Business Process

BP_SO_2.1 Constraints Changes in Scheduling Runs

EIRGRID SONI

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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 TSOs to achieve scheduling objectives; and
- All required systems, including MMS and EDIL 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	SDC1 Scheduling and Dispatch Code No. 1	The Scheduling and Dispatch Codes for SONI and EirGrid are under common governance and details the obligations on the TSOs and Grid Code Users in relation to scheduling and dispatch activities.
EirGrid Grid Code	SDC1 Scheduling and Dispatch Code No. 1	The Scheduling and Dispatch Codes for SONI and EirGrid are under common governance and details the obligations on the TSOs and Grid Code Users in relation to scheduling and dispatch activities.
SEM-15-065	System Operation in the I-SEM	Sets out high level guidance related to the scheduling and dispatch process
SONI Operating Security Standards	All	This document outlines the standards to which SONI operate the Northern Ireland transmission system.
EirGrid Operational Security Standards	All	This document outlines the standards to which EirGrid operate the Ireland transmission system.
Operational Constraints Update document	All	This document outlines the key systems and generator constraints that are included in the scheduling process.

2.2 RELATED DOCUMENTS

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

Document Title	Relationship	Description
Balancing Market Principles Statement	Information	A Guide to Scheduling and Dispatch under the Revised Single Electricity Market Arrangements.
MMS User Guide	System guide	MMS OUI User Guide.
BP_SO_2.2 System Constraints Calculation	Input/ trigger into this process	The System Constraints Calculation process may feed into this process as it identifies new constraints or amendments to existing ones.

3 PROCESS CONTEXT

3.1 BUSINESS MODEL RELATIONSHIP

The 'Constraints Changes in Scheduling Runs' process sits within the 'Constraints Management' process group within the Transmission Systems Operator (TSO) processes. The Constraints Management processes cover the ongoing management of the constraints, within the Market Management System (MMS) to ensure the correct data in relation to the system is available and used for the purposes of scheduling and dispatching the transmission system. They also cover the activities that the TSOs are required to perform in relation to forecasting and reporting against costs associated with constraints to the Market.

3.2 BACKGROUND AND SCOPE

Background

In order to produce secure Operations Schedules the TSOs determine transmission system constraints that act as an input in to the scheduling and dispatch process. To enable the efficient and secure operation of the system, generation is dispatched to certain levels to prevent equipment overloading, voltages outside limits or system instability. Restrictions or limits on generation are represented by constraints in the scheduling process. Network constraints can be categorised in to three types as per Table 1 below.

TCG Type	
MW	Limit MW output of unit or units assigned to a TCG
MWR	Limits (the total MW + Primary Reserve - the area demand) from assigned resources
NB	Limit to the status (On/Off) of the unit or units assigned to a TCG

Table 1: Types of Transmission Constraint Groups used in scheduling

Constraints are managed via the Group Constraint Manager function within MMS, from where users can maintain them and include them in the relevant scheduling applications. Permanent changes to the Group Constraint Manager will require administrator access. Constraints that vary in real time (i.e. MW and MWR types) are analysed via the Network System Model and optimised as part of the scheduling process.

There is a requirement to ensure that all relevant constraints are kept up-to-date in MMS in real time and also a requirement to ensure that the NSM functionality is producing reliable and consistent results, which will require ongoing monitoring of results.

Scope

The scope of this process covers the activities required to manage changes to constraints within the MMS, including both updates to existing constraints and updating the MMS to include entirely new constraints in the scheduling application. A key input into this process will be Near Time's Weekly Constraints Report which will be updated at least weekly. Real Time will have to review the report and publish it on the EirGrid and SONI websites and ensure the MMS has been updated to reflect the changes. 'MW' and 'MWR' type constraints are calculated in real time by the Network Security Monitor (NSM) and are automatically included in scheduling runs. The control centre should continuously monitor the MMS outputs to ensure the NSM is working as expected and if the results are significantly different to the Weekly Constraints Report then consideration should be given to disabling the Network Security Monitor. In this instance the values in the Weekly Constraints Report will have to be manually updated in the Group Constraints Manager

functionality in MMS. For more permanent or static constraints, the appropriate approval for the change will need to be sought and the update requested via an MMS administrator.

The weekly analysis by Near Time to identify potential constraints updates is not covered within this process; these activities are covered by the 'System Constraints Calculations' (BP_SO_2.2)

4   PROCESS OBJECTIVE

The objective of this Business Process is to meet the following obligations under the EirGrid and SONI Grid Code, namely:

- SDC1 Scheduling and Dispatch Code No.1, SDC 1.4.8.3 and SDC 1.4.8.5

5   ROLES AND RESPONSIBILITIES

5.1.1   NEAR TIME

The following table provides a summary of the obligations of Near Time relating to Constraints Changes in Scheduling Runs:

Role	Responsibility in relation to process	Timeline Associated
Near Time	- Provide Weekly Constraints Report. - Review Operational Constraints Update document.	At least weekly. As required.

5.1.2   SYSTEM SUPPORT

The following table provides a summary of the obligations of System Support relating to Constraints Changes in Scheduling Runs:

Role	Responsibility in relation to process	Timeline Associated
System Support	Review Operational Constraints Update document.	As required.

5.1.3   REAL TIME

The following table provides a summary of the obligations of Real Time relating to Constraints Changes in Scheduling Runs:
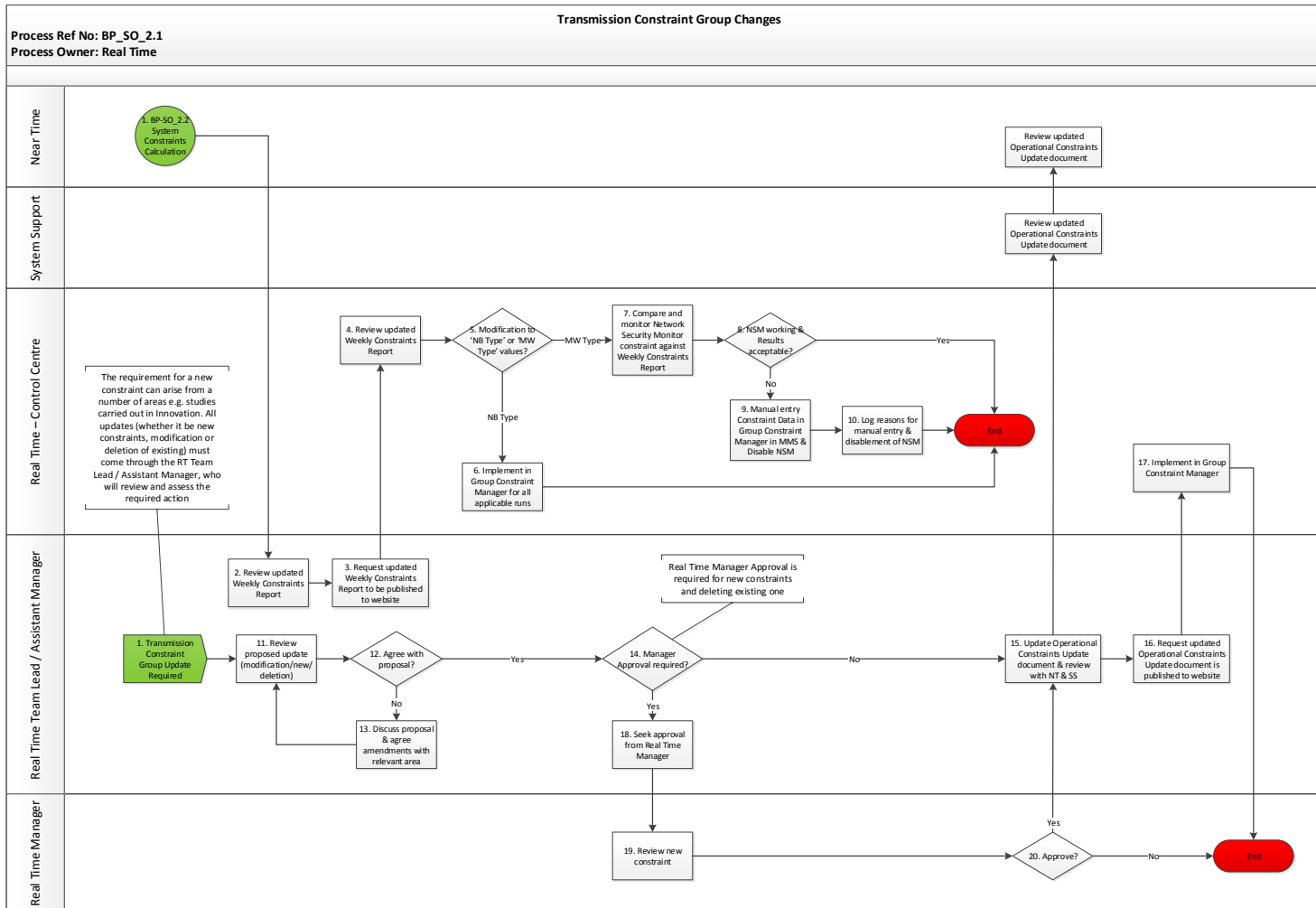
Role	Responsibility in relation to process	Timeline Associated
Real Time – Control Centre	- Ensure all active constraints are incorporated in the appropriate scheduling runs. - Implement permanent pre-approved changes to constraints in Group Constraints Manager in MMS.	As required.
Real Time Team Lead / Assistant Manager	- Receive Weekly Constraints Report, review and request publication to web site. - Approve modification requests to existing constraints in all scheduling runs.	As required.

Real Time Manager	• Approve the addition of new or deletion of constraints in all scheduling runs.	As required.

6 PROCESS DESCRIPTION

6.1 LEVEL 3 PROCESS

6.1.1 PROCESS MAP

Transmission Constraint Group Changes

Process Ref No: BP_SO_2.1
Process Owner: Real Time

6.1.2 PROCESS STEPS
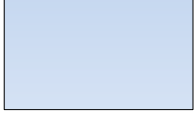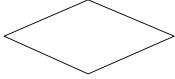
#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
1	Trigger: Constraint Update Required/System Constraints Calculation	The trigger for this process may be the Near Time process of 'System Constraints Calculation' or an update to a permanent constraint following analysis. The requirement for a new constraint can arise from a number of areas e.g. studies carried out in Innovation. All updates (whether it be new constraints, modification or deletion of existing) must come through the RT Team Lead/Assistant Manager, who will review and assess the required action. If it is triggered following 'Systems Constraints Calculation' process go to step 2. If it is based from other studies go to step 11.	Real Time Team Lead/Assistant Manager/Near Time	N/A	Weekly and ad hoc as required	N/A
2	Review updated Weekly Constraints Report	Real Time Team Lead/Assistant Manager will review the Weekly Constraints Report.	Real Time Team Lead/Assistant Manager	N/A	As required	N/A
3	Request updated Weekly Constraints Report to be published to the website	Real Time Team Lead/Assistant Manager will request that the updated Weekly Constraints Report to be published to the TSO area of the I-SEM website.	Real Time Team Lead/Assistant Manager	N/A	As required	N/A
4	Review updated Weekly Constraints Report	Review the updated Weekly Constraints Report to identify any amendments or updates that need to be applied to the scheduling runs.	Real Time – Control Centre	N/A	As required	N/A
5	Modification to 'NB Type' or	Is the update a modification to a 'NB Type' or a	Real Time –	N/A	As required	N/A

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
	'MW Type' values?	'MW Type'? - 'NB Type' refers to number of units, e.g. 1, 2 or 3 and just requires a unit to be ON to satisfy the constraint. 'MW Type' is a range that a unit or a group of units must be between to satisfy the constraint. E.g. 600 MW > X < 800 MW. If it is to a 'NB Type' go to step 6. If it is to a 'MW Type' go to step 7.	Control Centre			
6	Implement in Group Constraints Manager for all applicable runs	Implement changes from Weekly Constraints Report in Group Constraints Manager in MMS for all relevant scheduling runs (LTS, RTC, and RTD). Once this step has been completed the process ends and no further action is required.	Real Time – Control Centre	GCM updated	As required	Group Constraints Manager (MMS)
7	Compare and monitor Network Security Monitor constraint against Weekly Constraints Report	Compare and monitor Network Security Monitor constraint against Weekly Constraints Report to ensure that MW values are within the correct range.	Real Time – Control Centre	N/A	As required	Network Security Monitor (MMS)
8	NSM working & Results acceptable?	Are the results acceptable & Network Security Monitor working as expected? If yes, the process ends and no further action is required. If no go to step 9.	Real Time – Control Centre	N/A	As required	Network Security Monitor (MMS)
9	Manual Entry of Constraint Data in Group Constraints Manager in MMS & Disable NSM	If the results from the comparison are not acceptable and the Network Security Monitor is not performing as expected, the Real Time User will have to manually enter the constraint into	Real Time – Control Centre	GCM updated	As required	Group Constraints Manager (MMS)

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
		MMS via the Group Constraints Manager functionality. The process ends once this step is complete and no further action is required.				
10	Log reasons for manual entry & disablement of Network Security Monitor	If the constraint has been entered manually and Network Security Monitor disabled, the reasons for this must be logged for future reference.	Real Time – Control Centre	GCM updated	As required	All Island Contact Centre Log
11	Review proposed update (modification/new/deletion)	If the proposed update has come from analysis performed outside of the System Constraints Calculation process, the Real Time Team Lead/Assistant Manager will review the proposal before making any operational updates.	Real Time Team Lead/Assistant Manager	N/A	As required	N/A
12	Agree with proposal?	If the Real Time Team Lead/Assistant Manager agrees with the proposal, go to step 14. If they do not agree with it or have follow-up questions go to step 13.	Real Time Team Lead/Assistant Manager	N/A	As required	N/A
13	Discuss proposal & agree amendments with relevant area	Real Time Team Lead/Assistant Manager should discuss the proposal with the relevant team proposing the change, e.g. Innovation and make amendments, if required.	Real Time Team Lead/Assistant Manager	N/A	As required	N/A
14	Manager Approval required?	If the Real Time Team Lead/Assistant Manager is satisfied with the proposed change, they need to assess if Real Time Manager approval for the change. Manager approval is required for new constraints and deletion of existing ones. If Manager approval is required go to step 18. If it	Real Time Team Lead/Assistant Manager	N/A	As required	N/A

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
		is not required go to step 15.				
15	Update Operational Constraints Update document & review with Near Time & System Support	As part of updating the Operational Constraints Update document, Real Time will seek Near Time and System Support to review updates being made at an operational level.	Real Time Team Lead/Assistant Manager	N/A	As required (no more than weekly)	N/A
16	Request updated Operational Constraints Update document is published to website	The updated Operational Constraints Update document is then published to EirGrid and SONI websites.	Real Time Team Lead/Assistant Manager	Operational Constraints Update document updated and published	As required	Website
17	Implement in Group Constraint Manager	Control Centre staff implements the changes in Group Constraints Manager in MMS once they have been approved by the Real Time Management for all scheduling runs.	Real Time – Control Centre	GCM updated	As required	Group Constraints Manager (MMS)
18	Seek approval from Real Time Manager	If the request is for a new constraint, then approval from the Real Time Manager is required. Real Time Team Lead/Assistant Manager should contact Real Time Manager and request approval.	Real Time Manager	Approval requested	As required	Email
19	Review new constraint	Review new constraint request, assess and approve, if satisfied.	Real Time Manager	N/A	As required	Email
20	Approve?	If the Real Time Manager approves the modification request go to step 15. If not, the process ends and modification cannot be implemented without the required approval.	Real Time Manager	N/A	As required	Email

7   APPENDICES

7.1   PROCESS FLOWCHART KEY

FLOWCHART KEY	
Trigger	Trigger
	Process step
	Process decision / question
	Reference to another process
	Another business process to be implemented following current step (current step is a trigger for another process)
End	Process end
	System (automatic step)