IMPACT ASSESSMENT FOR THE PLANNED OUTAGE OF TWO ELIA 380 KV LINES BETWEEN MERCATOR – HORTA

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CONTEXT

In the CWE Consultative Group of 30/03/2016 it was agreed that TSOs would perform a Standard Procedure for Assessing the Impact of Changes (SPAIC) for grid outages with a duration exceeding one month.

A SPAIC analysis consists of a comparison of flow-based domains and market results for 12 typical “reference” days, commonly predefined by CWE TSOs, in order to estimate the impact of a change in grid topology or flow-based parameters.

Elia plans subsequent grid reinforcement on the two 380 kV lines between the Mercator and Horta substations. One of both lines will remain in operation at any point in time, while the capacity of the line in outage is reduced to 0 MW. The outage is currently planned to start on 03/04/2018 (week 14) and is expected to end on 26/10/2018 (week 43). The most recent information regarding the outage period can be retrieved from the Entso-e Transparency website (transparency.entsoe.eu).

This document provides some background to the results of the performed SPAIC analysis.

For this SPAIC analysis for the impacted CWE market area, the most up to date grid topology was considered that will apply during the outage period when performing the SPAIC analysis for the impacted CWE market area.

Element Name	EIC
L 400kV N0 1 HORTA-MERCATOR	22T20161020---2C
L 400kV N0 2 HORTA-MERCATOR	22T20161020---3A

1. Methodology

The following results are simulated and published:

1. The new pre-solved Flow-Based domains and CBCOs (anonymized for DE and AT), corresponding with the most probable grid topology (when writing this document) during the outage period applied to all reference days;
2. Historical and new market coupling results of the SPAIC days performed with Euphemia 9.5 (i.e. version currently in operation).

The data of the simulation results is joined to this document.

2. Published datasets

The table below summarizes the standard outputs of a SPAIC analysis that were agreed upon, including a reference to the joined datasets indicating where the corresponding information can be found.

#	Expected output	Description	Dataset
1	Description change and features of the typical days	A qualitative description of the foreseen change, period and expected high-level impact resulting from this A description of the main quantitative features of the 12 typical days	• Foreseen change: Cover note • Description of the typical days: Dataset 5
2A	Capacity calculation indicators Dataset *historical benchmark* • 24 PTDF matrixes + RAM for each typical day and for all fixed labels • Min/max Net positions • volume	This is the dataset that is used as a reference for the change that is subject of the change	• PTDF matrices + RAM: Dataset 1 – Sheet “Historical Benchmark 2A” • Min/Max NP: Dataset 2 – Sheet “Historical Benchmark 2A” • Volume: Dataset 3
2B	Capacity calculation indicators Dataset *updated historical benchmark* • 24 PTDF matrixes + RAM for each typical day and for all fixed labels • Min/max Net positions • volume	This is the dataset that is updated, including all methodological changes that are known at the time of the study	• PTDF matrices + RAM: Dataset 1 – Sheet “Updated Historical Benchmark 2B” • Min/Max NP: Dataset 2 – Sheet “Updated Historical Benchmark 2B” • Volume: Dataset 3

2C	Capacity calculation indicators Dataset ***<u>including change</u>*** • 24 PTDF matrixes + RAM for each typical day and for all fixed labels • Min/max Net positions • volume	This is the dataset that includes the change that is subject of the impact assessment	• PTDF matrices + RAM: Dataset 1 – Sheet “SPAIC 2C” • Min/Max NP: Dataset 2 – Sheet “SPAIC 2C” • Volume: Dataset 3

3A	Market simulation indicators for the dataset ***<u>historical data</u>***	After the capacity calculation is performed, also simulations will be performed to have insight in impact on prices
		• Market price indicators (price convergence, price spreads, price volatility)
		• PRBs indicators (number of PRBs, magnitude of delta P)
		• Market clearing volumes (max executed {supply, Demand})
		• Net positions
		• Welfare
		• Congestion income
			All information can be found in Dataset 4. Column A indicates whether the data refers to #3A or #3B.
			
			• Market price indicators:
			  • price convergence: Sheet “P+NP”
			  • price spreads: Sheet “MarketSpread”
			  • price volatility: Sheet “Volatility”
			• PRBs indicators (number of PRBs, magnitude of delta P): Sheet “PRBs”
			• Market clearing volumes (max executed {supply, Demand}): Sheet “Volumes”
			• Net positions: Sheet “P+NP”
			• Welfare: Sheet “Social Welfare”
			• Congestion income: Sheet “Social Welfare”

3B	Market simulation indicators for the dataset ***<u>including changes</u>***		