Business Process

BP_SO_4.3 Wind Forecasting

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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, WEF, and middleware 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 & 2	The SONI Grid Code sets out the principles governing SONI's relationship with users and technical standards to be complied with by SONI and users. The Code specifies procedures for planning, connecting to and operating the transmission system during both normal and exceptional circumstances.
EirGrid Grid Code	SDC1 Scheduling and Dispatch Code No. 1 & 2	The EirGrid Grid Code sets out the principles governing EirGrid's relationship with users and technical standards to be complied with by EirGrid and users. The Code specifies procedures for planning, connecting to and operating the transmission system during both normal and exceptional circumstances.
SEM-15-065	2. System Operation in the I-SEM	Sets out high-level guidance related to the scheduling and dispatch process.
Trading and Settlement Code	Agreed Procedure 06	The Trading and Settlement Code and its associated Agreed Procedures outlines the requirements on the TSOs to provide wind forecast information to the Market Operator for external publication.

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	ABB MMS OUI User Guide.
BP_SO_10.1 Perform Long Term & Short Term Scheduling	Associated process	The 'Wind Forecasting' process will provide jurisdictional wind forecasts to be used in the scheduling runs.

3 PROCESS CONTEXT

3.1 BUSINESS MODEL RELATIONSHIP

The 'Wind Forecasting' process sits within the 'Forecasting' process group within the System Operator processes. Wind Forecasting considers current installed capacity, outage information and forecasted weather conditions.

The primary purpose of this process is to provide a key input to the scheduling and dispatch processes. Forecasts are also published for Market Participants to access and analyse.

3.2 BACKGROUND AND SCOPE

Background

The 'Wind Forecasting' process develops forecasts for use in the scheduling process. Wind power forecasts are provided by two external providers via the Wind Energy Forecast (WEF) system. The WEF system provides long term forecasts of 15-minute intervals for 4 days ahead. This information is fed into the Wind Predictor (WPRED) function within the Market Management System (MMS).

WPRED provides the following functionality:

- It allows the user to select one or both of the external forecasts as its input;

- It combines the two forecast providers' forecasts into a single forecast using manually or automatically tuned parameters. These parameters can be on a global or jurisdictional basis;

- It corrects for short-term errors in the forecast by blending live data from the Energy Management System with the unit-level forecast. This can be on a global, jurisdictional or unit-level basis; and

- It calculates the Lower Operating Limits of units using manually or automatically tuned parameters, this is on a jurisdictional basis.

The outputs of WPRED are

- Amended unit-level power forecasts with a resolution of 1 minute for 4 hours and 15 minutes thereafter;

- Aggregate system, Ireland and Northern Ireland power forecasts with a resolution of 5 minutes; and

- Calculated Lower Operating Limits.

The amended unit-level forecasts and Lower Operating Limits are then used in the scheduling runs (Long Term Scheduling, Real Time Commitment and Real Time Dispatch) in the MMS scheduling application. The aggregate power forecasts are used for information and display purposes within MMS.

Scope

This process covers wind forecasting for scheduling and dispatch for both jurisdictions, generating blended forecasts that are used in the scheduling runs, based on the wind forecasts provided by external providers via WEF.

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, SDC1.4.8.3

- SDC2 Scheduling and Dispatch Code No.2

- Trading and Settlement Code Agreed Procedure 06

5 ROLES AND RESPONSIBILITIES

5.1.1 REAL TIME

The following table provides a summary of the obligations of the Real Time team relating to Wind Forecasting:

Team Name	Responsibility in relation to process	Timeline Associated
Real Time (Process Owner)	• Provide guidance and direction on the correct parameters to use in WPRED • Ensure settings are correct in WPRED • Execute WPRED function if it is not being executed automatically by system • Review WEF forecasts, weather warnings, WPRED inputs and outputs	• Process will be performed daily for use in the scheduling runs in MMS throughout that day

5.1.1 REAL TIME

6 PROCESS DESCRIPTION

6.1 LEVEL 3 PROCESS

6.1.1 PROCESS MAP

Wind Forecasting

Process Ref No: BP_SO_4.3
Process Owner: Real Time

Continual
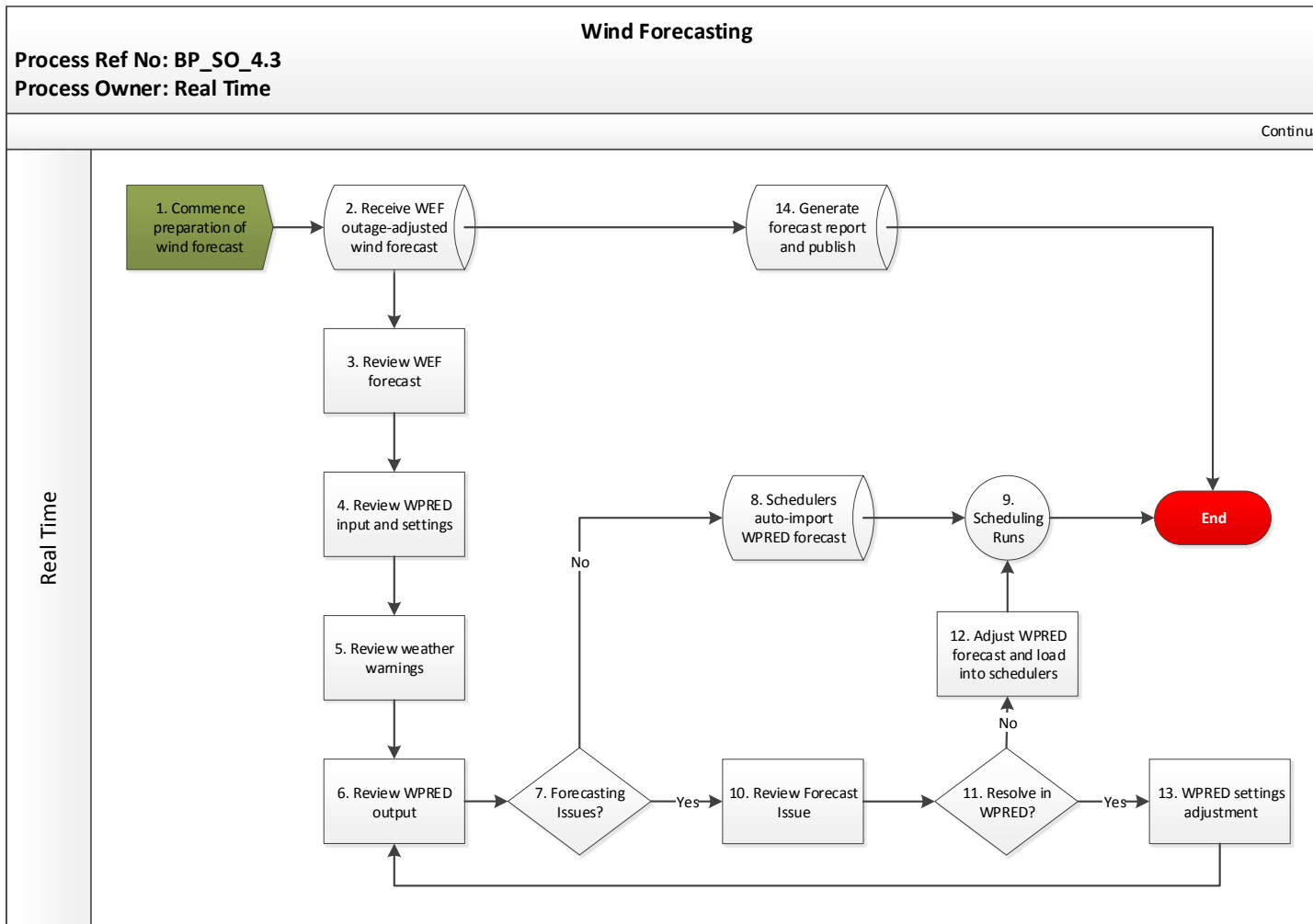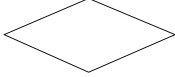
6.1.2 PROCESS STEPS

#	Step	Step Description	Responsible Role	Outputs	Indicative Timing/ Frequency	System
1	Commence preparation of wind forecast	Begin review of WEF and MMS wind forecasting.	Real Time		4 times a day in line with WEF forecasts	MMS
2	Receive WEF outage-adjusted wind forecast	MMS receives updated Ireland and Northern Ireland wind power forecast from the WEF tool.	Real Time		4 Updates per day	WEF/MMS
3	Review WEF forecast	Review current WEF forecast against EMS Wind Farm Availability to determine issues with forecast accuracy e.g. offsets, or ramping issues.	Real Time		With updated forecast delivery and/or per LTS run	WEF
4	Review WPRED inputs and settings	Review WPRED settings against the standard settings document. Review the WPRED input interfaces (INT 100 Wind Energy Forecast, INT 25a Real Time Availability, INT 25b Actual Output).	Real Time		Per Shift	MMS
5	Review weather warnings	Review any relevant weather warnings that are in effect that may impact on scheduling.	Real Time		With updated forecast delivery and/or per LTS run	Corporate
6	Review WPRED output	Review WPRED outputs with WEF forecasts and EMS Wind Farm Availability for forecast accuracy or processing issues.	Real Time		With updated forecast delivery and/or per LTS run	MMS
7	Forecasting Issues?	Consider the impact of any issues raised in steps 3, 4, 5, and 6. If no forecasting issues go to step 8, else step 10.	Real Time		With updated forecast delivery and/or per LTS run	
8	Schedulers automatically import WPRED forecast	If there are no forecast issues the WPRED outputs are automatically used in the scheduling processes.	None		As per scheduling process timelines	MMS
9	Schedulers Run	LTS, RTC and RTD scheduling tools run automatically or manually depending on their settings.	Real Time		As per scheduling process timelines	
10	Review Forecast Issue	If step 7 raises issues then there should be discussion with Real Time Manager of the impact of the issue on the scheduling processes. Changes to WPRED settings or to the WPRED output may be considered.	Real Time		as required	MMS

11	Resolve in WPRED?	Assess the issue to see if it can be resolved using the WPRED settings\functionality or does the issue need to be addressed outside of WPRED. If the issue is to be resolved within WPRED go to step 13, else step 12.	Real Time		as required	
12	Adjust WPRED forecast and load into schedulers	If changes to the WPRED output are required the amended unit-level forecast will be exported from MMS, adjusted and imported into the relevant scheduler process in step 9.	Real Time		as required	MMS
13	WPRED settings adjustment	If changes to the WPRED settings are required they will be made and logged in the standard settings document. Following changes to WPRED settings adjustment continue from step 6.	Real Time		as required	MMS
14	Generate forecast report and publish	MMS automatically generates and publishes the WEF outage-adjusted forecast reports.	Market Operator	Wind Forecast Reports	4 times a day in line with WEF forecasts	MMS

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)