC10.
	• SDC2 Scheduling and Dispatch Code No. 2	SDC2 is under common governance with the EirGrid Grid Code and details the procedure for the TSO to issue Dispatch Instructions including for test purposes.
EirGrid Grid Code	• OC8 Operational Testing	OC8 Operational Testing outlines the requirements for Users to carry out Operational Tests including the timelines for submission of test proposals.
	• OC10 Monitoring, Testing and Investigation	OC10 Monitoring, Testing and Investigation deals with testing that may be required under the relevant codes and agreements not covered by OC8.
	• SDC2 Scheduling and Dispatch Code No. 2	SDC2 is under common governance with the SONI Grid Code and details the procedure for the TSO to issue Dispatch Instructions including for test purposes.

2.2 RELATED DOCUMENTS

The following table provides a list of documents that are related to this business process.

Document Title	Relationship	Description
Selection Guideline for SEM Testing Tariffs	Guidance Document 01 Feb 2016	Details the process for application of Testing Tariffs to different types of testing and different Units Under Test.
MMS User Guide for System Operations	System Guide	Includes detailed procedures on how to implement process steps in MMS.
ICMP User Guide for System Operations	System Guide	Includes detailed procedures on how to implement process steps in ICMP.
BP_SO_12.1 Unit Testing	Related Process	This process covers the process for Units subject to market testing and includes criteria for allowing a test to proceed.

3 PROCESS CONTEXT

3.1 BUSINESS MODEL RELATIONSHIP

The Interconnector under Test process sits within the interconnector process group. This group covers the interactions between System Operator (Near Time and Real Time) and Interconnector Owners in relation to outage management, testing and following trips. As interconnectors cannot be granted unit under test status in I-SEM a separate process is required specifically to manage interconnector testing.

3.2 BACKGROUND AND SCOPE

An interconnector can request to go under test for a number of imbalance settlement periods or a full trading day. As per Grid Code, testing can be classified as either significant or minor based on the impact on the power system and market.

The type of test being requested by a unit will determine the notification time required by the TSO to assess and approve a test and incorporate into the scheduling process. Testing can be split in to two categories: significant and minor testing as defined in EirGrid and SONI Grid Codes below. All testing is subject to the review and approval of the TSO.

Significant Test[1]	An Operational Test with a total duration of equal to or greater than 6 hours, or where the Active Energy produced during the total duration of the test is equal to or greater than: (i) 3 times the Active Energy which would be produced by the Test Proposer's Plant during 1 hour of operation at the Plant's Registered Capacity; or (ii) 500 MWh

Significant testing including commissioning, testing following refurbishment, Grid Code testing, modifications to control systems or other tests that pose an additional risk of trip should be pre-approved by the TSO **at least ten business days in advance** of the proposed test start date. The TSO may accept a new significant test proposal after this time at their discretion but no later than **09:00 two business days** ahead of proposed test start date.

[1] With respect to testing tariffs, it is expected that a high impact test will always be a Significant Test

For pre-approved tests, a test profile should be submitted by **11:30 on BD-1** to facilitate final review and approval by the TSO, to agree energy arrangements for the test and entry in to the Interconnector Management Platform (ICMP) for inclusion in scheduling, control of the interconnector and to send ICRP to National Grid Electricity Transmission (NGET)[2]. Subsequent changes in the intra-day will be permitted[3]. Any requests for modifications or cancellations to a previously approved test profile must be submitted **at least four hours** before start of delivery period with the first change.

Minor Test[4]	An Operational Test with a total duration of less than 6 hours in any Trading Day or where the active energy produced during the total duration of the test is less than: (i) 3 times the Active Energy which would be produced by the Test Proposer's Plant during 1 hour of operation at the Plant's Registered Capacity; and (ii) 500 MWh

Minor testing which is of short duration and carries no increased risk of trip can be submitted up to **11:30 on BD-1** to facilitate final review and approval by the TSO, to agree energy arrangements for the test and entry in to the Interconnector Management Platform (ICMP) for inclusion in scheduling, control of the interconnector and to send ICRP to National Grid Electricity Transmission (NGET)[5]. These tests are also subject to the approval of the TSO.

In accordance with the Grid Codes the TSO may require tests on an individual unit or a number of units. In this circumstance the TSO will agree a test profile or interconnector reference program with the owner. It is expected that all interconnector testing will be classified as Significant Testing as per Grid Code.

Note that tests may be rejected by the TSO for system reasons – such as conflicting transmission outages or other unit tests happening at the same time. Test profiles may be rejected by the TSO because the profile poses a significant risk to the rest of the system, or because it may have an undue impact on other system users. Examples of this include but are not limited to: ramping against demand profile; base-load running overnight; significant / rapid MW or Mvar swings etc. In these cases, the interconnector owner or operator should resubmit the profiles based on the comments from the TSO.

3.2.1 TESTING TARIFFS

The role of Testing Tariffs is to provide a mechanism for the recovery of costs associated with testing and are reviewed annually by System Support. These are approved by the Regulatory Authorites (RAs) and notified to I-SEM for settlement purposes. When approving a test request the TSO must determine if the testing tariff is to be applied and notify the interconnector owner of same.

3.2.2 SCOPE

This process covers the requirements for Interconnector Owners to notify the TSO of requirements for testing and the subsequent approval process by the TSO including determining if the testing tariff is to be applied. Unit under test status is not granted to the interconnector in I-SEM so interconnectors do not follow the same process as other units capable of submitting Physical Notifications (PNs). Interconnectors are subject to testing requirements as defined in EirGrid and SONI Grid Codes.

[2] It should be noted that a firm market schedule for the first twelve hours of the trading day (23:00 to 11:00) will not be available until after the IDA1 auction and a firm schedule for the last twelve hours of the trading day (11:00 to 23:00) will not be available until after the IDA2 auction
[3] Please note that this may result in further trading. If NGET do not approve the trade the existing profile will endure
[4] With respect to testing tariffs, it is expected that a Minor Test will always be a low impact test
[5] It should be noted that a firm market schedule for the first twelve hours of the trading day (23:00 to 11:00) will not be available until after the IDA1 auction and a firm schedule for the last twelve hours of the trading day (11:00 to 23:00) will not be available until after the IDA2 auction

Once an interconnector has identified a need to carry out a test, approval for the test is required from Near Time and Real Time. Real Time are responsible for manually entering the agreed test profile in to ICMP which passes it to MMS and subsequent scheduling runs in the Security Constrained Unit Commitment (SCUC) and Security Constrained Economic Dispatch (SCED) tools. Any subsequent modifications to the test profile, including cancellation, is also subject to TSO approval. The interconnector is considered testing for all imbalance settlement periods that contain a test profile and testing tariffs, if applicable, will be applied on the metered output of that interconnector for the full thirty minute period. The ICRP is fixed for all scheduling runs, meaning that SCUC/SCED will not deviate from the ICRP even if such deviations would appear economic. The interconnector will continue to be dispatched via the interconnector controller as per normal operation. Trading should be disabled whilst interconnector is testing. The TSOs will only dispatch a unit away from its test schedule for reasons of system security.

4 PROCESS OBJECTIVE

The objective of this Business Process is to meet some of the obligations under the relevant Codes, including:

- EirGrid Grid Code OC8 Operational Testing
- EirGrid Grid Code OC10 Monitoring, Testing and Investigation
- EirGrid and SONI Grid Code SDC2 Scheduling and Dispatch Code No. 2
- SONI Grid Code OC10 System Tests
- SONI Grid Code OC11 Testing, Monitoring and Investigation
- Selection Guidelines for SEM Testing Tariffs

5 ROLES AND RESPONSIBILITIES

5.1.1 INTERCONNECTOR OWNER

The following table provides a summary of the obligations of Interconnector Owner relating to Interconnector Under Test:

Function	Responsibility in relation to process	Timeline Associated
Interconnector Owner	• Submit test requests to Near Time	BD-10 for Significant Test, BD-1 for Minor Test
	• Agree proposed tests with National Grid	BD-10 for Significant Test, BD-1 for Minor Test
	• Agree energy arrangements for test with Real Time	BD-1

5.1.2 NEAR TIME

The following table provides a summary of the obligations of Near Time relating to Interconnector Under Test:

Function	Responsibility in relation to process	Timeline Associated
Near Time	• Review proposed tests for feasibility	As required
	• Determine in conjunction with System Support if the testing tariff should be applied	As required
	• Provide reasons where proposed tests are rejected	As required
	• Notify Settlement and Real Time of test once approved	As required

5.1.3 SYSTEM SUPPORT

The following table provides a summary of the obligations of System Support relating to Interconnector Under Test:

Function	Responsibility in relation to process	Timeline Associated
System Support	• Determine in conjunction with Near Time if the testing tariff should be applied	As required

5.1.4 REAL TIME

The following table provides a summary of the obligations of Real Time relating to Interconnector Under Test:

Function	Responsibility in relation to process	Timeline Associated
Real Time	• Review proposed tests for feasibility	As required
	• Enter approved test profile into ICMP (Interconnector Management Platform	D-1
	• Agree energy arrangements for test with Real Time	D-1

5.1.5 SETTLEMENT

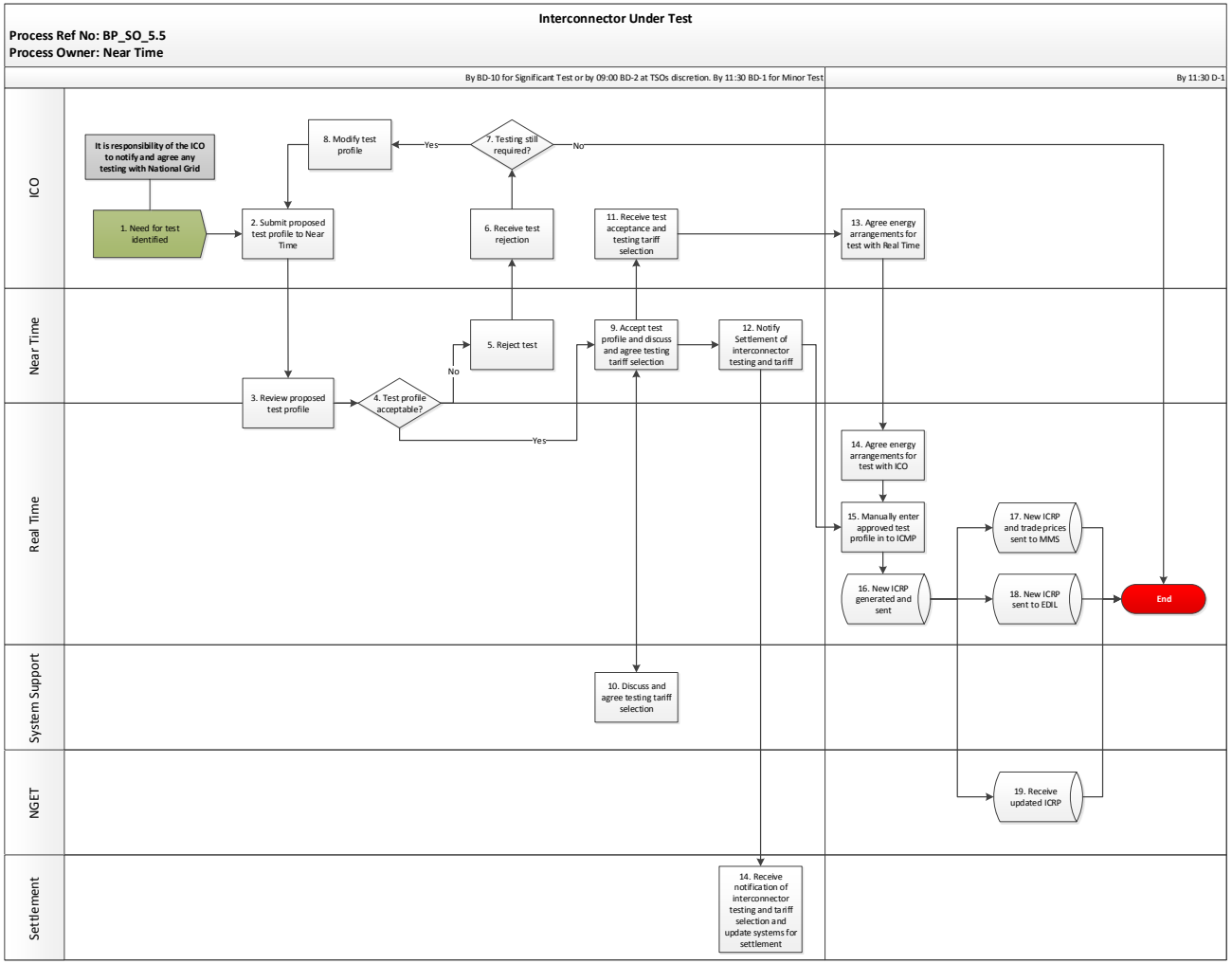
The following table provides a summary of the obligations of Settlement relating to Interconnector Under Test:

Function	Responsibility in relation to process	Timeline Associated
Settlement	• Receive notification of interconnector testing and tariff selection and update systems for settlement	D-1

6 PROCESS DESCRIPTION

6.1 LEVEL 3 PROCESS

6.1.1 PROCESS MAP



6.1.2 PROCESS STEPS

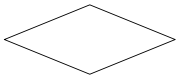
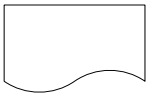
#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
1	Need for test identified	The interconnector owner identifying a requirement to go under test is the trigger for this process.	ICO	N/A	By BD-10 for Significant Test or by 09:00 BD-2 at TSOs discretion. By 11:30 BD-1 for Minor Test	N/A
2	Submit proposed test profile to Near Time	Submit proposed test profile in agreed template to Near Time for review.	ICO	Test request	By BD-10 for Significant Test or by 09:00 BD-2 at TSOs discretion. By 11:30 BD-1 for Minor Test	Email
3	Review proposed test profile	Review proposed test profile submitted by ICO.	Near Time, Real Time	N/A	As required	N/A
4	Test profile acceptable?	Is the test profile request acceptable? If no, proceed to Step 5. If yes, proceed to Step 9.	Near Time, Real Time	Decision	As required	N/A
5	Reject test	If test is rejected, notification should be sent to the ICO or rejection, including reasons as to why it is being rejected.	Near Time	Test rejection	As required	Email
6	Receive test rejection	Receive test rejection including reasons why.	ICO	N/A	As required	Email
7	Testing still required?	Is testing still required? If no, process ends. If yes, go to Step 8.	ICO	Decision	As required	N/A

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
8	Modify test profile	Modify test profile based on feedback from Near Time rejection and resubmit for review (revert to step 2).	ICO	Test profile	As required	N/A
9	Accept test profile and discuss and agree testing tariff selection	Accept test profile as submitted by ICO and discuss and agree testing tariff selection with System Support, if required.	Near Time	Test acceptance Testing tariff selection	By 16:00 BD-2 for Significant Test or by 09:00 BD-2 at TSOs discretion. By 11:30 BD-1 for Minor Test	N/A
10	Discuss and agree testing tariff selection	Discuss and agree testing tariff selection with Near Time, if required.	System Support	Testing tariff selection	By 16:00 BD-1	N/A
11	Receive test acceptance and testing tariff selection	Receive test acceptance and testing tariff selection.	ICO	Test acceptance	By 16:00 BD-1	N/A
12	Notify Settlement of interconnector testing and tariff	Once a test has been approved, Near Time should notify the Settlement team of the details of the interconnector testing and tariff selection. This will be required for settlement purposes.	Near Time	N/A	By 16:00 BD-1	Email
13	Agree energy arrangements for test with Real Time	The energy trading arrangements for the test profile must be agreed with Real Time.	ICO	Energy arrangements decision	By 11:30 BD-1	Email
14	Agree energy arrangements for test with ICO	The energy trading arrangements for the test profile must be agreed with ICO.	Real Time	Energy arrangements decision	By 11:30 BD-1	Email
15	Manually enter approved test profile in to ICMP	Real Time will then manually enter approved test profile in to ICMP (Interconnector Management Platform) based on test details provided by Near	Real Time	N/A	As required	ICMP

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
		Time.				
16	New ICRP generated and sent	Following approval of trade by NGET, a new ICRP is automatically generated and sent.	System Step	New ICRP	As required	ICMP
17	New ICRP and trade prices sent to MMS	New ICRP and trade prices sent to MMS for inclusion in scheduling, imbalance pricing & reporting.	System step	New ICRP	As required	MMS
18	New ICRP sent to EDIL	New ICRP sent to EDIL for control of the interconnector.	System step	New ICRP	As required	EDIL
19	Receive updated ICRP	New ICRP sent to NGET for information.	System step	New ICRP	As required	ICMP

7 APPENDICES

7.1 PROCESS FLOWCHART KEY

FLOWCHART KEY	
	Trigger
	Process step
	Process decision / question
	Document
	Reference to another process
	Process end
	System (automatic step)