European Network of Transmission System Operators for Electricity

entsoe

# ALL TSOS' SCENARIO DEFINITION AND SCENARIO DESCRIPTION FOR THE YEAR 2024 CGM CREATION (IN ACCORDANCE WITH ARTICLE 65 OF THE COMMISSION REGULATION (EU) 2017/1485 OF 2 AUGUST 2017 ESTABLISHING A GUIDELINE ON ELECTRICITY TRANSMISSION SYSTEM OPERATION

Final | 15 July 2023

# CONTENTS

All TSOs, taking into account the following,

## WHEREAS

(1) This document is a scenario definition for year 2024 and scenario description of All Transmission System Operators (hereafter referred to as "TSOs").

(2) Article 65 of Commission Regulation (EU) 2017/1485 constitute the legal basis for the scenario description.

# Common list of 2024 year scenarios

All TSO's agreed on the following reference timestamp to create scenarios for 2024:

- Winter I low demand, 3rd Wednesday of January 2023, 03:30 CET,
- Winter I Peak, 3rd Wednesday of January 2023, 10:30 CET,
- Spring low demand, 3rd Wednesday of April 2022, 03:30 CET,
- Spring Peak, 3rd Wednesday of April 2022, 10:30 CET,
- Summer low demand, 3rd Wednesday of July 2022, 03:30 CET,
- Summer Peak, 3rd Wednesday of July 2022, 10:30 CET,
- Autumn low demand, 3rd Wednesday of October 2022, 03:30 CET,
- Autumn Peak, 3rd Wednesday of October 2022, 10:30 CET,
- Winter II low demand, 3rd Wednesday of December 2022, 03:30CET,
- Winter II Peak, 3rd Wednesday of December previous 2022, 10:30 CET.

The detailed description of scenarios is shown in the following paragraphs. All elements which are foreseen to be in operation in any time of the scenario period are included in the scenarios.

# Winter I low demand scenario

The Winter low demand scenario has been agreed by TSOs to meet the requirements for a year ahead model under SOGL and FCA guidance notes. It covers the period from 1st January 2024 to 28th February 2024. The reference timestamp to represent this scenario is the third Wednesday in January 2023 at 03:30hrs (18th January 2023). It is the most probable representation of the Winter low demand scenario.

TSOs have agreed this scenario will be based on an estimated demand and generation profile which is likely to be equivalent to a seasonal low demand load.

The generation pattern of renewable and conventional sources and the amount of power generated and consumed by facilities connected to the distribution grid will be modelled following the situation of the reference timestamp or using estimated information, ensuring the agreed net positions are matched. In general, the generation pattern will represent a fully available production park.

The net positions have been agreed between all TSOs. The scenario outline tables for each synchronous area can be found in Appendix 1.

TSOs will identify any known major system changes that are likely to change the system behaviour from 1st January 2024 to 28th February 2024. The changes identified are at: substation, branch, generation or other significant plant level and are likely to influence system loading or cross border flows. These changes are listed in the scenario outline tables for each main plant or network item in Appendix 2.

Any major system outage(s), with a duration for the entire scenario period, will be included in this scenario model.

The real-life security limits of elements can vary around given thresholds in this scenario, depending on e.g.:

- load;
- temperature;
- infeed pattern;
- outage pattern;
- etc.

# Winter I peak scenario

The Winter peak scenario has been agreed by TSOs to meet the requirements for a year ahead model under SOGL and FCA guidance notes. It covers the period from 1st January 2024 to 28th February 2024. The reference timestamp to represent this scenario is the third Wednesday in January 2023 at 10:30hrs (18th January 2023). It is the most probable representation of the Winter peak scenario.

TSOs have agreed this scenario will be based on an estimated demand and generation profile which is likely to be equivalent to a seasonal peak-load.

The generation pattern of renewable and conventional sources and the amount of power generated and consumed by facilities connected to the distribution grid will be modelled following the situation of the reference timestamp or using estimated information, ensuring the agreed net positions are matched. In general, the generation pattern will represent a fully available production park.

The net positions have been agreed between all TSOs. The scenario outline tables for each synchronous area can be found in Appendix 3.

TSOs will identify any known major system changes that are likely to change the system behaviour from 1st January 2024 to 28th February 2024. The changes identified are at: substation, branch, generation or other significant plant level and are likely to influence system loading or cross border flows. These changes are listed in the scenario outline tables for each main plant or network item in Appendix 2.

Any major system outage(s), with a duration for the entire scenario period, will be included in this scenario model.

The real-life security limits of elements can vary around given thresholds in this scenario, depending on e.g.:

- load;
- temperature;
- infeed pattern;
- outage pattern;
- etc.

# Spring low demand scenario

The Spring low demand scenario has been agreed by TSOs to meet the requirements for a year ahead model under SOGL and FCA guidance notes. It covers the period from 1st March 2024 to 31st May 2024. The reference timestamp to represent this scenario is the third Wednesday in April 2022 at 03:30hrs (20th April 2022). It is the most probable representation of the Spring low demand scenario.

TSOs have agreed this scenario will be based on an estimated demand and generation profile which is likely to be equivalent to a seasonal low demand load.

The generation pattern of renewable and conventional sources and the amount of power generated and consumed by facilities connected to the distribution grid will be modelled following the situation of the reference timestamp or using estimated information, ensuring the agreed net positions are matched. In general, the generation pattern will represent a fully available production park.

The net positions have been agreed between all TSOs. The scenario outline tables for each synchronous area can be found in Appendix 4.

TSOs will identify any known major system changes that are likely to change the system behaviour from 1st March 2024 to 31st May 2024. The changes identified are at: substation, branch, generation or other significant plant level and are likely to influence system loading or cross border flows. These changes are listed in the scenario outline Tables for each main plant or network item in Appendix 5.

Any major system outage(s), with a duration for the entire scenario period, will be included in this scenario model.

The real-life security limits of elements can vary around given thresholds in this scenario, depending on e.g.:

- load;
- temperature;
- infeed pattern;
- outage pattern;
- etc.

# Spring peak scenario

The Spring peak scenario has been agreed by TSOs to meet the requirements for a year ahead model under SOGL and FCA guidance notes. It covers the period from 1st March 2024 to 31st May 2024. The reference timestamp to represent this scenario is the third Wednesday in April 2022 at 10:30hrs (20th April 2022). It is the most probable representation of the Spring peak scenario.

TSOs have agreed this scenario will be based on an estimated demand and generation profile which is likely to be equivalent to a seasonal peak-load.

The generation pattern of renewable and conventional sources and the amount of power generated and consumed by facilities connected to the distribution grid will be modelled following the situation of the reference timestamp or using estimated information, ensuring the agreed net positions are matched. In general, the generation pattern will represent a fully available production park.

The net positions have been agreed between all TSOs. The scenario outline tables for each synchronous area can be found in Appendix 6.

TSOs will identify any known major system changes that are likely to change the system behaviour from 1st March 2024 to 31st May 2024. The changes identified are at: substation, branch, generation or other significant plant level and are likely to influence system loading or cross border flows. These changes are listed in the scenario outline Tables for each main plant or network item in Appendix 5.

Any major system outage(s), with a duration for the entire scenario period, will be included in this scenario model.

The real-life security limits of elements can vary around given thresholds in this scenario, depending on e.g.:

- load;
- temperature;
- infeed pattern;
- outage pattern;
- etc.

# Summer low demand scenario

The Summer low demand scenario has been agreed by TSOs to meet the requirements for a year ahead model under SOGL and FCA guidance notes. It covers the period from 1st June 2024 to 31st August 2024. The reference timestamp to represent this scenario is the third Wednesday in July 2022 at 03:30hrs (20th July 2022). It is the most probable representation of the Summer low demand scenario.

TSOs have agreed this scenario will be based on an estimated demand and generation profile which is likely to be equivalent to a seasonal low demand load.

The generation pattern of renewable and conventional sources and the amount of power generated and consumed by facilities connected to the distribution grid will be modelled following the situation of the reference timestamp or using estimated information, ensuring the agreed net positions are matched. In general, the generation pattern will represent a fully available production park.

The net positions have been agreed between all TSOs. The scenario outline Tables for each synchronous area can be found in Appendix 7.

TSOs will identify any known major system changes that are likely to change the system behaviour from 1st June 2024 to 31st August 2024. The changes identified are at: substation, branch, generation or other significant plant level and are likely to influence system loading or cross border flows. These changes are listed in the scenario outline Tables for each main plant or network item in Appendix 8.

Any major system outage(s), with a duration for the entire scenario period, will be included in this scenario model.

The real-life security limits of elements can vary around given thresholds in this scenario, depending on e.g.:

- load;
- temperature;
- infeed pattern;
- outage pattern;
- etc.

# Summer peak scenario

The Summer peak scenario has been agreed by TSOs to meet the requirements for a year ahead model under SOGL and FCA guidance notes. It covers the period from 1st June 2024 to 31st August 2024. The reference timestamp to represent this scenario is the third Wednesday in July 2022 at 10:30hrs (20th July 2022). It is the most probable representation of the Summer peak scenario.

TSOs have agreed this scenario will be based on an estimated demand and generation profile which is likely to be equivalent to a seasonal peak-load.

The generation pattern of renewable and conventional sources and the amount of power generated and consumed by facilities connected to the distribution grid will be modelled following the situation of the reference timestamp or using estimated information, ensuring the agreed net positions are matched. In general, the generation pattern will represent a fully available production park.

The net positions have been agreed between all TSOs. The scenario outline Tables for each synchronous area can be found in Appendix 9.

TSOs will identify any known major system changes that are likely to change the system behaviour from 1st June 2024 to 31st August 2024. The changes identified are at: substation, branch, generation or other significant plant level and are likely to influence system loading or cross border flows. These changes are listed in the scenario outline Tables for each main plant or network item in Appendix 8.

Any major system outage(s), with a duration for the entire scenario period, will be included in this scenario model.

The real-life security limits of elements can vary around given thresholds in this scenario, depending on e.g.:

- load;
- temperature;
- infeed pattern;
- outage pattern;
- etc.

# Autumn low demand scenario

The Autumn low demand scenario has been agreed by TSOs to meet the requirements for a year ahead model under SOGL and FCA guidance notes. It covers the period from 1st September 2024 to 30th November 2024. The reference timestamp to represent this scenario is the third Wednesday in October 2022 at 03:30hrs (19th October 2022). It is the most probable representation of the Autumn low demand scenario.

TSOs have agreed this scenario will be based on an estimated demand and generation profile which is likely to be equivalent to a seasonal low demand load.

The generation pattern of renewable and conventional sources and the amount of power generated and consumed by facilities connected to the distribution grid will be modelled following the situation of the reference timestamp or using estimated information, ensuring the agreed net positions are matched. In general, the generation pattern will represent a fully available production park.

The net positions have been agreed between all TSOs. The scenario outline Tables for each synchronous area can be found in Appendix 10.

TSOs will identify any known major system changes that are likely to change the system behaviour from 1st September 2024 to 30th November 2024. The changes identified are at: substation, branch, generation or other significant plant level and are likely to influence system loading or cross border flows. These changes are listed in the scenario outline Tables for each main plant or network item in Appendix 11.

Any major system outage(s), with a duration for the entire scenario period, will be included in this scenario model.

The real-life security limits of elements can vary around given thresholds in this scenario, depending on e. g.:

- load;
- temperature;
- infeed pattern;
- outage pattern;
- etc.

# Autumn peak scenario

The Autumn peak scenario has been agreed by TSOs to meet the requirements for a year ahead model under SOGL and FCA guidance notes. It covers the period from 1st September 2024 to 30th November 2024. The reference timestamp to represent this scenario is the third Wednesday in October 2022 at 10:30hrs (19th October 2022). It is the most probable representation of the Autumn peak scenario.

TSOs have agreed this scenario will be based on an estimated demand and generation profile which is likely to be equivalent to a seasonal peak-load.

The generation pattern of renewable and conventional sources and the amount of power generated and consumed by facilities connected to the distribution grid will be modelled following the situation of the reference timestamp or using estimated information, ensuring the agreed net positions are matched. In general, the generation pattern will represent a fully available production park.

The net positions have been agreed between all TSOs. The scenario outline Tables for each synchronous area can be found in Appendix 12.

TSOs will identify any known major system changes that are likely to change the system behaviour from 1st September 2024 to 30th November 2024. The changes identified are at: substation, branch, generation or other significant plant level and are likely to influence system loading or cross border flows. These changes are listed in the scenario outline Tables for each main plant or network item in Appendix 11.

Any major system outage(s), with a duration for the entire scenario period, will be included in this scenario model.

The real-life security limits of elements can vary around given thresholds in this scenario, depending on e. g.:

- load;
- temperature;
- infeed pattern;
- outage pattern;
- etc.

# Winter II low demand scenario

The Winter low demand II scenario has been agreed by TSOs to meet the requirements for a year ahead model under SOGL and FCA guidance notes. It covers the period from 1st December 2024 to 31st December 2024. The reference timestamp to represent this scenario is the third Wednesday in December 2022 at 03:30hrs (21th December 2022). It is the most probable representation of the Winter low demand scenario.

TSOs have agreed this scenario will be based on an estimated demand and generation profile which is likely to be equivalent to a seasonal low demand load.

The generation pattern of renewable and conventional sources and the amount of power generated and consumed by facilities connected to the distribution grid will be modelled following the situation of the reference timestamp or using estimated information, ensuring the agreed net positions are matched. In general, the generation pattern will represent a fully available production park.

The net positions have been agreed between all TSOs. The scenario outline Tables for each synchronous area can be found in Appendix 13.

TSOs will identify any known major system changes that are likely to change the system behaviour from 1st December 2024 to 31st December 2024. The changes identified are at: substation, branch, generation or other significant plant level and are likely to influence system loading or cross border flows. These changes are listed in the scenario outline Tables for each main plant or network item in Appendix 14.

Any major system outage(s), with a duration for the entire scenario period, will be included in this scenario model.

The real-life security limits of elements can vary around given thresholds in this scenario, depending on e.g.:

- load;
- temperature;
- infeed pattern;
- outage pattern;
- etc.

# Winter II peak scenario

The Winter peak scenario has been agreed by TSOs to meet the requirements for a year ahead model under SOGL and FCA guidance notes. It covers the period from 1st December 2024 to 31st December 2024. The reference timestamp to represent this scenario is the third Wednesday in December 2022 at 10:30hrs (21th December 2022). It is the most probable representation of the Winter peak scenario.

TSOs have agreed this scenario will be based on an estimated demand and generation profile which is likely to be equivalent to a seasonal peak-load.

The generation pattern of renewable and conventional sources and the amount of power generated and consumed by facilities connected to the distribution grid will be modelled following the situation of the reference timestamp or using estimated information, ensuring the agreed net positions are matched. In general, the generation pattern will represent a fully available production park.

The net positions have been agreed between all TSOs. The scenario outline Tables for each synchronous area can be found in Appendix 15.

TSOs will identify any known major system changes that are likely to change the system behaviour from 1st December 2024 to 1st December 2024. The changes identified are at: substation, branch, generation or other significant plant level and are likely to influence system loading or cross border flows. These changes are listed in the scenario outline Tables for each main plant or network item in Appendix 14.

Any major system outage(s), with a duration for the entire scenario period, will be included in this scenario model.

The real-life security limits of elements can vary around given thresholds in this scenario, depending on e.g.:

- load;
- temperature;
- infeed pattern;
- outage pattern;
- etc.

# Language

The reference language for this common list of year-ahead scenarios shall be English.

# Appendix 1: Agreed forecast AC and DC exchanges for the Winter I low demand scenario

## Area Net Position

| | Net Position (MW) |
|---|---|
| AL | 589 |
| AT | -2430 |
| BA | 743 |
| BE | -669 |
| BG | 839 |
| CH | -3279 |
| CZ | 1255 |
| DE 50Hertz | 5820 |
| DE Transnet BW | -3431 |
| DE_Amprion DE | -2778 |
| DE_TenneT DE | 943 |
| DK1 West | 1677 |
| DK2 East | 432 |
| EE | 103 |
| ES | -405 |
| FI | 711 |
| FR | 11840 |
| GB | -4655 |
| GR | -765 |
| HR | 55 |
| HU | -1774 |
| IT | -6840 |
| KS | -415 |
| LT | -576 |
| LU | -396 |
| LV | 423 |
| ME | 193 |
| MK | -168 |
| NL | 483 |
| NO | 1195 |
| PL | 100 |
| PT | -86 |
| RO | -500 |
| RS | -119 |
| SE | 2600 |

| | Net Position (MW) |
|---|---|
| SEM | -62 |
| SI | -404 |
| SK | 321 |
| TR | -558 |
| UA | -11 |

Note: that sign of the Net Position is as follow: - import / + export

## DC Interconnector Exchanges (in the indicated direction)

| TSO_from | TSO_to | Agreed Positions (MW) | Including losses (MW) |
|---|---|---|---|
| ELIA BE | DE_Amprion DE | -650 | -637 |
| TenneT DE | Svenska Kraftnat SE | -556 | -550 |
| National Grid GB | TenneT NL | -629 | -623 |
| Energinet West DK1 | TenneT NL | 493 | 488 |
| National Grid GB | RTE FR | -541 | -533 |
| Elering EE | FINGRID FI | -42 | -42 |
| Eirgrid/SONI SEM | National Grid GB | -35 | -35 |
| Svenska Kraftnat SE | FINGRID FI | -89 | -88 |
| IPTO GR | TERNA IT | 300 | 297 |
| RTE FR | National Grid GB | 1546 | 1528 |
| National Grid GB | RTE FR | -773 | -762 |
| 50 Hertz DE | Energinet East DK2 | -419 | -414 |
| Energinet West DK1 | Svenska Kraftnat SE | -583 | -577 |
| Litgrid LT | PSE PL | 312 | 309 |
| Eirgrid/SONI SEM | National Grid GB | -27 | -27 |
| National Grid GB | ELIA BE | -299 | -296 |
| Litgrid LT | Svenska Kraftnat SE | -321 | -318 |
| Statnett NO | TenneT DE | 771 | 754 |
| TenneT NL | Statnett NO | -470 | -466 |
| Statnett NO | National Grid GB | 928 | 842 |
| Energinet West DK1 | Statnett NO | 51 | 51 |
| Energinet West DK1 | Energinet East DK2 | -600 | -594 |
| PSE PL | Svenska Kraftnat SE | -300 | -297 |
| Energinet West DK1 | National Grid GB | 0 | 0 |

# Appendix 2: System changes for the Winter I scenario (peak and low demand)

## Substations

| TSO | Name of Station | Name (code) | U [kV/kV] | Commissioning / Decommissioning |
|---|---|---|---|---|
| Swissgrid | Lupfig | SLUFPG2 | 220 | Commissioning |
| Swissgrid | Massaboden | SMASSA2 | 220 | Decommissioning |
| TEIAS | Yusufeli | TYUSUF1 | 380 | Commissioning |

## Lines

| TSO | Name | From | To | U [kV] | Commissioning / Decommissioning |
|---|---|---|---|---|---|
| 50Hertz | Vierraden-Bertikow 304-303 | D8VIE | D8BE | 220 | Commissioning |
| 50Hertz | Vierraden-Neuenhagen 484 | D8VIE | D8NHG | 380 | Commissioning |
| 50Hertz | Vierraden-Neuenhagen 483 | D8VIE | D8NHG | 380 | Commissioning |
| 50Hertz | Eula-Herlasgrün 208-232 | D8EU | D8HER | 220 | Commissioning |
| Amprion | Herdecke Nord | Eiberg | Garenfeld | 220 | Decommissioning |
| Amprion | Herdecke Süd | Eiberg | Garenfeld | 220 | Decommissioning |
| Amprion | Itterbach West | Eiberg | Reisholz | 220 | Decommissioning |
| Amprion | Grind Süd | Reisholz | St.Peter | 220 | Decommissioning |
| Amprion | Itterbach West | Eiberg | St.Peter | 380 | Commissioning |
| Amprion | Vorgebirge Ost | Rommerskirchen | Sechtem | 380 | Commissioning |
| Swissgrid | Airolo-Y/Platischachen (Provisional) | Airolo | Y/Platischachen | 220 | Commissioning |
| Swissgrid | Auwiesen-Beznau (Provisional)) | Auwiesen | Beznau | 220 | Decommissioning |
| Swissgrid | Beznau-Egilsau (Provisional) | Beznau | Eglisau | 220 | Decommissioning |
| Swissgrid | Bickigen-Y/Wimmis | Bickigen | Y/Wimmis | 220 | Decommissioning |
| Swissgrid | Birr-Lupfig | Birr | Lupfig | 220 | Commissioning |
| Swissgrid | Batiaz-Y/Rosel | Batiaz | Y/Rosel | 220 | Decommissioning |
| Swissgrid | St. Triphon - Y/Rosel | St. Triphon | Y/Rosel | 220 | Decommissioning |
| Swissgrid | Riddes- Y/Rosel | Riddes | Y/Rosel | 220 | Decommissioning |
| Swissgrid | Bitsch-Massaboden | Bitsch | Massaboden | 220 | Decommissioning |

| TSO | Name | From | To | U [kV] | Commissioning / Decommissioning |
|---|---|---|---|---|---|
| Swissgrid | Breite-Eglisau (Provisional) | Breite | Eglisau | 220 | Decommissioning |
| Swissgrid | Massaboden-Y/Bitsch (Provisional) | Massaboden | Y/Bitsch | 220 | Decommissioning |
| Swissgrid | Mörel-Y/Bitsch (Provisional) | Mörel | Y/Bitsch | 220 | Decommissioning |
| Swissgrid | Wimmis-Y/Wimmis (Provisional) | Wimmis | Y/Wimmis | 220 | Decommissioning |
| Swissgrid | Bickigen- Y/Wimmis (Provisional) | Bickigen | Y/Wimmis | 220 | Decommissioning |
| Swissgrid | Chippis - Y/Wimmis (Provisional) | Chippis | Y/Wimmis | 220 | Decommissioning |
| Swissgrid | Chamoson - Y/Gstaad | Chamoson | Y/Gstaad | 220 | Commissioning |
| Swissgrid | Mühleberg - Y/Gstaad | Mühleberg | Y/Gstaad | 220 | Commissioning |
| Swissgrid | Gstaad - Y/Gstaad | Gstaad | Y/Gstaad | 220 | Commissioning |
| Swissgrid | Y/Visp-Y/Bitsch (Provisional) | Y/Visp | Y/Bitsch | 220 | Decommissioning |
| Swissgrid | Goeschenen - Y/Plattischachen | Goeschenen | Y/Plattischachen | 220 | Decommissioning |
| Swissgrid | Mettlen - Y/Plattischachen | Mettlen | Y/Plattischachen | 220 | Decommissioning |
| Swissgrid | Sils- Y/Punt | Sils | Y/Punt | 380 | Decommissioning |
| Swissgrid | Pradella-Y/Punt | Pradella | Y/Punt | 380 | Decommissioning |
| Swissgrid | Robbia-Y/Punt | Robbia | Y/Punt | 380 | Decommissioning |
| TEIAS | 400kV Borcka-Ispir Havza OHL | Borcka | Ispir Havza | 380 | Decommissioning |
| TEIAS | 400kV Yusufeli-Borcka OHL | Yusufeli | Borcka | 380 | Commissioning |
| TEIAS | 400kV Yusufeli-Ispir Havza OHL | Yusufeli | Ispir Havza | 380 | Commissioning |
| TenneT DE | TTG/220/Raitersaich-Trennfeld/212 | D2RAI 2* | D2TRE 2* | 220 | Commissioning |
| TenneT NL | Borssele-Rilland Orange | Borssele | Rilland | 380 | Commissioning |
| TenneT NL | Borssele-Rilland Purple | Borssele | Rilland | 380 | Commissioning |

## Interconnections

| X-node | TSO | To-Node | U [kV] | Commissioning/ Decommissioning |
|---|---|---|---|---|
| XMI_NS11 | ESO | VMA_IZ11 | 400 | Commissioning |
| XMI_NS11 | IPTO | GNSANT1* | 400 | Commissioning |

## Transformers and PSTs

| TSO | Name | From | To | U [kV/kV] | Max angle | Commissioning / Decommissioning |
|---|---|---|---|---|---|---|
| Amprion | TR 212 | Niederrhein | Niederrhein | 220/110 | | Decommissioning |
| Amprion | TR 211 | Reisholz | Reisholz | 220/110 | | Decommissioning |
| Amprion | TR 442 | Oberzier | Oberzier | 380/380 | 90 | Commissioning |
| TransnetBW | BMT412 | Kupferzell | Kupferzell | 380/110 | | Commissioning |

## Generation units

| TSO | Name | Name of Substation | U [kV] | Type | Commissioning/ Decommissioning |
|---|---|---|---|---|---|
| 50Hertz | Baltic Eagle | Baltic Eagle | 220 | Offshore Wind Power | Commissioning |
| EMS | Krivaca | PRP Krivaca | 110 | Onshore Wind Power | Commisioning |
| EMS | Kostolac B G3 | RP Drmno | 400 | Fossil Brown coal/Lignite | Commisioning |
| Swissgrid | Lupfig | Lupfig | 220 | Thermal (gas) | Commissioning |
| TEIAS | Yusufeli HES | Yusufeli | 380 | Hydroelectric PP | Commissioning |
| TenneT DE | Irsching3 | Irsching | 380 | Gas | Decommissioning |

# Appendix 3: Agreed forecast AC and DC exchanges for the Winter I peak scenario

## Area Net Position

| | Net Position (MW) |
|---|---|
| AL | 780 |
| AT | -1400 |
| BA | 715 |
| BE | -84 |
| BG | 1181 |
| CH | 382 |
| CZ | 1860 |
| DE 50Hertz | 8951 |
| DE Transnet BW | -3642 |
| DE_Amprion DE | -1903 |
| DE_TenneT DE | 996 |
| DK1 West | 840 |
| DK2 East | -559 |
| EE | -203 |
| ES | 405 |
| FI | 147 |
| FR | 2000 |
| GB | -6641 |
| GR | -200 |
| HR | -190 |

| | Net Position (MW) |
|---|---|
| HU | -2200 |
| IT | -6460 |
| KS | -307 |
| LT | -1083 |
| LU | -634 |
| LV | -87 |
| ME | 400 |
| MK | -300 |
| NL | 493 |
| NO | 3753 |
| PL | -200 |
| PT | 86 |
| RO | -900 |
| RS | -324 |
| SE | 3849 |
| SEM | 62 |
| SI | -44 |
| SK | 241 |
| TR | 208 |
| UA | 11 |

Note: that sign of the Net Position is as follow: - import / + export

## DC Interconnector Exchanges (in the indicated direction)

| TSO_from | TSO_to | Agreed Positions (MW) | Including losses (MW) |
|---|---|---|---|
| ELIA BE | DE_Amprion DE | -460 | -451 |
| TenneT DE | Svenska Kraftnat SE | -458 | -453 |
| National Grid GB | TenneT NL | -1062 | -1051 |
| Energinet West DK1 | TenneT NL | -122 | -121 |
| National Grid GB | RTE FR | -845 | -833 |
| Elering EE | FINGRID FI | -918 | -908 |
| Eirgrid/SONI SEM | National Grid GB | 49 | 48 |
| Svenska Kraftnat SE | FINGRID FI | -89 | -88 |
| IPTO GR | TERNA IT | 300 | 297 |
| RTE FR | National Grid GB | 2000 | 1976 |
| National Grid GB | RTE FR | -971 | -956 |
| 50 Hertz DE | Energinet East DK2 | -530 | -525 |
| Energinet West DK1 | Svenska Kraftnat SE | -586 | -580 |
| Litgrid LT | PSE PL | 190 | 188 |
| Eirgrid/SONI SEM | National Grid GB | 14 | 13 |
| National Grid GB | ELIA BE | -300 | -297 |
| Litgrid LT | Svenska Kraftnat SE | -646 | -639 |
| Statnett NO | TenneT DE | 1115 | 1090 |
| TenneT NL | Statnett NO | -589 | -583 |
| Statnett NO | National Grid GB | 1400 | 1271 |
| Energinet West DK1 | Statnett NO | -570 | -564 |
| Energinet West DK1 | Energinet East DK2 | -80 | -79 |
| PSE PL | Svenska Kraftnat SE | -300 | -297 |
| Energinet West DK1 | National Grid GB | 0 | 0 |

# Appendix 4: Agreed forecast AC and DC exchanges for the Spring low demand scenario

## Area Net Position

| | Net Position (MW) |
|---|---|
| AL | 61 |
| AT | 100 |
| BA | 450 |
| BE | 412 |
| BG | 383 |
| CH | -185 |
| CZ | 1470 |
| DE 50Hertz | 5480 |
| DE Transnet BW | -1491 |
| DE_Amprion DE | -441 |
| DE_TenneT DE | -2210 |
| DK1 West | -483 |
| DK2 East | -466 |
| EE | 550 |
| ES | 405 |
| FI | -431 |
| FR | 2836 |
| GB | -2691 |
| GR | -168 |
| HR | -504 |

| | Net Position (MW) |
|---|---|
| HU | -1219 |
| IT | -5760 |
| KS | -64 |
| LT | -1188 |
| LU | -352 |
| LV | 398 |
| ME | -82 |
| MK | -105 |
| NL | -298 |
| NO | 85 |
| PL | 200 |
| PT | 86 |
| RO | 900 |
| RS | 200 |
| SE | 3105 |
| SEM | 62 |
| SI | 246 |
| SK | 490 |
| TR | 208 |
| UA | 11 |

Note: that sign of the Net Position is as follow: - import / + export

DC Interconnector Exchanges (in the indicated direction)

| TSO_from | TSO_to | Agreed Positions (MW) | Including losses (MW) |
|---|---|---|---|
| ELIA BE | DE_Amprion DE | -160 | -157 |
| TenneT DE | Svenska Kraftnat SE | -262 | -260 |
| National Grid GB | TenneT NL | -404 | -400 |
| Energinet West DK1 | TenneT NL | 15 | 15 |
| National Grid GB | RTE FR | -390 | -384 |
| Elering EE | FINGRID FI | -461 | -456 |
| Eirgrid/SONI SEM | National Grid GB | 34 | 34 |
| Svenska Kraftnat SE | FINGRID FI | 857 | 848 |
| IPTO GR | TERNA IT | 300 | 297 |
| RTE FR | National Grid GB | 730 | 721 |
| National Grid GB | RTE FR | -440 | -433 |
| 50 Hertz DE | Energinet East DK2 | -16 | -16 |
| Energinet West DK1 | Svenska Kraftnat SE | -621 | -615 |
| Litgrid LT | PSE PL | 332 | 328 |
| Eirgrid/SONI SEM | National Grid GB | 28 | 28 |
| National Grid GB | ELIA BE | -406 | -402 |
| Litgrid LT | Svenska Kraftnat SE | -111 | -110 |
| Statnett NO | TenneT DE | 45 | 44 |
| TenneT NL | Statnett NO | -256 | -253 |
| Statnett NO | National Grid GB | 259 | 235 |
| Energinet West DK1 | Statnett NO | -146 | -145 |
| Energinet West DK1 | Energinet East DK2 | 184 | 182 |
| PSE PL | Svenska Kraftnat SE | -300 | -297 |
| Energinet West DK1 | National Grid GB | 0 | 0 |

Appendix 5: System changes for the Spring scenario (peak and low demand)
Substations

| TSO | Name of Station | Name (code) | U [kV/kV] | Commissioning / Decommissioning |
|---|---|---|---|---|
| Amprion | Schwanheim | TBD | 380 | Commissioning |
| ČEPS | Dětmarovice | CDET | 400 | Commissioning |

## Lines

| TSO | Name | From | To | U [kV] | Commissioning / Decommissioning |
|---|---|---|---|---|---|
| 50Hertz | Röhrsdorf-Herlasgrün 207-231 | D8ROE | D8HER | 220 | Commissioning |
| 50Hertz | Parchim/Süd-Wolmirstedt 332-322 | D8PMS | D8WOL | 220 | Commissioning |
| 50Hertz | Baltic Eagle 283 | D8BEG | D8LUB | 220 | Commissioning |
| 50Hertz | Baltic Eagle 284 | D8BEG | D8LUB | 220 | Commissioning |
| Amprion | Laer West | Hattingen | Laer | 220 | Decommissioning |
| Amprion | Pöppinghausen West | Pöppinghausen | Laer | 220 | Decommissioning |
| Amprion | Schermbeck Nord | Niederrhein | Bergmannsglück | 220 | Decommissioning |
| Amprion | Pfalzdorf Nord | Niederrhein | Pfalzdorf | 220 | Decommissioning |
| Amprion | Prov. Pfalzdorf Nord/Schermbeck Nord | Niederrhein | Pfalzdorf | 220 | Commissioning |
| Amprion | Prov. Pfalzdorf Nord/Schermbeck Nord | Pfalzdorf | Bergmannsglück | 220 | Commissioning |
| Amprion | Wesel Ost | Niederrhein | Pkt. Eversael | 220 | Decommissioning |
| ČEPS | V449 | Albrechtice | Dětmarovice | 400 | Commissioning |
| TenneT DE | TTG/220/Etzenricht-Schwandorf/248 | D2ETZ 2* | D2SD 2* | 220 | Decommissioning |
| TenneT DE | TTG/380/Etzenricht-Schwandorf/457 | D2ETZ 1* | D2SD 1* | 380 | Decommissioning |

## Interconnections

| X-node | TSO | To-Node | U [kV] | Commissioning/ Decommissioning |
|---|---|---|---|---|
| XAL_DB11 | ČEPS | CALB__1D | 400 | Decommissioning |
| XAL_DB11 | PSE | ZDBN341 | 400 | Decommissioning |
| XDT_DB11 | ČEPS | CDET__11 | 400 | Commissioning |
| XDT_DB11 | PSE | ZDBN341 | 400 | Commissioning |
| XDO_RA11 | ESO | RRAHM41 | 380 | Decommissioning |
| XDO_RA11 | Transelectrica | RRAHM41 | 380 | Decommissioning |
| XVA_ST11 | ESO | RSTUP41 | 380 | Decommissioning |
| XVA_ST11 | Transelectrica | RSTUP41 | 380 | Decommissioning |
| XVA_MG11 | ESO | RMEDG41 | 380 | Commissioning |
| XVA_MG11 | Transelectrica | RMEDG41 | 380 | Commissioning |
| XDO_MG11 | ESO | RMEDG41 | 380 | Commissioning |
| XDO_MG11 | Transelectrica | RMEDG41 | 380 | Commissioning |

## Transformers and PSTs

| TSO | Name | From | To | U [kV/kV] | Max angle | Commissioning / Decommissioning |
|---|---|---|---|---|---|---|
| 50Hertz | TR411 | Weida | Weida | 380/110 | | Commissioning |
| Amprion | TR 441 | Hanekenfähr | Hanekenfähr | 380/380 | 90 | Commissioning |
| Amprion | TR 442 | Hanekenfähr | Hanekenfähr | 380/380 | 90 | Commissioning |
| Amprion | TR 421 | Niederrhein | Niederrhein | 380/220 | | Commissioning |
| Amprion | TR 412 | Dettingen | Dettingen | 380/110 | | Commissioning |
| Amprion | TR 414 | Kriftel | Kriftel | 380/110 | | Commissioning |
| Amprion | TR 411 | Schwanheim | Schwanheim | 380/110 | | Commissioning |
| Amprion | TR 413 | Schwanheim | Schwanheim | 380/110 | | Commissioning |
| ČEPS | T401 | Dětmarovice | Dětmarovice | 400/110 | | Commissioning |
| ČEPS | T402 | Dětmarovice | Dětmarovice | 400/110 | | Commissioning |
| PSE | PAT-A3 | Pątnów | Pątnów | 400/110 | | Commissioning |
| TenneT DE | T421 | D2ETZ 1* | D2ETZ 2* | 380/220 | | Decommissioning |
| 50Hertz | TR411 | Weida | Weida | 380/110 | | Commissioning |
| Amprion | TR 441 | Hanekenfähr | Hanekenfähr | 380/380 | 90 | Commissioning |
| Amprion | TR 442 | Hanekenfähr | Hanekenfähr | 380/380 | 90 | Commissioning |
| Amprion | TR 421 | Niederrhein | Niederrhein | 380/220 | | Commissioning |
| Amprion | TR 412 | Dettingen | Dettingen | 380/110 | | Commissioning |
| Amprion | TR 414 | Kriftel | Kriftel | 380/110 | | Commissioning |
| Amprion | TR 411 | Schwanheim | Schwanheim | 380/110 | | Commissioning |

## Generation units

| TSO | Name | Name of Substation | U [kV] | Type | Commissioning/ Decommissioning |
|---|---|---|---|---|---|
| PSE | EC Czechnica | Czechnica | 110 | Thermal (gas) | Commissioning |
| PSE | EC Czechnica | Czechnica | 110 | Thermal (coal) | Decommissioning |
| TransnetBW | Marbach 4 | Marbach | 220 | Oil | Commissioning |
| PSE | EC Czechnica | Czechnica | 110 | Thermal (gas) | Commissioning |
| PSE | EC Czechnica | Czechnica | 110 | Thermal (coal) | Decommissioning |
| TransnetBW | Marbach 4 | Marbach | 220 | Oil | Commissioning |

# Appendix 6: Agreed forecast AC and DC exchanges for the Spring peak scenario

## Area Net Position

| | Net Position (MW) |
|---|---|
| AL | 242 |
| AT | 500 |
| BA | 440 |
| BE | 260 |
| BG | 288 |
| CH | 981 |
| CZ | 1350 |
| DE 50Hertz | 7571 |
| DE Transnet BW | -590 |
| DE_Amprion DE | -3162 |
| DE_TenneT DE | -236 |
| DK1 West | 142 |
| DK2 East | -738 |
| EE | 544 |
| ES | 405 |
| FI | -756 |
| FR | 1728 |
| GB | -6641 |
| GR | 100 |
| HR | -510 |

| | Net Position (MW) |
|---|---|
| HU | -1500 |
| IT | -5860 |
| KS | -44 |
| LT | -1173 |
| LU | -448 |
| LV | 389 |
| ME | -167 |
| MK | -250 |
| NL | 1195 |
| NO | 2505 |
| PL | -600 |
| PT | 86 |
| RO | 500 |
| RS | 310 |
| SE | 2428 |
| SEM | 62 |
| SI | 354 |
| SK | 76 |
| TR | 208 |
| UA | 11 |

Note: that sign of the Net Position is as follow: - import / + export

## DC Interconnector Exchanges (in the indicated direction)

| TSO_from | TSO_to | Agreed Positions (MW) | Including losses (MW) |
|---|---|---|---|
| ELIA BE | DE_Amprion DE | 0 | 0 |
| TenneT DE | Svenska Kraftnat SE | -246 | -243 |
| National Grid GB | TenneT NL | -1025 | -1014 |
| Energinet West DK1 | TenneT NL | 23 | 22 |
| National Grid GB | RTE FR | -797 | -785 |
| Elering EE | FINGRID FI | -495 | -490 |
| Eirgrid/SONI SEM | National Grid GB | 28 | 28 |
| Svenska Kraftnat SE | FINGRID FI | 740 | 733 |
| IPTO GR | TERNA IT | 300 | 297 |
| RTE FR | National Grid GB | 2000 | 1976 |
| National Grid GB | RTE FR | -1000 | -985 |
| 50 Hertz DE | Energinet East DK2 | 62 | 62 |
| Energinet West DK1 | Svenska Kraftnat SE | -307 | -304 |
| Litgrid LT | PSE PL | 278 | 275 |
| Eirgrid/SONI SEM | National Grid GB | 34 | 34 |
| National Grid GB | ELIA BE | -646 | -640 |
| Litgrid LT | Svenska Kraftnat SE | -23 | -22 |
| Statnett NO | TenneT DE | 978 | 956 |
| TenneT NL | Statnett NO | -184 | -182 |
| Statnett NO | National Grid GB | 1111 | 1009 |
| Energinet West DK1 | Statnett NO | -248 | -246 |
| Energinet West DK1 | Energinet East DK2 | 389 | 385 |
| PSE PL | Svenska Kraftnat SE | -300 | -297 |
| Energinet West DK1 | National Grid GB | 0 | 0 |

# Appendix 7: Agreed forecast AC and DC exchanges for the Summer low demand scenario

## Area Net Position

| | Net Position (MW) |
|---|---|
| AL | -440 |
| AT | -3721 |
| BA | 310 |
| BE | 968 |
| BG | 708 |
| CH | -825 |
| CZ | 2396 |
| DE 50Hertz | 2586 |
| DE Transnet BW | -3472 |
| DE_Amprion DE | -1155 |
| DE_TenneT DE | 2464 |
| DK1 West | 839 |
| DK2 East | 201 |
| EE | 911 |
| ES | -96 |
| FI | -717 |
| FR | 8278 |
| GB | -4071 |
| GR | 28 |
| HR | -537 |

| | Net Position (MW) |
|---|---|
| HU | -1214 |
| IT | -6929 |
| KS | 47 |
| LT | -558 |
| LU | -365 |
| LV | -368 |
| ME | 49 |
| MK | -123 |
| NL | -33 |
| NO | 1134 |
| PL | 145 |
| PT | -20 |
| RO | 580 |
| RS | -213 |
| SE | 3351 |
| SEM | -13 |
| SI | -362 |
| SK | 605 |
| TR | -365 |
| UA | -3 |

Note: that sign of the Net Position is as follow: - import / + export

## DC Interconnector Exchanges (in the indicated direction)

| TSO_from | TSO_to | Agreed Positions (MW) | Including losses (MW) |
|---|---|---|---|
| ELIA BE | DE_Amprion DE | 0 | 0 |
| TenneT DE | Svenska Kraftnat SE | -345 | -342 |
| National Grid GB | TenneT NL | -72 | -71 |
| Energinet West DK1 | TenneT NL | 437 | 432 |
| National Grid GB | RTE FR | -681 | -671 |
| Elering EE | FINGRID FI | -213 | -211 |
| Eirgrid/SONI SEM | National Grid GB | -10 | -10 |
| Svenska Kraftnat SE | FINGRID FI | 700 | 693 |
| IPTO GR | TERNA IT | 350 | 347 |
| RTE FR | National Grid GB | 1863 | 1841 |
| National Grid GB | RTE FR | -931 | -918 |
| 50 Hertz DE | Energinet East DK2 | -593 | -587 |
| Energinet West DK1 | Svenska Kraftnat SE | -600 | -594 |
| Litgrid LT | PSE PL | 350 | 347 |
| Eirgrid/SONI SEM | National Grid GB | -2 | -2 |
| National Grid GB | ELIA BE | -125 | -124 |
| Litgrid LT | Svenska Kraftnat SE | -151 | -149 |
| Statnett NO | TenneT DE | 706 | 690 |
| TenneT NL | Statnett NO | -251 | -249 |
| Statnett NO | National Grid GB | 411 | 373 |
| Energinet West DK1 | Statnett NO | -131 | -130 |
| Energinet West DK1 | Energinet East DK2 | -268 | -265 |
| PSE PL | Svenska Kraftnat SE | -300 | -297 |
| Energinet West DK1 | National Grid GB | 0 | 0 |

# Appendix 8: System changes for the Summer scenarios (peak and low demand)

## Substations

| TSO | Name of Station | Name (code) | U [kV/kV] | Commissioning / Decommissioning |
|---|---|---|---|---|
| TEIAS | Selvili | TSELVL1 | 380 | Commissioning |
| TEIAS | Akkuyu NGS | TAKKYU1 | 380 | Commissioning |
| TEIAS | Ciftlikkoy | TCFTLK1 | 380 | Commissioning |
| TEIAS | Akdeniz | TAKDNZ1 | 380 | Commissioning |
| TransnetBW | Birkenfeld | D4BIRK | 380 | Commissioning |

## Lines

| TSO | Name | From | To | U [kV] | Commissioning / Decommissioning |
|---|---|---|---|---|---|
| 50Hertz | Lauchstädt-Wolmirstedt 535 | D8LAU | D8WOL | 380 | Decommissioning |
| 50Hertz | Klostermansfeld-Wolmirstedt 535 | D8KLM | D8WOL | 380 | Commissioning |
| 50Hertz | Lauchstädt-Klostermansfeld 537 | D8LAU | D8KLM | 380 | Commissioning |
| 50Hertz | Neuenhagen-Bertikow 303 | D8NHG | D8BE | 220 | Decommissioning |
| 50Hertz | Neuenhagen-Vierraden 304 | D8NHG | D8VIE | 220 | Decommissioning |
| 50Hertz | Parchim/ Süd-Perleberg 436 | D8PMS | D8PE | 380 | Commissioning |
| Amprion | Weingarten | Bürstadt | Maximiliansau | 220 | Decommissioning |
| ČEPS | V224 | Vítkov | Hradec | 220 | Decommissioning |
| ČEPS | V488 | Vítkov | Vernéřov | 400 | Commissioning |
| PSE | 1014 | Oltarzew | Warszawa Towarowa | 220 | Commissioning |
| PSE | 1012 | Mory | Oltarzew | 220 | Decommissioning |
| PSE | C106 | Mory | Warszawa Towarowa | 110 | Decommissioning |
| TEIAS | 400kV Akkuyu NGS-Kizilot OHL | Akkuyu NGS | Kizilot | 380 | Commissioning |

| TSO | Name | From | To | U [kV] | Commissioning / Decommissioning |
|---|---|---|---|---|---|
| TEIAS | 400kV Akkuyu NGS-Ermenek OHL | Akkuyu NGS | Ermenek | 380 | Commissioning |
| TEIAS | 400kV Akkuyu NGS-Seydisehir OHL | Akkuyu NGS | Seydisehir | 380 | Commissioning |
| TEIAS | 400kV Akkuyu NGS-Karatay OHL | Akkuyu NGS | Karatay | 380 | Commissioning |
| TEIAS | 400kV Akkuyu NGS-Akdeniz OHL | Akkuyu NGS | Akdeniz | 380 | Commissioning |
| TEIAS | 400kV Akkuyu NGS-Mersin OHL | Akkuyu NGS | Mersin | 380 | Commissioning |
| TEIAS | 400kV Akdeniz-Selvili OHL | Akdeniz | Selvili | 380 | Commissioning |
| TEIAS | 400kV Ciftlikkoy-Bandirma DG-2 OHL | Ciftlikkoy | Bandirma DG-2 | 380 | Commissioning |
| TEIAS | 400kV Ciftlikkoy-Makine OSB OHL | Ciftlikkoy | Makine OSB | 380 | Commissioning |
| TEIAS | 400kV Ciftlikkoy-Tepeoren Submarine Cable | Ciftlikkoy | Tepeoren | 380 | Commissioning |
| TEIAS | 400kV Ciftlikkoy-Diliskelesi Submarine Cable | Ciftlikkoy | Diliskelesi | 380 | Commissioning |
| TenneT DE | TTG/380/Etzenricht-Schwandorf/455 | D2ETZ 1* | D2SD 1* | 380 | Commissioning |
| TenneT DE | TTG/380/Etzenricht-Schwandorf/456 | D2ETZ 1* | D2SD 1* | 380 | Commissioning |
| Terna | Calenzano - S.Benedetto | Calenzano | S.Benedetto | 380 | Commissioning |
| Terna | S.Benedetto - Colunga | S.Benedetto | Colunga | 380 | Commissioning |
| Terna | Calenzano - S.Benedetto | Calenzano | S.Benedetto | 220 | Decommissioning |
| Terna | S.Benedetto - Colunga | S.Benedetto | Colunga | 220 | Decommissioning |
| TransnetBW | Bruchsal-Philippsburg-Pulverdingen white | | | 380 | Decommissioning |
| TransnetBW | Birkenfeld-Pulverdingen yellow | Birkenfeld | Pulverdingen | 380 | Commissioning |
| TransnetBW | Birkenfeld-Bruchsal-Philippsburg white | | | 380 | Commissioning |

## Interconnections

| X-node | TSO | To-Node | U [kV] | Commissioning/ Decommissioning |
|---|---|---|---|---|
| XTSI_VA11 | AST | Tsirguliina | 330 | Commissioning |
| XTSI_VA11 | ELERING | Valmiera | 330 | Commissioning |

## Transformers and PSTs

| TSO | Name | From | To | U [kV/kV] | Max angle | Commissioning / Decommissioning |
|---|---|---|---|---|---|---|
| 50Hertz | TR412 | Parchim/Süd | Parchim/Süd | 380/110 | | Commissioning |
| 50Hertz | TR414 | Jessen/Nord | Jessen/Nord | 380/110 | | Commissioning |
| APG | YFPST | Ybbsfeld | Ybbsfeld | 220/220 | 90 | Commissioning |
| PSE | NYS-A1 | Nysa | Nysa | 220/110 | | Commissioning |
| PSE | NYS-A2 | Nysa | Nysa | 220/110 | | Commissioning |
| PSE | ROZ-A3 | Rozki | Rozki | 220/110 | | Commissioning |
| PSE | ZUK-A2 | Żukowice | Żukowice | 220/110 | | Commissioning |
| PSE | SOC-A1 | Sochaczew | Sochaczew | 220/110 | | Commissioning |
| TransnetBW | BMT324 | Wendlingen | Wendlingen | 380/220 | | Decommissioning |
| TransnetBW | BMT211 | Wendlingen | Wendlingen | 220/110 | | Decommissioning |
| TransnetBW | BMT413 | Wendlingen | Wendlingen | 380/110 | | Commissioning |
| TransnetBW | BMT 411 | Birkenfeld | Birkenfeld | 380/110 | | Commissioning |

## Generation units

| TSO | Name | Name of Substation | U [kV] | Type | Commissioning/ Decommissioning |
|---|---|---|---|---|---|
| Elering | SC Viru | Viru | 330 | Synchronous Condenser | Commissioning |
| Litgrid | SC Neris | Neris | 330 | Synchronous Condenser | Commissioning |
| TEIAS | Akkuyu NGS | Akkuyu NGS | 380 | Nuclear PP | Commissioning |
| Terna | Reattore | Tirano | 220 | Reactor | Commissioning |
| TransnetBW | Ultranet (Statcom) | Philippsburg | 380 | HVDC Terminal as Statcom | Commissioning |

# Appendix 9: Agreed forecast AC and DC exchanges for the Summer peak scenario

## Area Net Position

| | Net Position (MW) |
|---|---|
| AL | -194 |
| AT | -2624 |
| BA | 235 |
| BE | 158 |
| BG | 640 |
| CH | 1521 |
| CZ | 2057 |
| DE 50Hertz | 5829 |
| DE Transnet BW | -3377 |
| DE_Amprion DE | -3360 |
| DE_TenneT DE | 1390 |
| DK1 West | 1429 |
| DK2 East | -128 |
| EE | 774 |
| ES | 405 |
| FI | -878 |
| FR | 5088 |
| GB | -7203 |
| GR | 258 |
| HR | -1107 |

| | Net Position (MW) |
|---|---|
| HU | -1430 |
| IT | -6260 |
| KS | 114 |
| LT | -28 |
| LU | -501 |
| LV | -698 |
| ME | 7 |
| MK | -133 |
| NL | 2013 |
| NO | 2669 |
| PL | 200 |
| PT | 86 |
| RO | 497 |
| RS | -256 |
| SE | 2744 |
| SEM | 62 |
| SI | -181 |
| SK | -26 |
| TR | 195 |
| UA | 11 |

Note: that sign of the Net Position is as follow: - import / + export

## DC Interconnector Exchanges (in the indicated direction)

| TSO_from | TSO_to | Agreed Positions (MW) | Including losses (MW) |
|---|---|---|---|
| ELIA BE | DE_Amprion DE | 0 | 0 |
| TenneT DE | Svenska Kraftnat SE | -334 | -330 |
| National Grid GB | TenneT NL | -1032 | -1022 |
| Energinet West DK1 | TenneT NL | 316 | 312 |
| National Grid GB | RTE FR | -1000 | -985 |
| Elering EE | FINGRID FI | 75 | 74 |
| Eirgrid/SONI SEM | National Grid GB | 35 | 35 |
| Svenska Kraftnat SE | FINGRID FI | 816 | 808 |
| IPTO GR | TERNA IT | 350 | 347 |
| RTE FR | National Grid GB | 2000 | 1976 |
| National Grid GB | RTE FR | -1000 | -985 |
| 50 Hertz DE | Energinet East DK2 | -582 | -576 |
| Energinet West DK1 | Svenska Kraftnat SE | -458 | -454 |
| Litgrid LT | PSE PL | 110 | 109 |
| Eirgrid/SONI SEM | National Grid GB | 27 | 27 |
| National Grid GB | ELIA BE | -742 | -734 |
| Litgrid LT | Svenska Kraftnat SE | -137 | -136 |
| Statnett NO | TenneT DE | 754 | 737 |
| TenneT NL | Statnett NO | -232 | -230 |
| Statnett NO | National Grid GB | 1367 | 1241 |
| Energinet West DK1 | Statnett NO | -63 | -62 |
| Energinet West DK1 | Energinet East DK2 | -257 | -254 |
| PSE PL | Svenska Kraftnat SE | -300 | -297 |
| Energinet West DK1 | National Grid GB | 0 | 0 |

# Appendix 10: Agreed forecast AC and DC exchanges for the Autumn low demand scenario

## Area Net Position

| | Net Position (MW) |
|---|---|
| AL | -93 |
| AT | -1069 |
| BA | 234 |
| BE | 26 |
| BG | 216 |
| CH | -1280 |
| CZ | 1079 |
| DE 50Hertz | 4038 |
| DE Transnet BW | -2953 |
| DE_Amprion DE | -1640 |
| DE_TenneT DE | -2396 |
| DK1 West | -449 |
| DK2 East | -249 |
| EE | 947 |
| ES | 77 |
| FI | -504 |
| FR | 13977 |
| GB | -3832 |
| GR | -182 |
| HR | -345 |

| | Net Position (MW) |
|---|---|
| HU | -1489 |
| IT | -6547 |
| KS | 52 |
| LT | -514 |
| LU | -359 |
| LV | -426 |
| ME | 1 |
| MK | -147 |
| NL | -54 |
| NO | -263 |
| PL | 344 |
| PT | 16 |
| RO | 416 |
| RS | -89 |
| SE | 4115 |
| SEM | 14 |
| SI | -1168 |
| SK | 350 |
| TR | 145 |
| UA | 2 |

Note that sign of the Net Position is as follow: - import / + export

## DC Interconnector Exchanges (in the indicated direction)

| TSO_from | TSO_to | Agreed Positions (MW) | Including losses (MW) |
|---|---|---|---|
| ELIA BE | DE_Amprion DE | -80 | -78 |
| TenneT DE | Svenska Kraftnat SE | -573 | -568 |
| National Grid GB | TenneT NL | -219 | -217 |
| Energinet West DK1 | TenneT NL | -299 | -296 |
| National Grid GB | RTE FR | -642 | -632 |
| Elering EE | FINGRID FI | -422 | -418 |
| Eirgrid/SONI SEM | National Grid GB | 12 | 12 |
| Svenska Kraftnat SE | FINGRID FI | 706 | 699 |
| IPTO GR | TERNA IT | 300 | 297 |
| RTE FR | National Grid GB | 1784 | 1763 |
| National Grid GB | RTE FR | -892 | -879 |
| 50 Hertz DE | Energinet East DK2 | 33 | 33 |
| Energinet West DK1 | Svenska Kraftnat SE | -673 | -667 |
| Litgrid LT | PSE PL | 320 | 317 |
| Eirgrid/SONI SEM | National Grid GB | 2 | 2 |
| National Grid GB | ELIA BE | -428 | -424 |
| Litgrid LT | Svenska Kraftnat SE | 108 | 107 |
| Statnett NO | TenneT DE | 614 | 600 |
| TenneT NL | Statnett NO | 140 | 138 |
| Statnett NO | National Grid GB | -147 | -134 |
| Energinet West DK1 | Statnett NO | -1015 | -1005 |
| Energinet West DK1 | Energinet East DK2 | 70 | 70 |
| PSE PL | Svenska Kraftnat SE | -300 | -297 |
| Energinet West DK1 | National Grid GB | 0 | 0 |

# Appendix 11: System changes for the Autumn scenario (peak and low demand)

## Substations

| TSO | Name of Station | Name (code) | U [kV/kV] | Commissioning / Decommissioning |
|---|---|---|---|---|
| Amprion | Waldsee | TBD | 380 | Commissioning |
| Amprion | Maximiliansau | D7MAXA2 | 220 | Decommissioning |
| TEIAS | Cınar | TCINAR1 | 380 | Commissioning |

## Lines

| TSO | Name | From | To | U [kV] | Commissioning / Decommissioning |
|---|---|---|---|---|---|
| 50Hertz | Vierraden-Bertikow 304-303 | D8VIE | D8BE | 220 | Decommissioning |
| 50Hertz | Bertikow-Pasewalk 305-306 | D8BE | D8PAS | 220 | Commissioning |
| 50Hertz | Bertikow-Pasewalk 303-306 | D8BE | D8PAS | 220 | Commissioning |
| Amprion | Niedersachsen Nord | Wehrendorf | Westerkappeln | 380 | Decommissioning |
| Amprion | Niedersachsen Nord | Wehrendorf | Merzen | 380 | Commissioning |
| Amprion | Bramgau Ost | Merzen | Westerkappeln | 380 | Commissioning |
| Amprion | Provisorium Gronau - Niederrhein | Gronau | Niederrhein | 380 | Commissioning |
| Amprion | Oberscholven Ost | Polsum | Oberscholven | 220 | Commissioning |
| Amprion | Oberscholven West | Polsum | Oberscholven | 220 | Commissioning |
| Amprion | Scholven D | Kusenhorst | KW Scholven | 220 | Decommissioning |
| Amprion | Scholven E | Bergmannsglück | Büscherhof | 220 | Decommissioning |
| Amprion | Knechtsteden Ost | Osterath | Rommerskirchen | 380 | Commissioning |
| Amprion | Prov. Bigge Ost/Südleitung | Opladen | Garenfeld | 220 | Commissioning |
| Amprion | Prov. Bigge Ost/Südleitung | Garenfeld | Elverlingsen | 220 | Commissioning |
| Amprion | Prov. Bigge West/Nordleitung | Opladen | Altenkleusheim | 220 | Commissioning |
| Amprion | Prov. Bigge West/Nordleitung | Altenkleusheim | Elverlingsen | 220 | Commissioning |
| Amprion | Prov. Bixterheide Nord | Bixterheide | Altenkleusheim | 220 | Commissioning |
| Amprion | Prov. Bigge Ost/Nordleitung | Bixterheide | Garenfeld | 220 | Commissioning |
| Amprion | Bigge Ost | Pkt. Ochsenkopf | Altenkleusheim | 220 | Decommissioning |

| TSO | Name | From | To | U [kV] | Commissioning / Decommissioning |
|---|---|---|---|---|---|
| Amprion | Bigge West | Pkt. Ochsenkopf | Garenfeld | 220 | Decommissioning |
| Amprion | Bixterheide Nord | Pkt. Ochsenkopf | Garenfeld | 220 | Decommissioning |
| Amprion | Nordleitung | Pkt. Ochsenkopf | Elverlingsen | 220 | Decommissioning |
| Amprion | Biblis3c | Urberach | Bürstadt | 220 | Decommissioning |
| Amprion | Ried West | Bischofsheim | Pfungstadt | 380 | Decommissioning |
| Amprion | Ried West | Pfungstadt | Bürstadt | 380 | Decommissioning |
| Amprion | Bürstadt Ost | Bürstadt | Lambsheim | 380 | Commissioning |
| Amprion | Weinstraße Ost | Lambsheim | Maximiliansau | 380 | Commissioning |
| Amprion | Weinstraße West | Weingarten | Maximiliansau | 380 | Commissioning |
| Amprion | Bienwald West | Mutterstadt | Maximiliansau | 220 | Decommissioning |
| ČEPS | V803 | Nošovice | Prosenice | 400 | Commissioning |
| PSE | H011 | Mikulowa | Swiebodzice | 400 | Commissioning |
| PSE | 4003 | Mikulowa | Swiebodzice | 220 | Decommissioning |
| Swissgrid | Bickigen-Chippis | Bickigen | Chippis | 380 | Commissioning |
| TEIAS | 400kV Diyarbakir3-Batman2 OHL | Diyarbakir-3 | Batman-2 | 380 | Decommissioning |
| TEIAS | 400kV Cınar-Diyarbakir3 OHL | Cınar | Diyarbakir-3 | 380 | Commissioning |
| TEIAS | 400kV Cınar-Batman-2 OHL | Cınar | Batman-2 | 380 | Commissioning |

## Interconnections

| X-node | TSO | To-Node | U [kV] | Commissioning/ Decommissioning |
|---|---|---|---|---|
| XDA_MA11 | Amprion | D7MAXA1* | 380 | Commissioning |
| XDA_MA11 | TransnetBW | D4DAXL1* | 380 | Commissioning |
| XDA_MA21 | Amprion | D7MAXA2* | 220 | Decommissioning |
| XDA_MA21 | TransnetBW | D4DAXL2* | 220 | Decommissioning |
| XDA_MU21 | Amprion | D7MUTT2* | 220 | Commissioning |
| XDA_MU21 | TransnetBW | D4DAXL2* | 220 | Commissioning |
| XDA_WE11 | Amprion | D7WEIN1* | 380 | Decommissioning |
| XDA_WE11 | TransnetBW | D4DAXL1* | 380 | Decommissioning |

## Transformers and PSTs

| TSO | Name | From | To | U [kV/kV] | Max angle | Commissioning / Decommissioning |
|---|---|---|---|---|---|---|
| 50Hertz | TR412 | Pasewalk | Pasewalk | 380/110 | | Commissioning |
| 50Hertz | TR203 | Pasewalk | Pasewalk | 220/110 | | Decommissioning |
| 50Hertz | TR202 | Pasewalk | Pasewalk | 220/110 | | Decommissioning |
| 50Hertz | TR412 | Bertikow | Bertikow | 380/110 | | Commissioning |
| 50Hertz | TR201 | Bertikow | Bertikow | 220/110 | | Decommissioning |
| 50Hertz | TR202 | Bertikow | Bertikow | 220/110 | | Decommissioning |
| 50Hertz | TR203 | Bertikow | Bertikow | 220/110 | | Decommissioning |
| 50Hertz | TR402 | Vierraden | Vierraden | 380/220 | | Decommissioning |
| 50Hertz | TR404 | Vierraden | Vierraden | 380/220 | | Decommissioning |
| Amprion | TR 412 | Meppen | Meppen | 380/110 | | Commissioning |
| Amprion | TR 212 | Kusenhorst | Kusenhorst | 220/110 | | Decommissioning |
| Amprion | TR 411 | Waldsee | Waldsee | 380/110 | | Commissioning |
| Amprion | TR 412 | Waldsee | Waldsee | 380/110 | | Commissioning |
| Amprion | TR 411 | Maximiliansau | Maximiliansau | 380/110 | | Commissioning |
| Amprion | TR 412 | Maximiliansau | Maximiliansau | 380/110 | | Commissioning |
| Amprion | TR 423 | Bürstadt | Bürstadt | 380/220 | | Commissioning |
| Amprion | TR 422 | Bürstadt | Bürstadt | 380/220 | | Decommissioning |
| MAVIR | Buj Tr. No. III. | MBUJ 1* | MBUJ 4* | 400/132/18 | | Commissioning |
| TenneT DE | TTG/ 380-220/ Schwandorf/ VK5 | D2SD 1* | D2SD 2* | 380/220 | | Decommissioning |

| TSO | Name | From | To | U [kV/kV] | Max angle | Commissioning / Decommissioning |
|---|---|---|---|---|---|---|
| TenneT DE | TTG /380-220 /Schwandorf/ T421 | D2SD 1* | D2SD 2* | 380/220 | | Commissioning |
| TransnetBW | BMT 412 | Birkenfeld | Birkenfeld | 380/110 | | Commissioning |

## Generation units

| TSO | Name | Name of Substation | U [kV] | Type | Commissioning/ Decommissioning |
|---|---|---|---|---|---|
| PSE | EC Karolin | Karolin | 110 | Thermal (gas) | Commissioning |

# Appendix 12: Agreed forecast AC and DC exchanges for the Autumn peak scenario

## Area Net Position

| | Net Position (MW) |
|---|---|
| AL | 200 |
| AT | -1800 |
| BA | 160 |
| BE | 1000 |
| BG | 259 |
| CH | 2484 |
| CZ | 1520 |
| DE 50Hertz | 6800 |
| DE Transnet BW | -3506 |
| DE_Amprion DE | -1345 |
| DE_TenneT DE | 1770 |
| DK1 West | -711 |
| DK2 East | -896 |
| EE | 884 |
| ES | 405 |
| FI | -727 |
| FR | 5000 |
| GB | -6641 |
| GR | 400 |
| HR | -480 |

| | Net Position (MW) |
|---|---|
| HU | -2000 |
| IT | -6010 |
| KS | 200 |
| LT | -220 |
| LU | -560 |
| LV | -604 |
| ME | 250 |
| MK | -250 |
| NL | 756 |
| NO | 1737 |
| PL | 200 |
| PT | 86 |
| RO | -500 |
| RS | 500 |
| SE | 2224 |
| SEM | 62 |
| SI | -1141 |
| SK | 274 |
| TR | 208 |
| UA | 11 |

Note that sign of the Net Position is as follow: - import / + export

## DC Interconnector Exchanges (in the indicated direction)

| TSO_from | TSO_to | Agreed Positions (MW) | Including losses (MW) |
|---|---|---|---|
| ELIA BE | DE_Amprion DE | 0 | 0 |
| TenneT DE | Svenska Kraftnat SE | -275 | -272 |
| National Grid GB | TenneT NL | -1062 | -1051 |
| Energinet West DK1 | TenneT NL | -344 | -340 |
| National Grid GB | RTE FR | -1000 | -985 |
| Elering EE | FINGRID FI | -278 | -275 |
| Eirgrid/SONI SEM | National Grid GB | 46 | 46 |
| Svenska Kraftnat SE | FINGRID FI | 911 | 902 |
| IPTO GR | TERNA IT | 300 | 297 |
| RTE FR | National Grid GB | 2000 | 1976 |
| National Grid GB | RTE FR | -1000 | -985 |
| 50 Hertz DE | Energinet East DK2 | 316 | 313 |
| Energinet West DK1 | Svenska Kraftnat SE | -621 | -614 |
| Litgrid LT | PSE PL | 181 | 179 |
| Eirgrid/SONI SEM | National Grid GB | 16 | 16 |
| National Grid GB | ELIA BE | -954 | -944 |
| Litgrid LT | Svenska Kraftnat SE | 157 | 156 |
| Statnett NO | TenneT DE | 733 | 717 |
| TenneT NL | Statnett NO | 238 | 236 |
| Statnett NO | National Grid GB | 563 | 511 |
| Energinet West DK1 | Statnett NO | -880 | -871 |
| Energinet West DK1 | Energinet East DK2 | 600 | 594 |
| PSE PL | Svenska Kraftnat SE | -300 | -297 |
| Energinet West DK1 | National Grid GB | 0 | 0 |

# Appendix 13: Agreed forecast AC and DC exchanges for the Winter II low demand scenario

## Area Net Position

| | Net Position (MW) |
|---|---|
| AL | 762 |
| AT | -4184 |
| BA | 566 |
| BE | -587 |
| BG | 591 |
| CH | -3567 |
| CZ | 2015 |
| DE 50Hertz | 3817 |
| DE Transnet BW | -1894 |
| DE_Amprion DE | -744 |
| DE_TenneT DE | 332 |
| DK1 West | -801 |
| DK2 East | 189 |
| EE | 821 |
| ES | -260 |
| FI | -1209 |
| FR | 13901 |
| GB | -4313 |
| GR | -160 |
| HR | 72 |

| | Net Position (MW) |
|---|---|
| HU | -1738 |
| IT | -6249 |
| KS | -308 |
| LT | -631 |
| LU | -350 |
| LV | -224 |
| ME | 146 |
| MK | -159 |
| NL | 978 |
| NO | 530 |
| PL | -448 |
| PT | -54 |
| RO | 246 |
| RS | -335 |
| SE | 3242 |
| SEM | -39 |
| SI | -392 |
| SK | 543 |
| TR | -98 |
| UA | -7 |

Note: that sign of the Net Position is as follow: - import / + export

## DC Interconnector Exchanges (in the indicated direction)

| TSO_from | TSO_to | Agreed Positions (MW) | Including losses (MW) |
|---|---|---|---|
| ELIA BE | DE_Amprion DE | -820 | -804 |
| TenneT DE | Svenska Kraftnat SE | -108 | -107 |
| National Grid GB | TenneT NL | -514 | -509 |
| Energinet West DK1 | TenneT NL | 276 | 273 |
| National Grid GB | RTE FR | -776 | -764 |
| Elering EE | FINGRID FI | -23 | -22 |
| Eirgrid/SONI SEM | National Grid GB | -33 | -32 |
| Svenska Kraftnat SE | FINGRID FI | 783 | 775 |
| IPTO GR | TERNA IT | 300 | 297 |
| RTE FR | National Grid GB | 1551 | 1532 |
| National Grid GB | RTE FR | -776 | -764 |
| 50 Hertz DE | Energinet East DK2 | -249 | -246 |
| Energinet West DK1 | Svenska Kraftnat SE | -125 | -124 |
| Litgrid LT | PSE PL | 109 | 108 |
| Eirgrid/SONI SEM | National Grid GB | -6 | -6 |
| National Grid GB | ELIA BE | -283 | -280 |
| Litgrid LT | Svenska Kraftnat SE | -120 | -119 |
| Statnett NO | TenneT DE | 262 | 256 |
| TenneT NL | Statnett NO | -260 | -258 |
| Statnett NO | National Grid GB | 454 | 412 |
| Energinet West DK1 | Statnett NO | -251 | -248 |
| Energinet West DK1 | Energinet East DK2 | -600 | -594 |
| PSE PL | Svenska Kraftnat SE | -300 | -297 |
| Energinet West DK1 | National Grid GB | 0 | 0 |

# Appendix 14: System changes for the Winter II scenario (peak and low demand)

## Substations

| TSO | Name of Station | Name (code) | U [kV/kV] | Commissioning / Decommissioning |
|---|---|---|---|---|
| MAVIR | Göd Kelet | MGKEL | 400/132 | Commissioning |
| Terna | Torremaggiore | ITMGN11 | 380 | Commissioning |
| TransnetBW | Birkenfeld | D4BIRK | 220 | Decommissioning |
| TransnetBW | Kork | D4KORK | 380 | Commissioning |

## Lines

| TSO | Name | From | To | U [kV] | Commissioning / Decommissioning |
|---|---|---|---|---|---|
| 50Hertz | Bertikow-Pasewalk 305-306 | D8BE | D8PAS | 220 | Decommissioning |
| 50Hertz | Bertikow-Pasewalk 303-306 | D8BE | D8PAS | 220 | Decommissioning |
| 50Hertz | Bertikow-Vierraden 481 | D8VIE | D8BE | 380 | Commissioning |
| 50Hertz | Bertikow-Vierraden 482 | D8BE | D8VIE | 380 | Commissioning |
| 50Hertz | Bertikow-Pasewalk 408 | D8BE | D8PAS | 380 | Commissioning |
| 50Hertz | Bertikow-Pasewalk 407 | D8BE | D8PAS | 380 | Commissioning |
| 50Hertz | Vierraden-Pasewalk 306 | D8VIE | D8PAS | 220 | Decommissioning |
| 50Hertz | Bertikow-Pasewalk 305 | D8BE | D8PAS | 220 | Decommissioning |
| 50Hertz | Röhrsdorf-Weida 573 | D8ROE | D8WD | 380 | Commissioning |
| 50Hertz | Weida-Remptendorf 575 | D8WD | D8RE | 380 | Commissioning |
| 50Hertz | Parchim/Süd-Wolmirstedt 332-322 | D8PMS | D8WOL | 220 | Decommissioning |
| Amprion | Utfort W | Utfort | Pkt. St.Tönis | 220 | Decommissioning |
| Amprion | Eiserfeld | Altenkleusheim | Setzer Wiese | 220 | Decommissioning |
| MAVIR | Sajószöged-Göd | MSAJO 1* | MGOD 1* | 400 | Decommissioning |
| MAVIR | Kerepes-Göd | MKERP 1* | MGOD 1* | 400 | Decommissioning |

| TSO | Name | From | To | U [kV] | Commissioning / Decommissioning |
|---|---|---|---|---|---|
| MAVIR | Sajószöged-Göd Kelet | MSAJO 1* | MGKEL 1* | 400 | Commissioning |
| MAVIR | Kerepes-Göd Kelet | MKERP 1* | MGKEL 1* | 400 | Commissioning |
| MAVIR | Göd Kelet-Göd I. | MGOD 1* | MGKEL 1* | 400 | Commissioning |
| MAVIR | Göd Kelet-Göd II. | MGOD 1* | MGKEL 1* | 400 | Commissioning |
| PSE | H012 | Mikulowa | Swiebodzice | 400 | Commissioning |
| PSE | 4004 | Mikulowa | Swiebodzice | 220 | Decommissioning |
| Terna | S. Severo - Larino | S. Severo | Larino | 380 | Decommissioning |
| Terna | S. Severo - Torremaggiore | S. Severo | Torremaggiore | 380 | Commissioning |
| Terna | Torremaggiore - Larino | Torremaggiore | Larino | 380 | Commissioning |
| TransnetBW | Birkenfeld-Daxlanden yellow | Birkenfeld | Daxlanden | 220 | Decommissioning |
| TransnetBW | Daxlanden-Eichstetten red | Daxlanden | Eichstetten | 380 | Decommissioning |
| TransnetBW | Daxlanden-Kork | Daxlanden | Kork | 380 | Commissioning |
| TransnetBW | Eichstetten-Kork | Eichstetten | Kork | 380 | Commissioning |

## Interconnections – no new connections

## Transformers and PSTs

| TSO | Name | From | To | U [kV/kV] | Max angle | Commissioning / Decommissioning |
|---|---|---|---|---|---|---|
| Amprion | TR 413 | Kusenhorst | Kusenhorst | 380/110 | | Commissioning |
| Amprion | TR 414 | Hattingen | Hattingen | 380/110 | | Commissioning |
| Amprion | TR 412 | Niederrhein | Niederrhein | 380/110 | | Commissioning |
| MAVIR | Békéscsaba OVIT Tr. No. III. | MBEKO 1* | MBEKO 4* | 400/132/18 | | Commissioning |
| MAVIR | Göd Kelet Tr. No. I. | MGKEL 1* | MGKEL 4* | 400/132/18 | | Commissioning |
| MAVIR | Göd Kelet Tr. No. II. | MGKEL 1* | MGKEL 4* | 400/132/18 | | Commissioning |
| MAVIR | Göd Kelet Tr. No. III. | MGKEL 1* | MGKEL 4* | 400/132/18 | | Commissioning |

## Generation units

| TSO | Name | Name of Substation | U [kV] | Type | Commissioning/ Decommissioning |
|---|---|---|---|---|---|
| PSE | Kozienice B1 | Kozienice | 220 | Thermal (coal) | Decommissioning |
| PSE | Kozienice B2 | Kozienice | 110 | Thermal (coal) | Decommissioning |

# Appendix 15: Agreed forecast AC and DC exchanges for the Winter II peak scenario

## Area Net Position

| | Net Position (MW) |
|---|---|
| AL | 950 |
| AT | -4300 |
| BA | 830 |
| BE | 0 |
| BG | 877 |
| CH | 2268 |
| CZ | 2440 |
| DE 50Hertz | 6700 |
| DE Transnet BW | -3519 |
| DE_Amprion DE | -3294 |
| DE_TenneT DE | 5481 |
| DK1 West | 2015 |
| DK2 East | -442 |
| EE | 95 |
| ES | 405 |
| FI | -1668 |
| FR | 2000 |
| GB | -6641 |
| GR | 400 |
| HR | -200 |

| | Net Position (MW) |
|---|---|
| HU | -2200 |
| IT | -5860 |
| KS | -250 |
| LT | -1044 |
| LU | -499 |
| LV | -126 |
| ME | 350 |
| MK | -300 |
| NL | 812 |
| NO | 3536 |
| PL | 400 |
| PT | 86 |
| RO | -400 |
| RS | 300 |
| SE | 274 |
| SEM | 62 |
| SI | -44 |
| SK | 286 |
| TR | 208 |
| UA | 11 |

Note: that sign of the Net Position is as follow: - import / + export

## DC Interconnector Exchanges (in the indicated direction)

| TSO_from | TSO_to | Agreed Positions (MW) | Including losses (MW) |
|---|---|---|---|
| ELIA BE | DE_Amprion DE | -580 | -568 |
| TenneT DE | Svenska Kraftnat SE | 228 | 226 |
| National Grid GB | TenneT NL | -1062 | -1051 |
| Energinet West DK1 | TenneT NL | 24 | 23 |
| National Grid GB | RTE FR | -1000 | -985 |
| Elering EE | FINGRID FI | 13 | 13 |
| Eirgrid/SONI SEM | National Grid GB | 24 | 23 |
| Svenska Kraftnat SE | FINGRID FI | 404 | 400 |
| IPTO GR | TERNA IT | 300 | 297 |
| RTE FR | National Grid GB | 2000 | 1976 |
| National Grid GB | RTE FR | -1000 | -985 |
| 50 Hertz DE | Energinet East DK2 | -182 | -181 |
| Energinet West DK1 | Svenska Kraftnat SE | 90 | 89 |
| Litgrid LT | PSE PL | -350 | -347 |
| Eirgrid/SONI SEM | National Grid GB | 39 | 38 |
| National Grid GB | ELIA BE | -832 | -823 |
| Litgrid LT | Svenska Kraftnat SE | -738 | -731 |
| Statnett NO | TenneT DE | 93 | 91 |
| TenneT NL | Statnett NO | 222 | 220 |
| Statnett NO | National Grid GB | 685 | 622 |
| Energinet West DK1 | Statnett NO | -482 | -477 |
| Energinet West DK1 | Energinet East DK2 | 0 | 0 |
| PSE PL | Svenska Kraftnat SE | -73 | -73 |
| Energinet West DK1 | National Grid GB | 0 | 0 |