

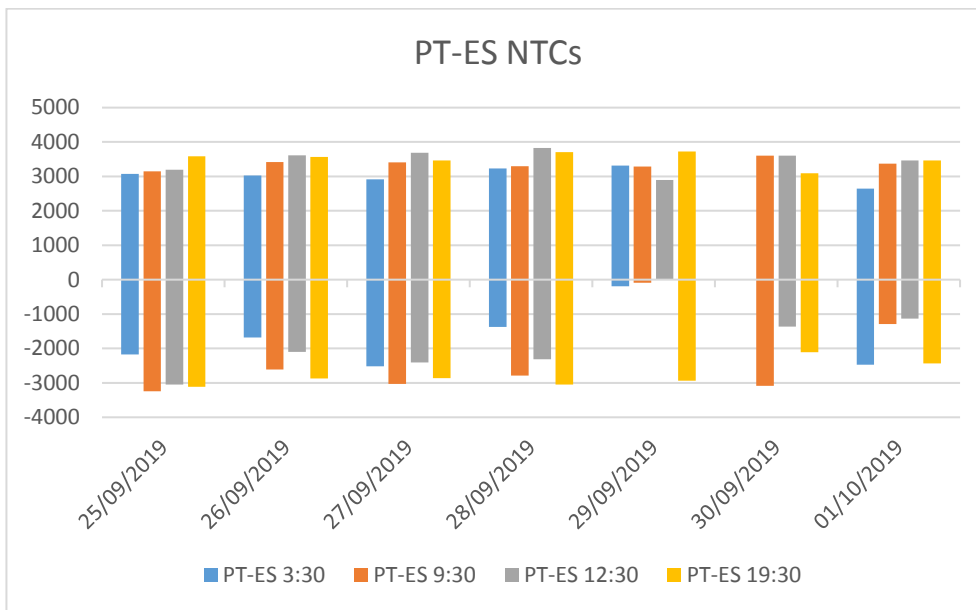
# SWE Capacity Calculation report for Stakeholders

The elements in this report are based on ongoing experimentation with continuous tool improvement. The values/limiting elements can still evolve a bit until Go-Live.

This document reports results of the external parallel run from the 25/09/2019 to the 1/10/2019.

## PT-ES NTCs

	NTC PT-ES															
	3:30				9:30				12:30				19:30			
	ES>PT		PT>ES		ES>PT		PT>ES		ES>PT		PT>ES		ES>PT		PT>ES	
	D-2	Weekly	D-2	Weekly	D-2	Weekly	D-2	Weekly	D-2	Weekly	D-2	Weekly	D-2	Weekly	D-2	Weekly
01/10/2019	2645	3400	2475	2900	3375	3500	1294	3000	3465	3500	1130	3000	3465	3500	2434	3000
30/09/2019	N/A	3400	0	2700	3600	3500	3083	3000	3600	3500	1360	3000	3095	3500	2104	3000
29/09/2019	3314	3400	191	2700	3283	3400	89	2700	2900	3400	N/A	2700	3726	3500	2938	3000
28/09/2019	3232	3400	1378	2700	3299	3500	2787	3000	3830	3500	2313	3000	3703	3500	3048	3000
27/09/2019	2918	3400	2515	2900	3409	3200	3029	3100	3690	3200	2410	3100	3461	3200	2862	3100
26/09/2019	3029	3600	1685	2900	3421	3200	2615	3100	3616	3200	2099	3100	3566	3200	2867	3100
25/09/2019	3075	3600	2170	2900	3150	3200	3244	3100	3195	3200	3050	3100	3583	3200	3110	3100



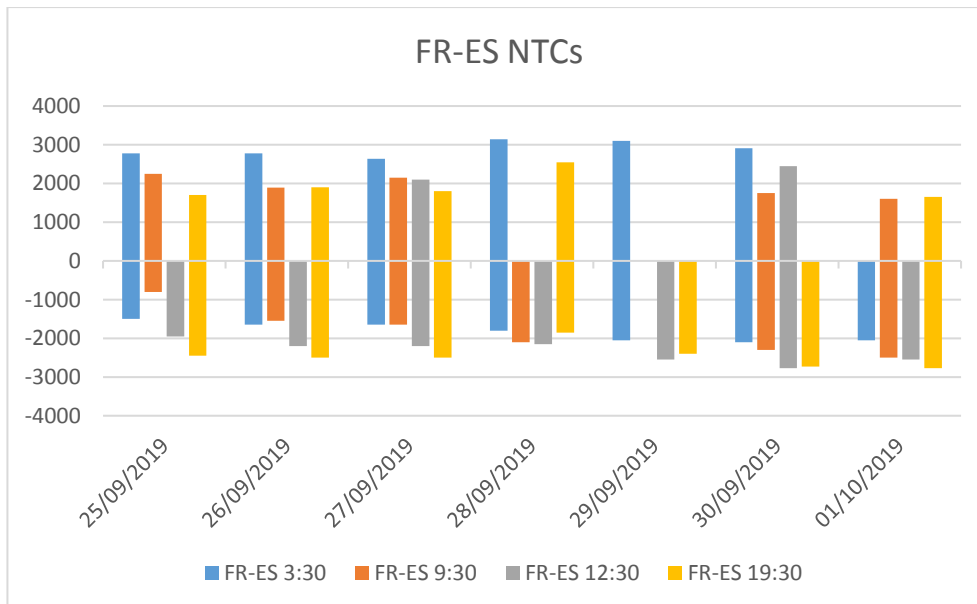
## Comments:

Only two computations failed for the PT-ES border over this eleventh week of External parallel run with generally good results. Moreover, three more computations experienced early loadflow divergence with NTC values close to 0 MW due to an outage in Portugal without the appropriate Remedial Action defined in the CRAC file, after this problem has been corrected the values return to the normality. Please note that not all the hours have been validated by TSOs at this moment.

Please keep in mind that today only one voltage angle is monitored during the computation. Multiple voltage angle monitoring should be tackled before Go-Live.

## FR-ES NTCs

	NTC FR-ES															
	3:30				9:30				12:30				19:30			
	ES>FR		FR>ES		ES>FR		FR>ES		ES>FR		FR>ES		ES>FR		FR>ES	
	D-2	Weekly	D-2	Weekly	D-2	Weekly	D-2	Weekly	D-2	Weekly	D-2	Weekly	D-2	Weekly	D-2	Weekly
01/10/2019	N/A	3000	2050	1800	1600	2800	2500	2100	N/A	2800	2550	2100	1650	2800	2775	2100
30/09/2019	2914	2500	2100	1300	1750	2200	2300	1600	2450	2200	2775	1600	N/A	2200	2729	1600
29/09/2019	3099	2500	2050	1300	N/A	2500	N/A	1300	N/A	2500	2550	1300	N/A	2200	2400	1600
28/09/2019	3145	2500	1800	1300	N/A	2200	2100	1600	N/A	2200	2150	1600	2550	2200	1850	1600
27/09/2019	2636	2400	1650	1400	2150	2400	1650	1400	2100	2400	2200	1400	1800	2400	2500	1400
26/09/2019	2775	2400	1650	1400	1896	2150	1550	1400	N/A	2150	2200	1400	1900	2400	2500	1400
25/09/2019	2775	2400	1500	1400	2250	2400	800	1400	N/A	2400	1950	1400	1700	2400	2450	1400



### Comments:

Eleven computations failed for the FR-ES border (most of them in ES->FR direction) over this eleventh week of External parallel run with generally good results. Replacement strategy will be presented during the next Stakeholders workshop before Go-Live. Please note that not all the hours have been validated by TSOs at this moment.

For the moment, the voltage is monitored in the computation but cannot limit the capacity. During External parallel run voltage will be monitored through the local validation of results by TSOs even if it is a common task.

### Limiting elements PT-ES

Please find below the 5 limiting elements appearing more often over the period for PT->ES direction

Critical Network Elements and Contingencies PT->ES		Location CNE	Frequency
<b># 1 L-150 kV</b>		<b>PT</b>	<b>35.7%</b>
	N-1 Interconnector 400 kV (ES-PT)		35.7%
<b># 2 L-400 kV Interconnector</b>		<b>ES-PT</b>	<b>28.6%</b>
	N-2 Interconnector 400 kV (ES-PT)		28.6%
<b># 3 Loadflow divergence</b>			<b>21.4%</b>
	N-1 Interconnector 400 kV (ES-PT)		21.4%
<b># 4 L-400 kV</b>		<b>ES</b>	<b>7.1%</b>
	N-1 400 kV (ES)		3.6%
	N state		3.6%
<b># 5 Computation Failed</b>			<b>3.6%</b>
	Computation Failed		3.6%
<b># 5 Angle difference</b>		<b>PT</b>	<b>3.6%</b>
	N-2 Interconnector 400 kV (ES-PT)		3.6%

Find below the 5 limiting elements appearing more often over the period for ES->PT direction:

Critical Network Elements and Contingencies ES->PT		Location CNE	Frequency
<b># 1 L-150 kV</b>		<b>PT</b>	<b>32.1%</b>
	N-1 Interconnector 400 kV (ES-PT)		32.1%
<b># 2 L-400 kV Interconnector</b>		<b>ES-PT</b>	<b>28.6%</b>
	N-2 Interconnector 400 kV (ES-PT)		28.6%
<b># 3 Angle difference</b>		<b>PT</b>	<b>25.0%</b>
	N-2 Interconnector 400 kV (ES-PT)		25.0%
<b># 4 L-220 kV</b>		<b>PT</b>	<b>7.1%</b>
	N-2 Interconnector 400 kV (ES-PT)		3.6%
	N-1 Interconnector 400 kV (ES-PT)		3.6%
<b># 5 Computation Failed</b>			<b>3.6%</b>
	Computation Failed		3.6%
<b># 5 Loadflow divergence</b>			<b>3.6%</b>
	N-1 Interconnector 400 kV (ES-PT)		3.6%

## Limiting elements FR-ES

Please find below the 5 limiting elements appearing more often over the period for FR->ES direction:

Critical Network Elements and Contingencies FR->ES		Location CNE	Frequency
<b># 1 L-400 kV</b>		<b>FR</b>	<b>32.1%</b>
	N state		28.6%
	N-1 220 kV (FR)		3.6%
<b># 2 L-220 kV</b>		<b>FR</b>	<b>25.0%</b>
	N-1 Interconnector 400 kV (ES-FR)		10.7%
	N state		7.1%
	N-1 400 kV (FR)		7.1%
<b># 3 L-220 kV Interconnector</b>		<b>ES-FR</b>	<b>17.9%</b>
	N-1 220 kV (FR)		17.9%
<b># 4 L-220 kV Interconnector</b>		<b>ES-FR</b>	<b>17.9%</b>
	N-1 400 kV (FR)		10.7%
	N-1 Interconnector 400 kV (ES-FR)		7.1%
<b># 5 Computation Failed</b>			<b>3.6%</b>
	Computation Failed		3.6%
<b># 5 L-400 kV</b>		<b>ES</b>	<b>3.6%</b>
	N-1 Nuclear Power Plant (ES)		3.6%

Find below the 5 limiting elements appearing more often over the period for ES->FR direction:

Critical Network Elements and Contingencies ES->FR		Location CNE	Frequency
<b># 1 Computation Failed</b>			<b>35.7%</b>
	Computation Failed		35.7%
<b># 2 L-400 kV Argia-Cantegrit</b>		<b>FR</b>	<b>25.0%</b>
	N-1 220 kV (FR)		25.0%
<b># 3 L-220 kV Argia-Arkale</b>		<b>ES-FR</b>	<b>25.0%</b>
	N-1 220 kV (FR)		14.3%
	N-1 400 kV (FR)		7.1%
	N-1 Interconnector 400 kV (ES-FR)		3.6%
<b># 4 L-220 kV Marsillon-Pragnères</b>		<b>FR</b>	<b>14.3%</b>
	N-1 220 kV (FR)		7.1%
	N-1 400 kV (FR)		3.6%
	N-1 Interconnector 400 kV (ES-FR)		3.6%