

BP_SO_5.5

Interconnector under Test

Business Process

01/07/2024 - Version 2

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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 be 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	<ul style="list-style-type: none"> • OC10 System Tests 	OC10 System Tests outlines the requirements for Users to carry out System Tests including the timelines for submission of test proposals.
	<ul style="list-style-type: none"> • 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.
	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • OC8 Operational Testing 	OC8 Operational Testing outlines the requirements for Users to carry out Operational Tests including the timelines for submission of test proposals.
	<ul style="list-style-type: none"> • 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.
	<ul style="list-style-type: none"> • 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	Details the process for application of Testing Tariffs to different types of testing and different Units Under Test.

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 (Back Offices and NCC/CHCC) 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 the interconnector will determine the notification time required by the TSO to assess and approve the test and incorporate into the scheduling process. Testing can be split into 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 Test¹	<p>An Operational Test with a total duration of equal to or greater than 6 hours, or where the Active Energy that has passed through the interconnector during the total duration of the test is equal to or greater than:</p> <ul style="list-style-type: none"> (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
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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.

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 into the Interconnector Management Platform (ICMP) for inclusion in scheduling, control of the interconnector and to send ICRP to NGESO². Subsequent changes in the intra-day will be permitted³ following approval by the TSO. Any

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

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 the trade is not approved the existing profile will endure.

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 Test⁴	<p>An Operational Test with a total duration of less than 6 hours in any Trading Day and where the active energy produced during the total duration of the test is less than:</p> <ul style="list-style-type: none"> (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
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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 into the Interconnector Management Platform (ICMP) for inclusion in scheduling, control of the interconnector and to send ICRP to NGE⁵. These tests are also subject to the approval of the TSO.

In accordance with the Grid Codes the TSO may require tests on an interconnector. In this circumstance the TSO will agree a test profile or interconnector reference program with the owner. It is expected that all interconnector testing required by the TSO 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; maximum load running overnight; significant / rapid MW or MVar swings, etc. In these cases, the interconnector owner 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 Authorities (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.

Once an interconnector has identified a need to carry out a test, approval for the test is required from Back Offices and NCC/CHCC. NCC/CHCC are responsible for manually entering the agreed test profile into 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 move the interconnector away from its test schedule for reasons of system security.

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.

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. 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	<ul style="list-style-type: none"> Submit test requests to Back Offices 	BD-10 for Significant Test, BD-1 for Minor Test
	<ul style="list-style-type: none"> Agree proposed tests with NGESO 	BD-10 for Significant Test, BD-1 for Minor Test
	<ul style="list-style-type: none"> Agree energy arrangements for test with NCC/CHCC 	BD-1

5.2. System Operations Back Offices

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

Function	Responsibility in relation to process	Timeline Associated
Back Offices	<ul style="list-style-type: none"> Review proposed tests for feasibility 	As required
	<ul style="list-style-type: none"> Determine in conjunction with System Support if the testing tariff should be applied 	As required
	<ul style="list-style-type: none"> Provide reasons where proposed tests are rejected 	As required
	<ul style="list-style-type: none"> Notify Settlement and NCC/CHCC of test once approved 	As required

5.3. 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	<ul style="list-style-type: none"> Determine in conjunction with Back Offices if the testing tariff should be applied 	As required

5.4. NCC/CHCC

The following table provides a summary of the obligations of NCC/CHCC relating to Interconnector Under Test:

Function	Responsibility in relation to process	Timeline Associated
NCC/CHCC	<ul style="list-style-type: none">Review proposed tests for feasibility	As required
	<ul style="list-style-type: none">Enter approved test profile into ICMP (Interconnector Management Platform)	D-1
	<ul style="list-style-type: none">Agree energy arrangements for test	D-1

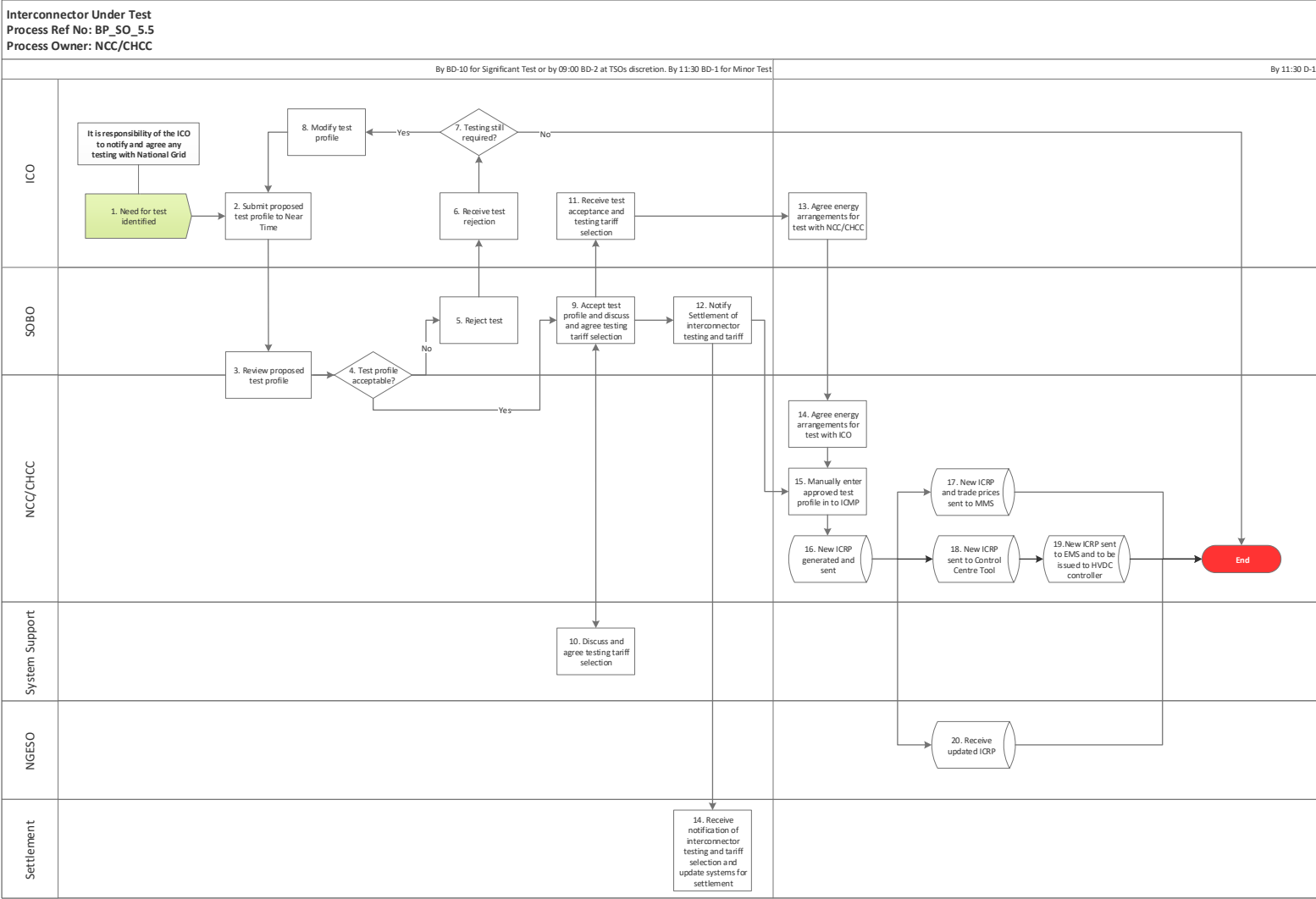
5.5. Settlement

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	<ul style="list-style-type: none">Receive notification of interconnector testing and tariff selection and update systems for settlement	D-1

6. Process description

6.1. Process map



6.2. Process steps



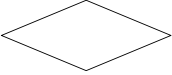




#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
1	Need for test identified	The interconnector owner identifying a requirement to go under test is the trigger for this process.	ICO	N/A	By BD-10 for Significant Test or by 09:00 BD-2 at TSOs discretion. By 11:30 BD-1 for Minor Test	N/A
2	Submit proposed test profile to Back Offices	Submit proposed test profile in agreed template to Back Offices for review.	ICO	Test request/ test profile	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.	Back Offices, NCC/CHCC	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.	Back Offices, NCC/CHCC	Decision	As required	N/A
5	Reject test	If test is rejected, notification should be sent to the ICO, including reasons as to why it is being rejected.	Back Offices	Test rejection	As required	Email
6	Receive test rejection	Receive test rejection including reasons why.	ICO	N/A	As required	Email

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
7	Testing still required?	Is testing still required? If no, process ends. If yes, go to Step 8.	ICO	Decision	As required	N/A
8	Modify test profile	Modify test profile based on feedback from Back Offices rejection and resubmit for review (revert to step 2).	ICO	Test profile	As required but before 09:00 BD-2 at TSOs discretion. By 11:30 BD-1 for Minor Test	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.	Back Offices	Test acceptance Testing tariff selection	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 Back Offices, 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, Back Offices should notify the Settlement team of the details of the interconnector testing and tariff selection. This will be required for settlement purposes.	Back Offices	N/A	By 16:00 BD-1	Email
13	Agree energy arrangements for test with NCC/CHCC	The energy trading arrangements for the test profile must be agreed with NCC/CHCC.	ICO	Energy arrangements decision	By 11:30 BD-1	Email

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
14	Agree energy arrangements for test with ICO	The energy trading arrangements for the test profile must be agreed with ICO.	NCC/CHCC	Energy arrangements decision	By 11:30 BD-1	Email
15	Manually enter approved test profile into ICMP	NCC/CHCC will then manually enter approved test profile in to ICMP (Interconnector Management Platform) based on test details provided by Back Offices.	NCC/CHCC	N/A	As required	ICMP
16	New ICRP generated and sent	Following approval of trade by NGESO, a new ICRP is automatically generated and sent.	System Step	New ICRP	As required	ICMP
17	New ICRP 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 Control Centre Tool	New ICRP sent to Control Centre Tool.	System step	New ICRP	As required	Control Centre Tool
19	New ICRP sent to EMS and to be issued to HVDC controller	New ICRP sent to EMS and to be issued to HVDC controller	System step	New ICRP	As required	EMS
20	Receive updated ICRP	New ICRP sent to NGESO 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