

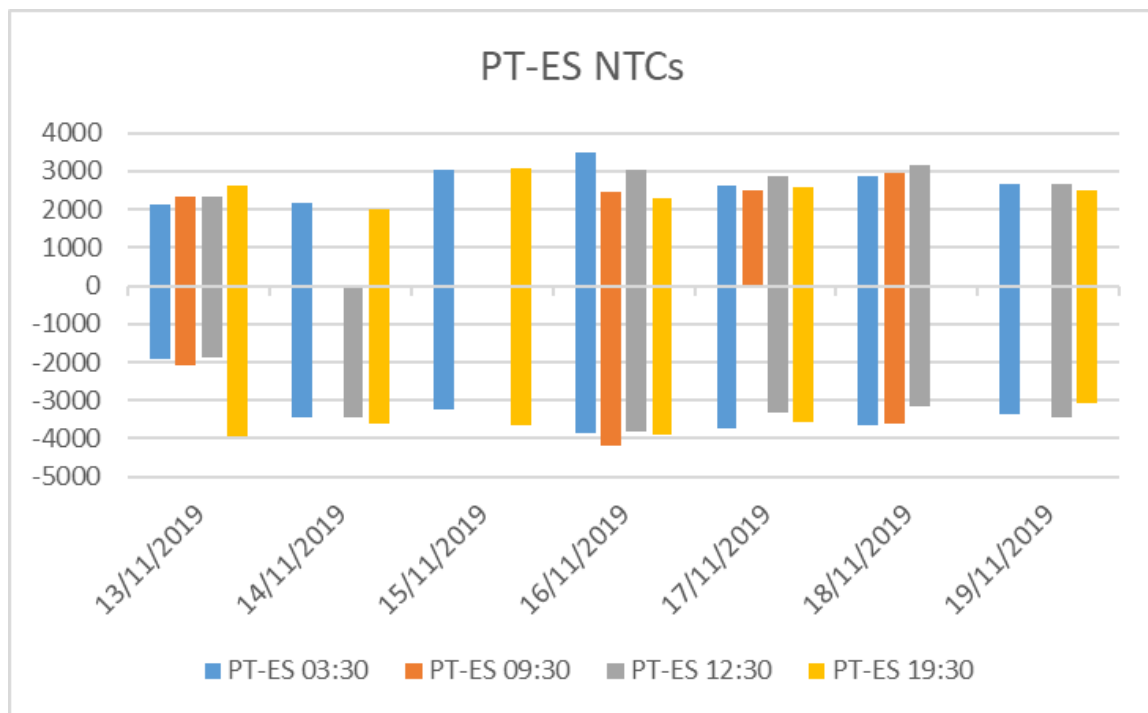
SWE Capacity Calculation report for Stakeholders

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 13/11/2019 to the 19/11/2019.

PT-ES NTCs

| | 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 |
| 19/11/2019 | 2669 | 3000 | 3370 | 3800 | NA | 3200 | NA | 4000 | 2655 | 3200 | 3443 | 4000 | 2520 | 3200 | 3061 | 4000 |
| 18/11/2019 | 2885 | 3000 | 3673 | 3800 | 2970 | 3200 | 3626 | 4000 | 3150 | 3200 | 3163 | 4000 | NA | 3200 | NA | 4000 |
| 17/11/2019 | 2606 | 3000 | 3735 | 3800 | 2514 | 3000 | NA | 3800 | 2880 | 3000 | 3330 | 3800 | 2565 | 3200 | 3577 | 4000 |
| 16/11/2019 | 3473 | 3000 | 3870 | 3800 | 2480 | 3200 | 4192 | 4000 | 3024 | 3200 | 3800 | 4000 | 2295 | 3200 | 3905 | 4000 |
| 15/11/2019 | 3047 | 3000 | 3240 | 3800 | NA | 3200 | NA | 4000 | NA | 3200 | NA | 4000 | 3060 | 3200 | 3647 | 4000 |
| 14/11/2019 | 2158 | 3000 | 3465 | 3800 | NA | 3200 | NA | 4000 | NA | 3200 | 3465 | 4000 | 2025 | 3200 | 3608 | 4000 |
| 13/11/2019 | 2148 | 2400 | 1935 | 2100 | 2340 | 2200 | 2079 | 2900 | 2340 | 2200 | 1877 | 2900 | 2610 | 3200 | 3941 | 4000 |



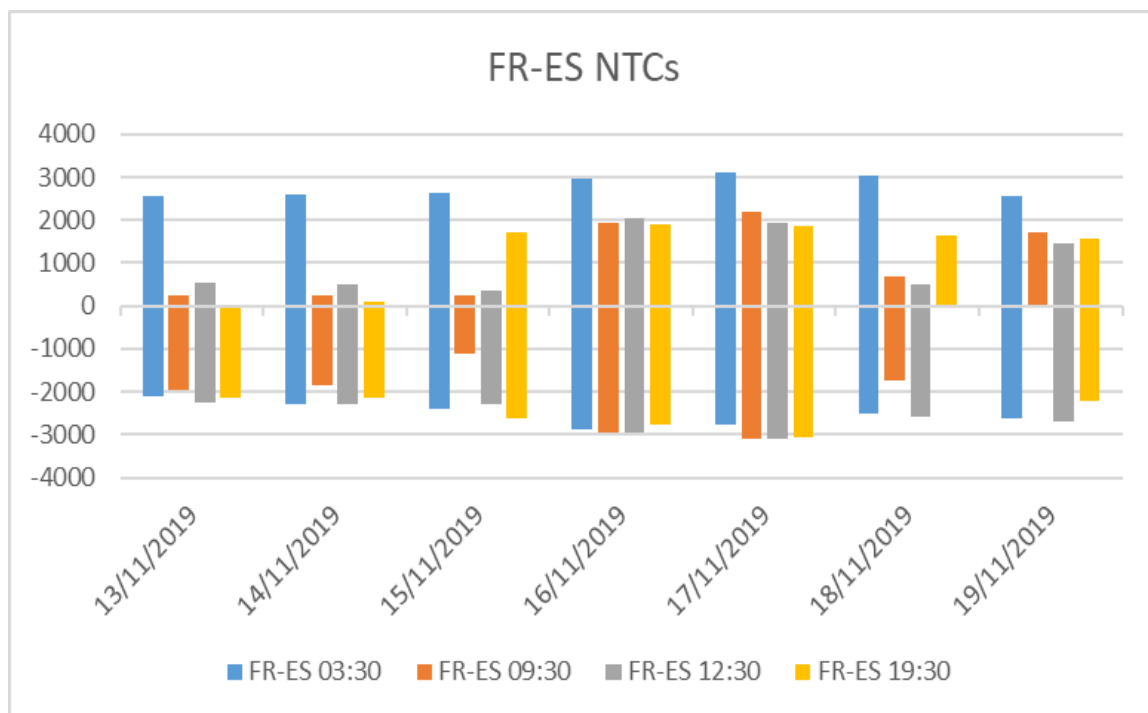
Comments:

Twelve computations failed for the PT-ES border over this eighteenth week of External parallel run with generally good results. 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

| | 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 |
| 19/11/2019 | 2550 | 2400 | 2636 | 2500 | 1700 | 2000 | NA | 2900 | 1450 | 2000 | 2683 | 2900 | 1550 | 2000 | 2200 | 2900 |
| 18/11/2019 | 3053 | 2400 | 2500 | 2700 | 700 | 2000 | 1750 | 2900 | 500 | 2000 | 2590 | 2900 | 1650 | 2000 | NA | 2900 |
| 17/11/2019 | 3099 | 2400 | 2775 | 2700 | 2200 | 2400 | 3099 | 2700 | 1950 | 2400 | 3099 | 2700 | 1850 | 2000 | 3053 | 3000 |
| 16/11/2019 | 2960 | 2400 | 2868 | 2700 | 1950 | 1400 | 2960 | 3000 | 2050 | 1400 | 2960 | 3000 | 1900 | 1400 | 2775 | 3000 |
| 15/11/2019 | 2636 | 2400 | 2400 | 2300 | 250 | 2000 | 1100 | 2300 | 339 | 2000 | 2300 | 2300 | 1700 | 2400 | 2636 | 3450 |
| 14/11/2019 | 2590 | 2400 | 2300 | 2300 | 250 | 2000 | 1850 | 2300 | 500 | 2000 | 2300 | 2300 | 100 | 2000 | 2150 | 2300 |
| 13/11/2019 | 2550 | 2400 | 2100 | 2300 | 250 | 2000 | 1950 | 2300 | 550 | 2000 | 2250 | 2300 | NA | 2000 | 2150 | 2300 |



Comments:

Three computations failed for the FR-ES over this eighteenth week of External parallel run with generally good results. For ES->FR direction and peak scenarios, some values are lower than expected in comparison with weekly values and they are under investigation. 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 |
|-----|--|--------------|--------------|
| # 1 | L-400 kV Interconnector | ES-PT | 42,86 |
| | N-2 Interconnector 400 kV (ES-PT) | | 39,29 |
| | N-1 Interconnector 400 kV (ES-PT) | | 3,57 |
| # 2 | Computation Failed | | 21,43 |
| | Computation Failed | | 21,43 |
| # 3 | GLSK limitation | PT | 17,86 |
| | N state | | 17,86 |
| # 4 | Angle difference | PT | 10,71 |
| | N-2 Interconnector 400 kV (ES-PT) | | 10,71 |
| # 5 | L-400 kV | PT | 3,57 |
| | N-2 Interconnector 400 kV (ES-PT) | | 3,57 |
| # 5 | L-220 kV | PT | 3,57 |
| | N-1 Interconnector 400 kV (ES-PT) | | 3,57 |

Find below the 3 limiting elements appearing over the period for ES->PT direction:

| | Critical Network Elements and Contingencies ES->PT | Location CNE | Frequency |
|-----|--|--------------|--------------|
| # 1 | Angle difference | PT | 75,00 |
| | N-2 Interconnector 400 kV (ES-PT) | | 75,00 |
| # 2 | Computation Failed | | 21,43 |
| | Computation Failed | | 21,43 |
| # 3 | L-400 kV | PT | 3,57 |
| | N-1 400 kV (PT) | | 3,57 |

Limiting elements FR-ES

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 |
|-----|--|--------------|--------------|
| # 1 | Loadflow divergence | | 39,29 |
| | N-1 Power plant (ES) | | 39,29 |
| # 2 | L-220 kV | FR | 17,86 |
| | N-1 Interconnector 400 kV (ES-FR) | | 7,14 |
| | N-1 Interconnector 400 kV (ES-FR) | | 3,57 |
| | N-1 400 kV (FR) | | 3,57 |
| | N state | | 3,57 |
| # 3 | L-220 kV Interconnector | ES-FR | 17,86 |
| | N-1 Interconnector 400 kV (ES-FR) | | 10,71 |
| | N-1 400 kV (FR) | | 7,14 |
| # 4 | L-220 kV Interconnector | ES-FR | 14,29 |
| | N-1 220 kV (FR) | | 10,71 |
| | N-1 Interconnector 400 kV (ES-FR) | | 3,57 |
| # 5 | Computation Failed | | 7,14 |
| | Computation Failed | | 7,14 |

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 |
|-----|--|--------------|--------------|
| # 1 | L-220 kV Interconnector | ES-FR | 57,14 |
| | N-1 220 kV (FR) | | 35,71 |
| | N-1 220 kV (FR) | | 7,14 |
| | N-1 400 kV (FR) | | 7,14 |
| | N-1 Interconnector 400 kV (ES-FR) | | 7,14 |
| # 2 | L-220 kV Interconnector | ES-FR | 21,43 |
| | N-1 400 kV (FR) | | 10,71 |
| | N-1 Interconnector 400 kV (ES-FR) | | 7,14 |
| | N-1 Interconnector 400 kV (ES-FR) | | 3,57 |
| # 3 | L-220 kV | ES | 7,14 |
| | N-2 400 kV (ES) | | 7,14 |
| # 4 | Computation Failed | | 3,57 |
| | Computation Failed | | 3,57 |
| # 5 | L-220 kV | ES | 3,57 |
| | N state | | 3,57 |
| # 5 | L-220 kV | FR | 3,57 |
| | N state | | 3,57 |
| # 5 | L-400 kV | FR | 3,57 |
| | N-1 Interconnector (ES-FR) | | 3,57 |