Nordic TSOs quarterly cross zonal capacity report

Quarter 3, 2018 - TSO version

Background and Purpose

Quarter 3, 2018

This quarterly report on cross-zonal transmission capacity is produced by the Nordic TSOs by the request of NordREG, an organization for the Nordic energy regulators.

The Nordic TSOs determine the capacity on each cross-zonal corridor every hour of the day. The purpose of this report is to provide the reader with information about
• the available cross-zonal capacity on corridors between the Nordic countries and between the Nordics and continental Europe, and
• the reasons why the cross-zonal capacity has been reduced in the cases where capacity has been reduced below a threshold of 75 % of max NTC as an average over the quarter

The report consists of
• an overview over all corridors,
• detailed information on each corridor with hourly values and
• description of reoccurring and/or significant capacity reductions

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Summary

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For all corridors (34 in total) the available capacity provided by the TSOs was 85% of max NTC as a weighted average, compared to the threshold of 75%.

For AC corridors (14 in total) the available capacity provided by the TSOs was 75% of max NTC as a weighted average, compared to the threshold of 75%.

For DC corridors (20 in total) the available capacity provided by the TSOs was 94% of max NTC as a weighted average, compared to the threshold of 75%.

The number of corridors under 75% was 12. The corridor(s) with the lowest average available capacity compared to Max NTC was PL-SE4, with 37%.

Weekly day ahead capacities for all corridors – as a percentage of max NTC

Quarter 3, 2018

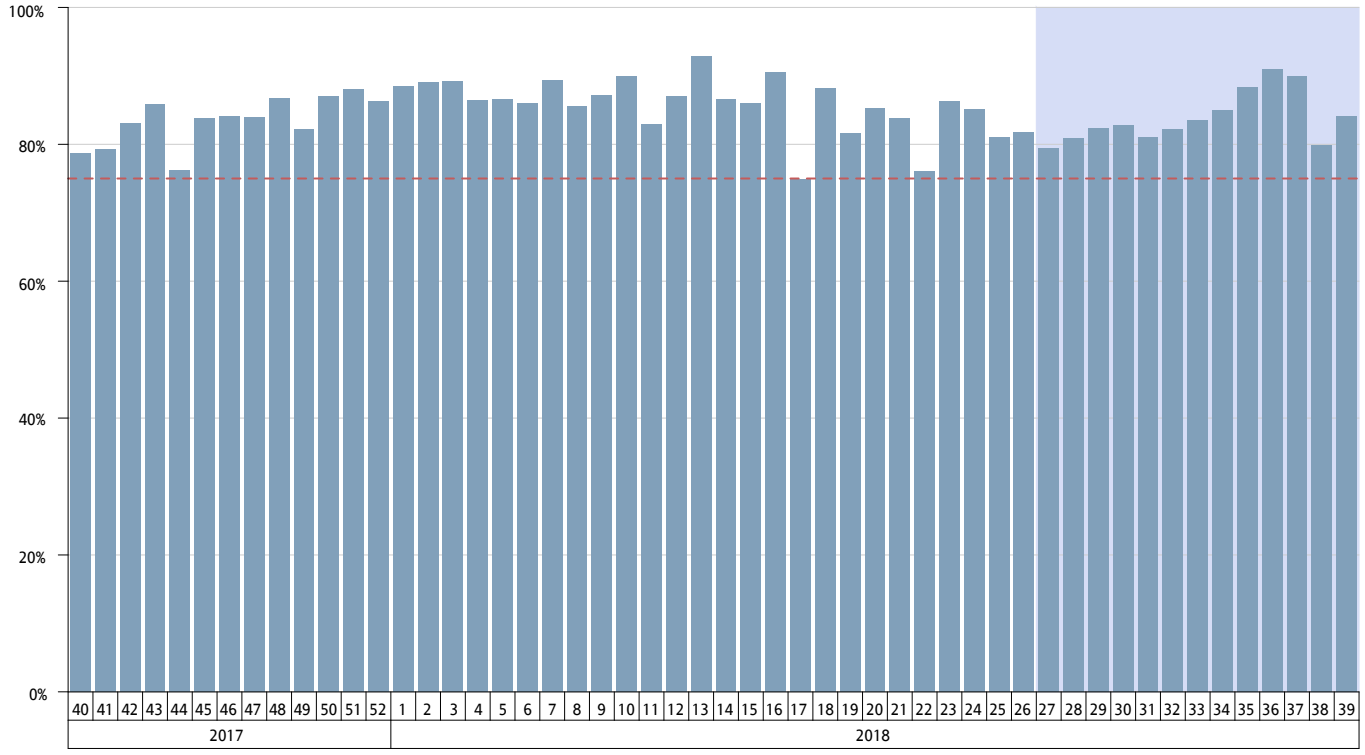

Figure 1: Cross-zonal day-ahead capacity result for all corridors, showing average weekly capacity given as a percentage of max NTC. The capacity is summed independent of direction.

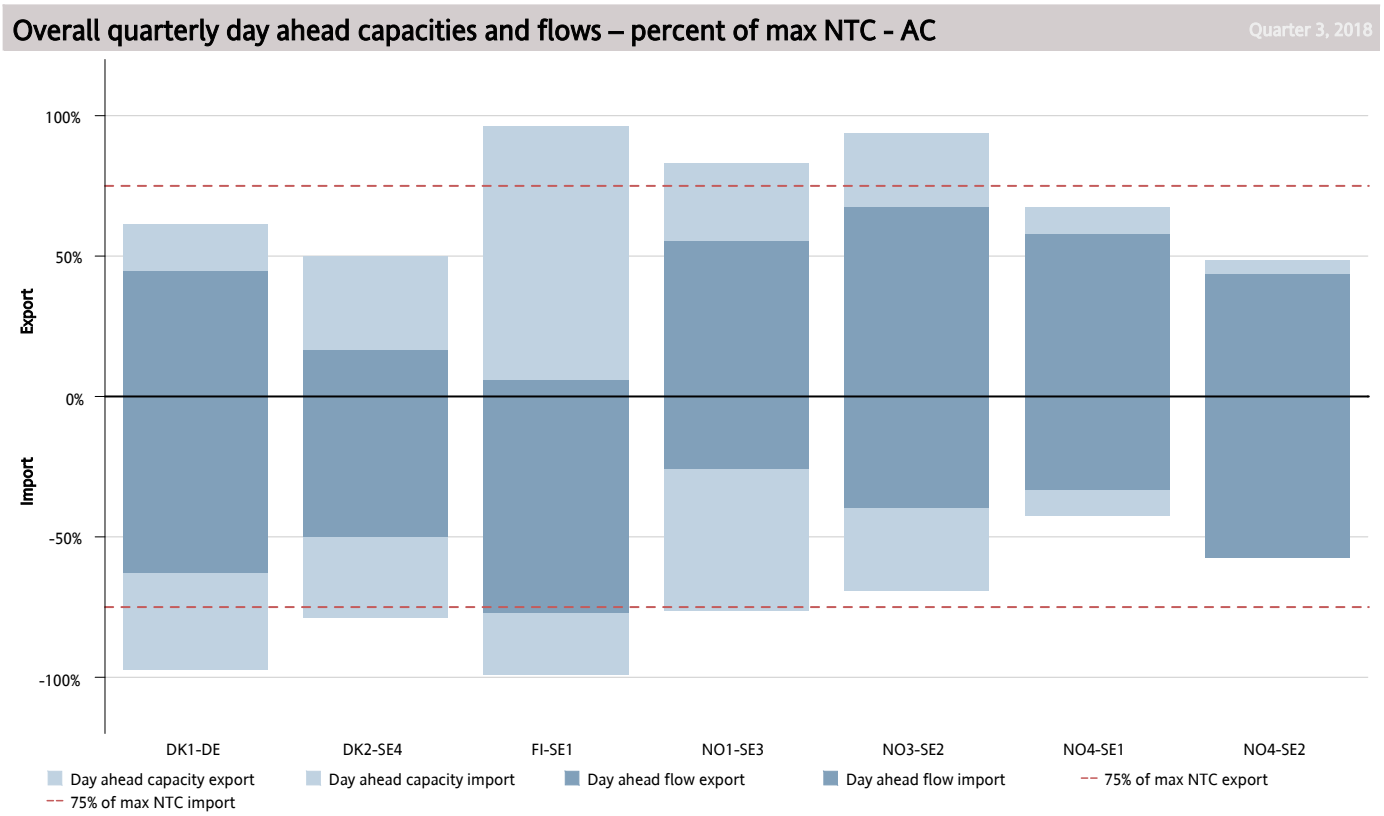

Figure 2: Cross-zonal day-ahead capacity result for AC corridors, showing average capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. For a corridor A-B, export means flow from A to B and import means flow from B to A.

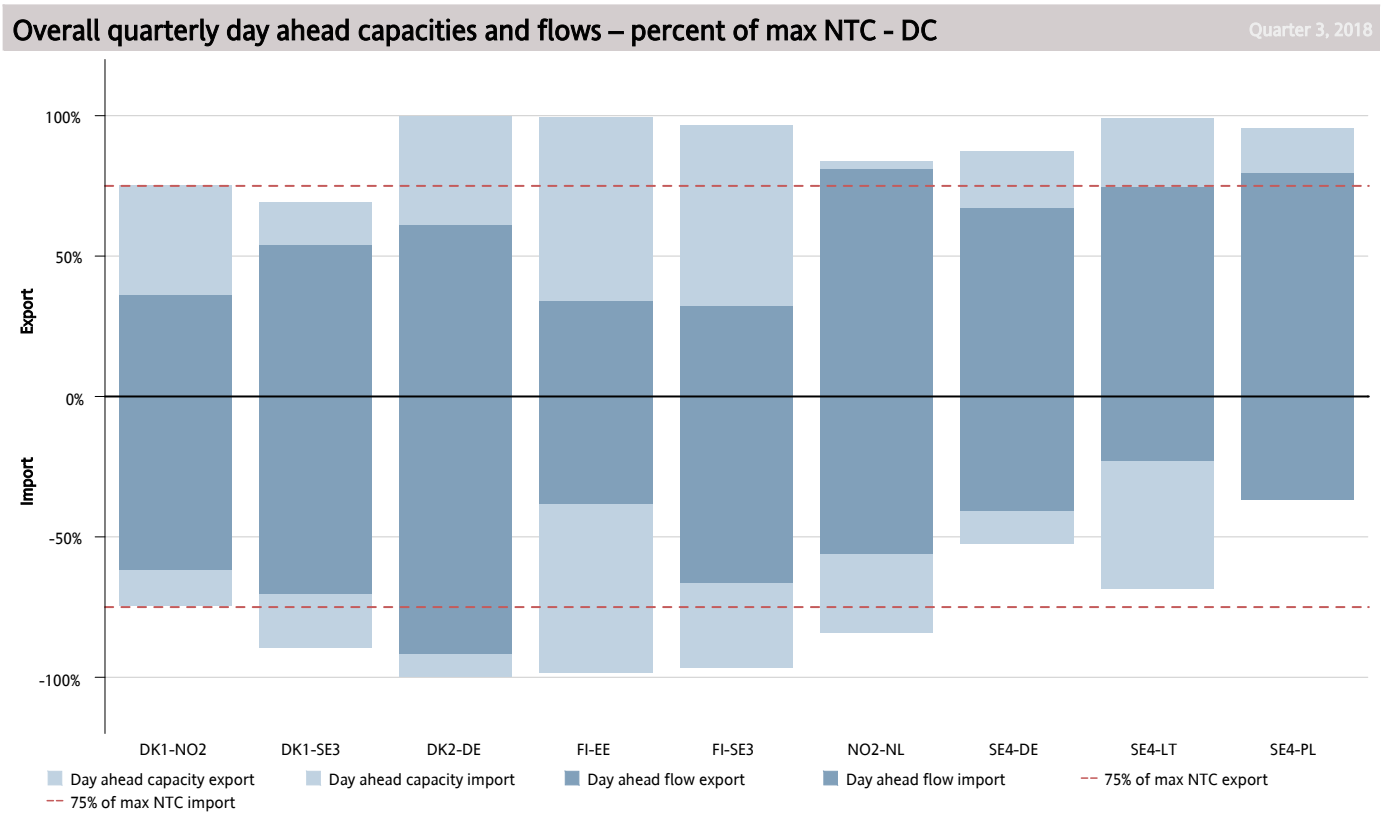

Figure 3: Cross-zonal day-ahead capacity result for DC corridors, showing average capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. For a corridor A-B, export means flow from A to B and import means flow from B to A.

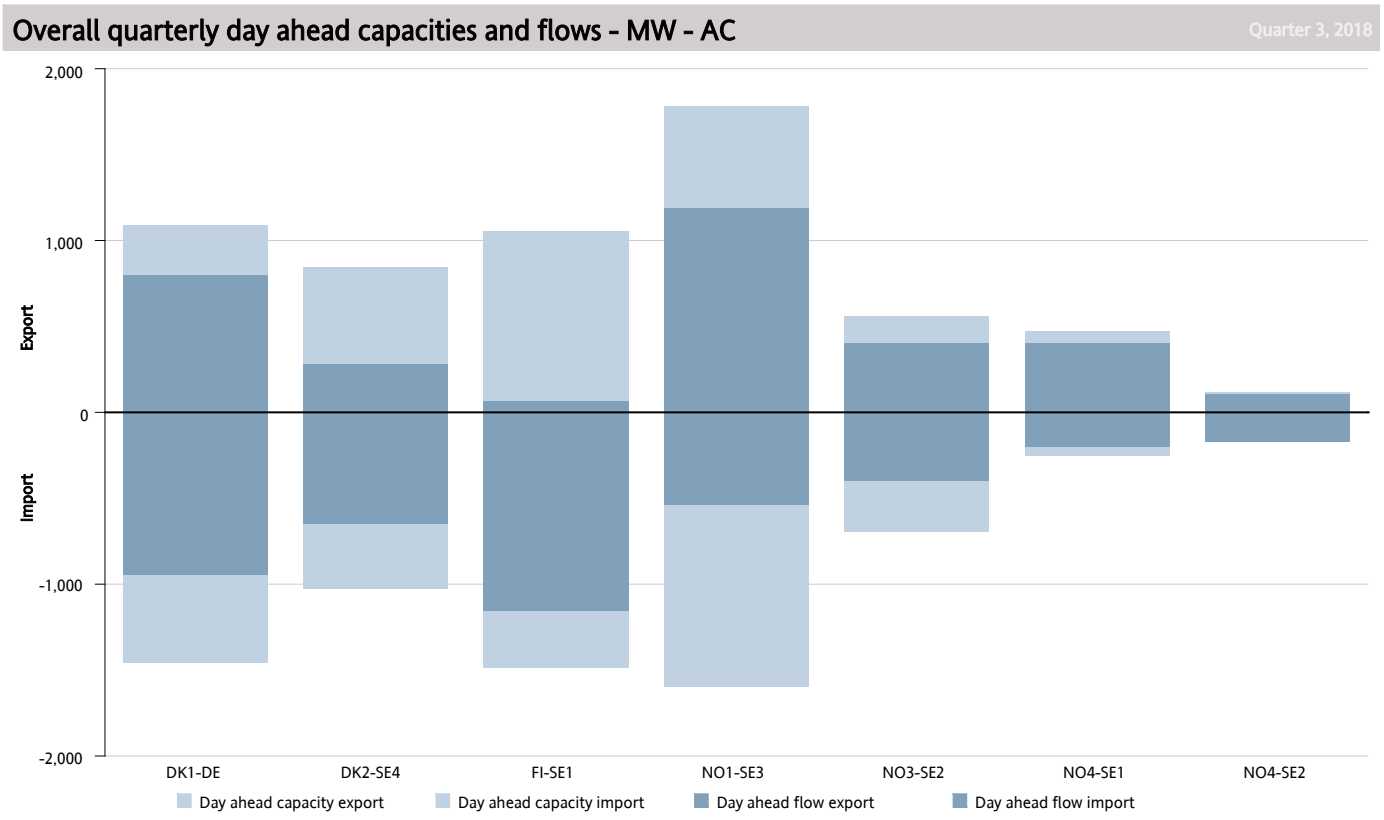

Figure 4: Cross-zonal day-ahead capacity result for AC corridors, showing average capacity given and flow in MW. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. For a corridor A-B, export means flow from A to B and import means flow from B to A.

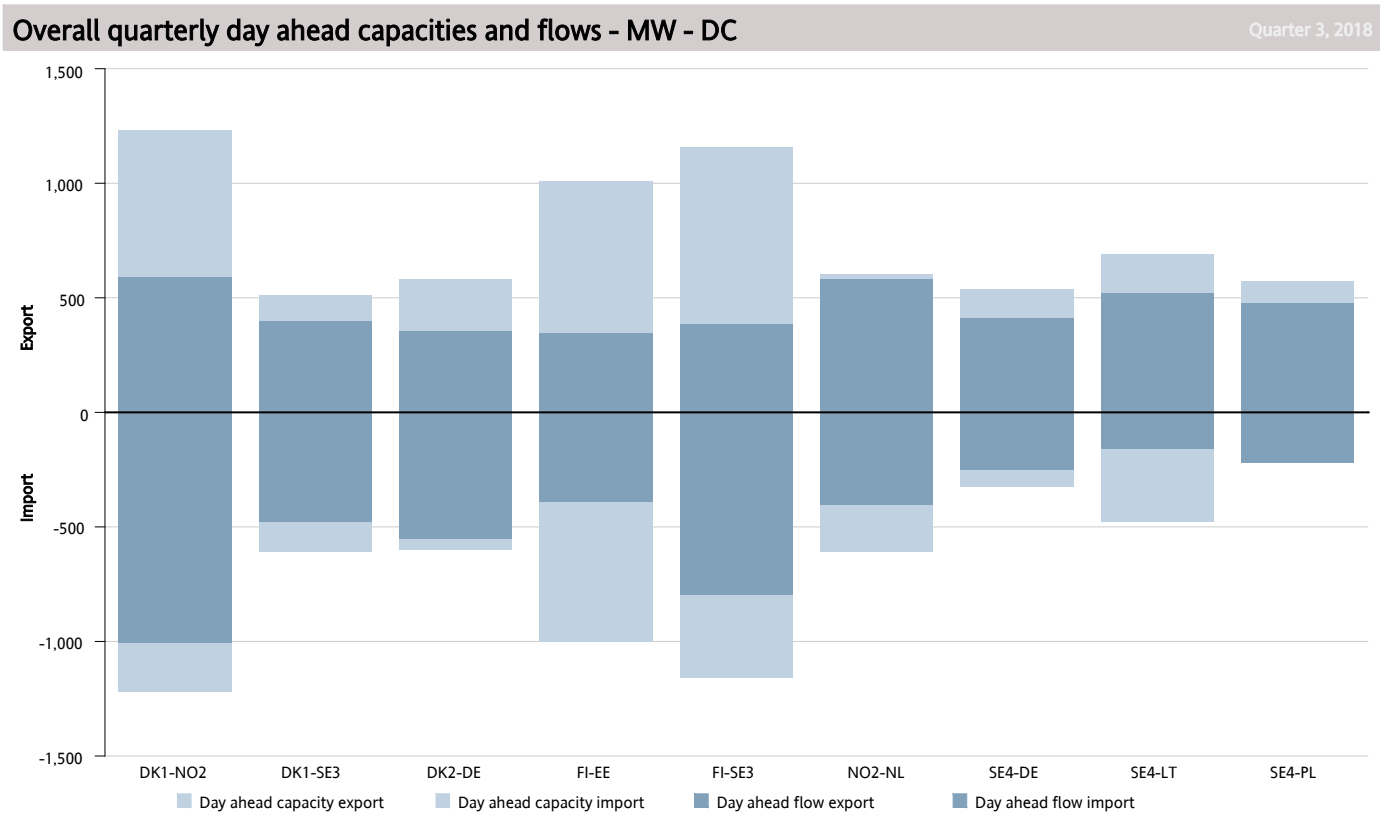

Figure 5: Cross-zonal day-ahead capacity result for DC corridors, showing average capacity given and flow in MW. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. For a corridor A-B, export means flow from A to B and import means flow from B to A.

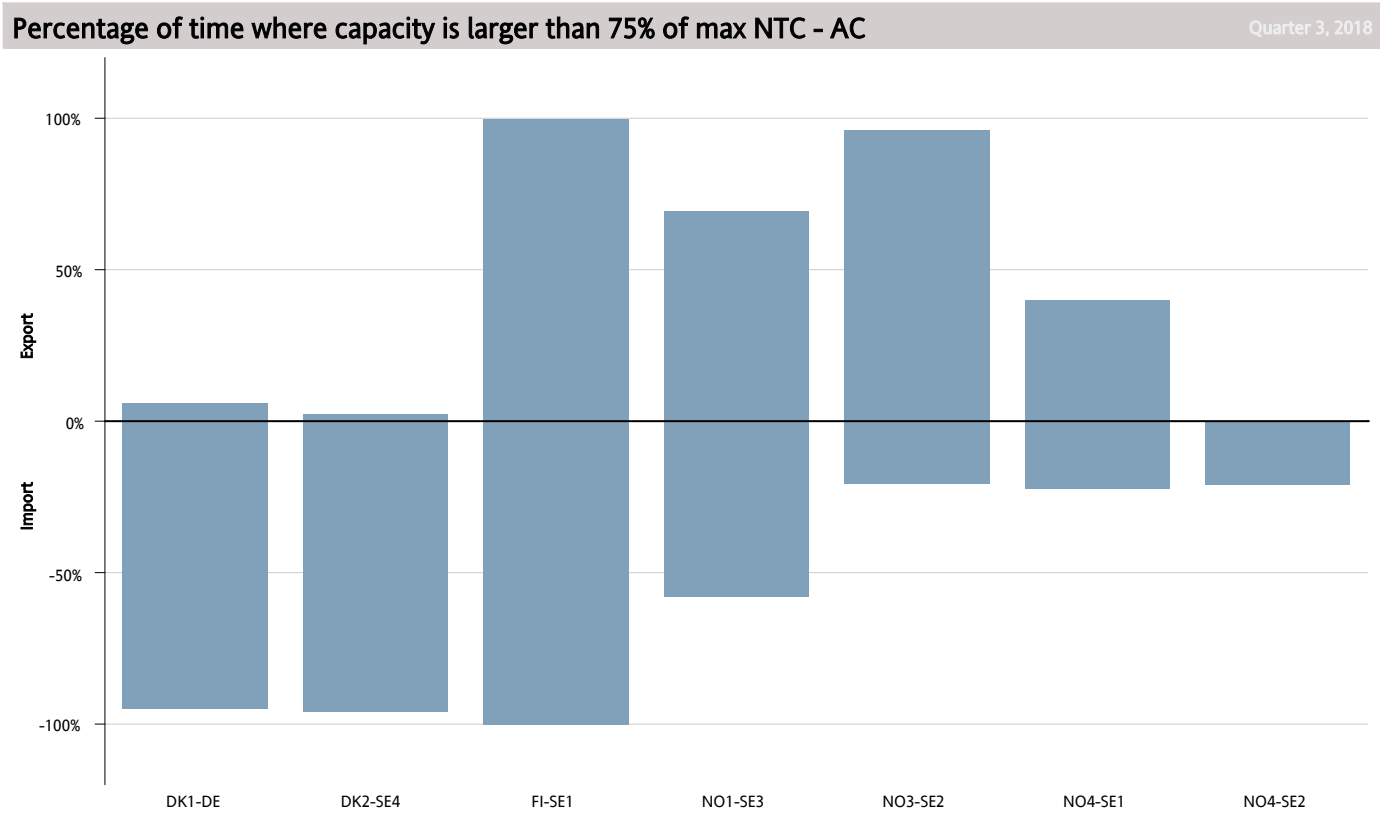

Figure 6: Shows the percentage of hours when the day-ahead capacity for AC corridors given to the energy marked is above 75% of the max NTC. For a corridor A-B, export means flow from A to B and import means flow from B to A.

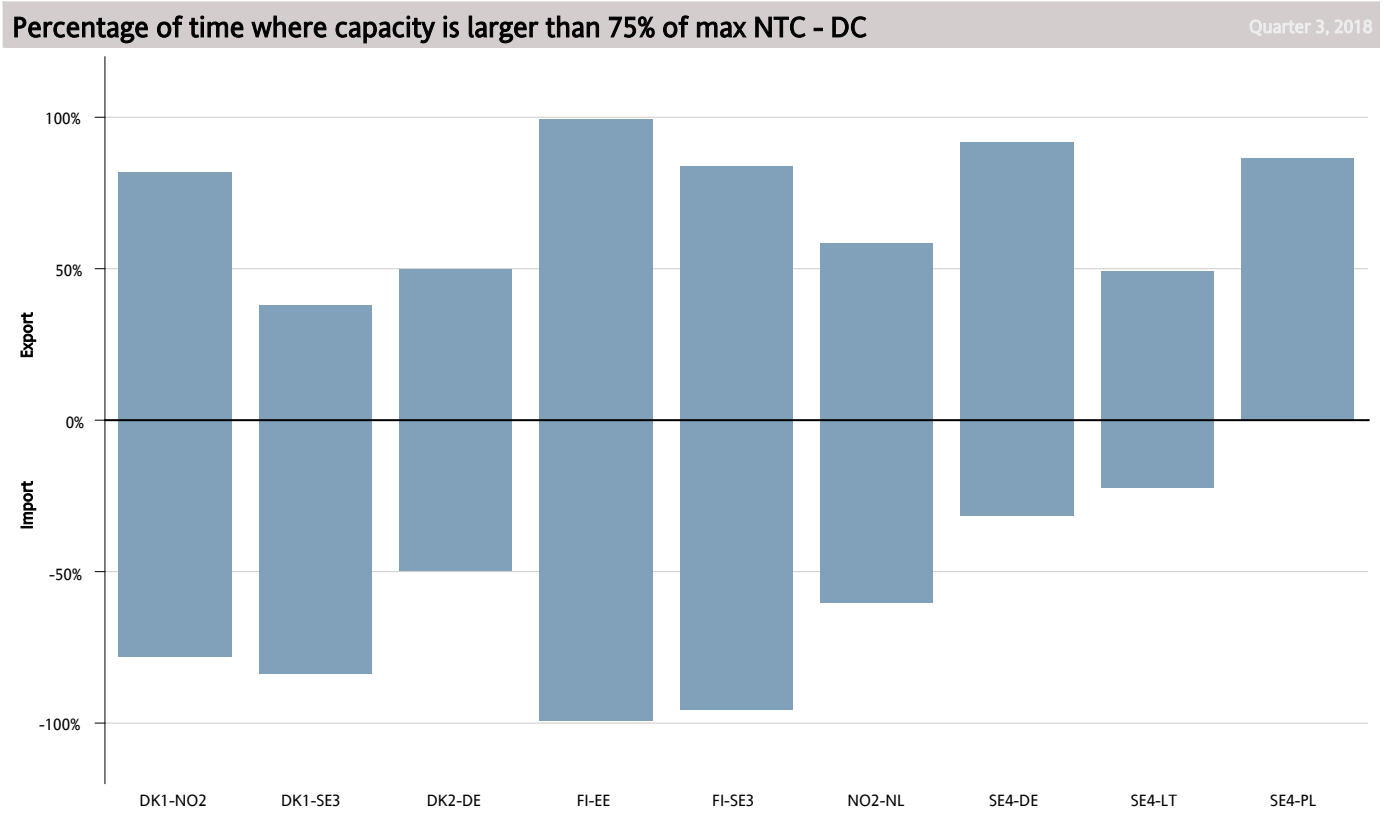

Figure 7: Shows the percentage of hours when the day-ahead capacity for DC corridors given to the energy marked is above 75% of the max NTC. For a corridor A-B, export means flow from A to B and import means flow from B to A.

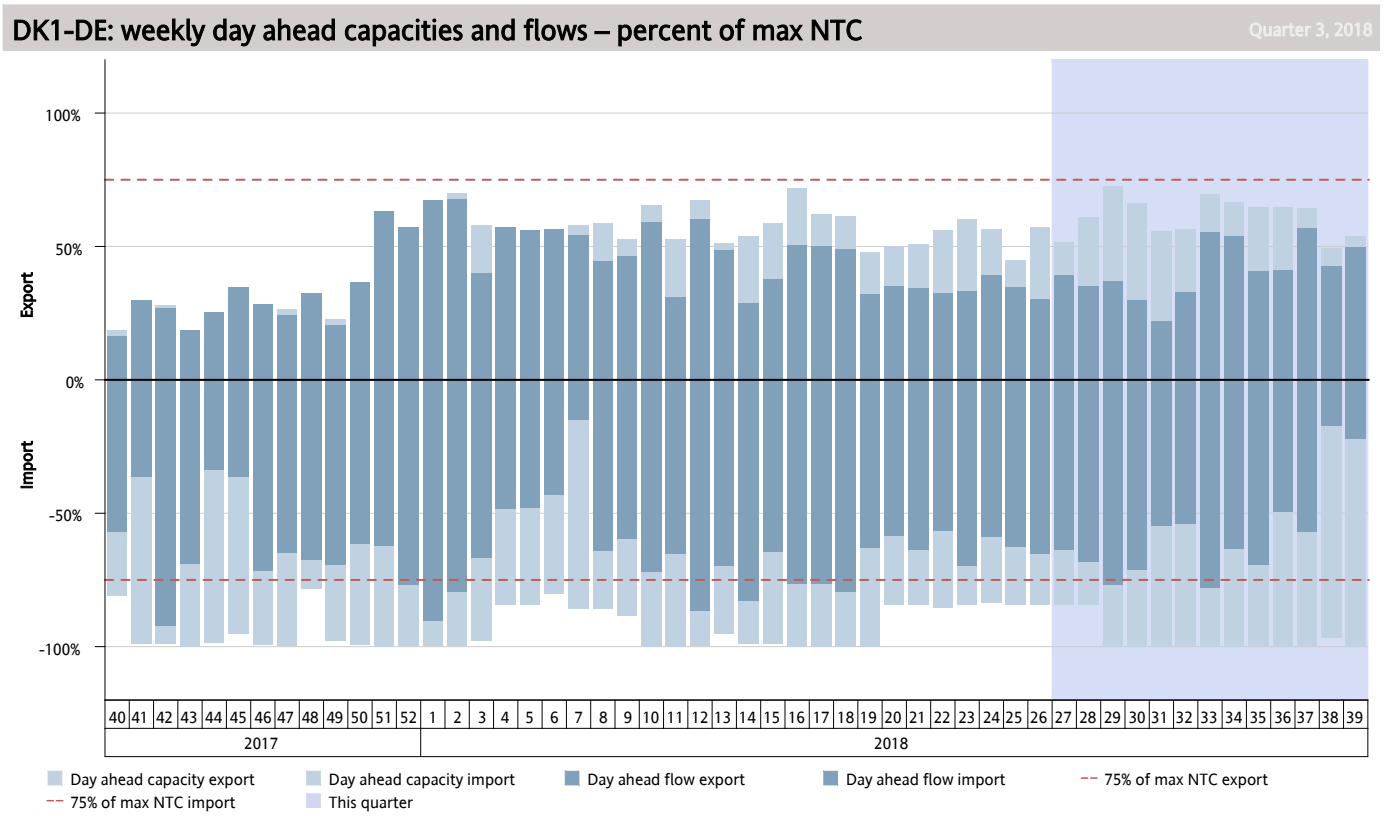

Figure 8: Shows cross-zonal day-ahead capacity result for the AC corridor DK1-DE, showing average weekly capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from DK1 to DE, while import indicates flow from DE to DK1.

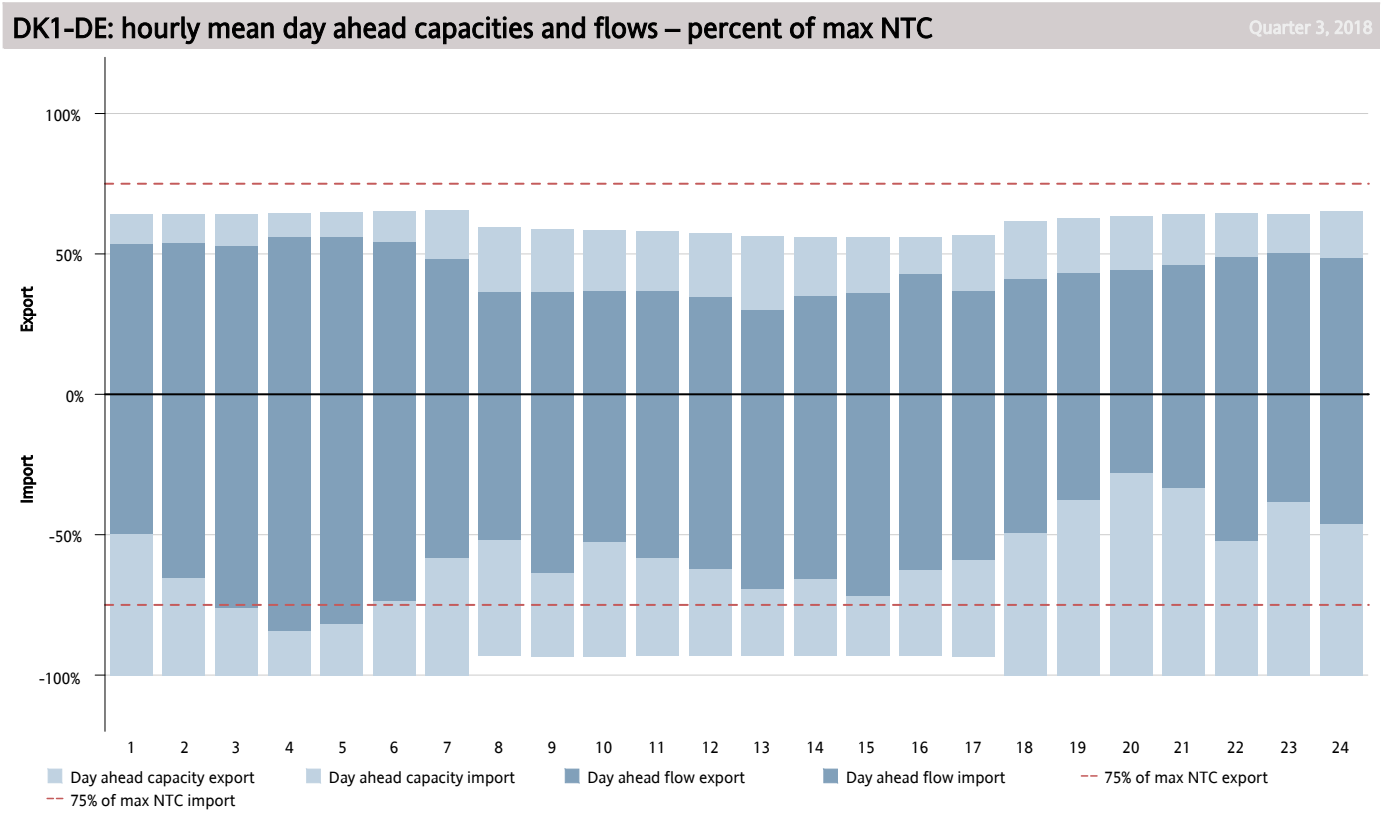

Figure 9: Shows cross-zonal day-ahead capacity result for the AC corridor DK1-DE, showing average per hour of the day (1-24) capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from DK1 to DE, while import indicates flow from DE to DK1.

DK1-DE: hourly day ahead capacities and flows – MW

Quarter 3, 2018

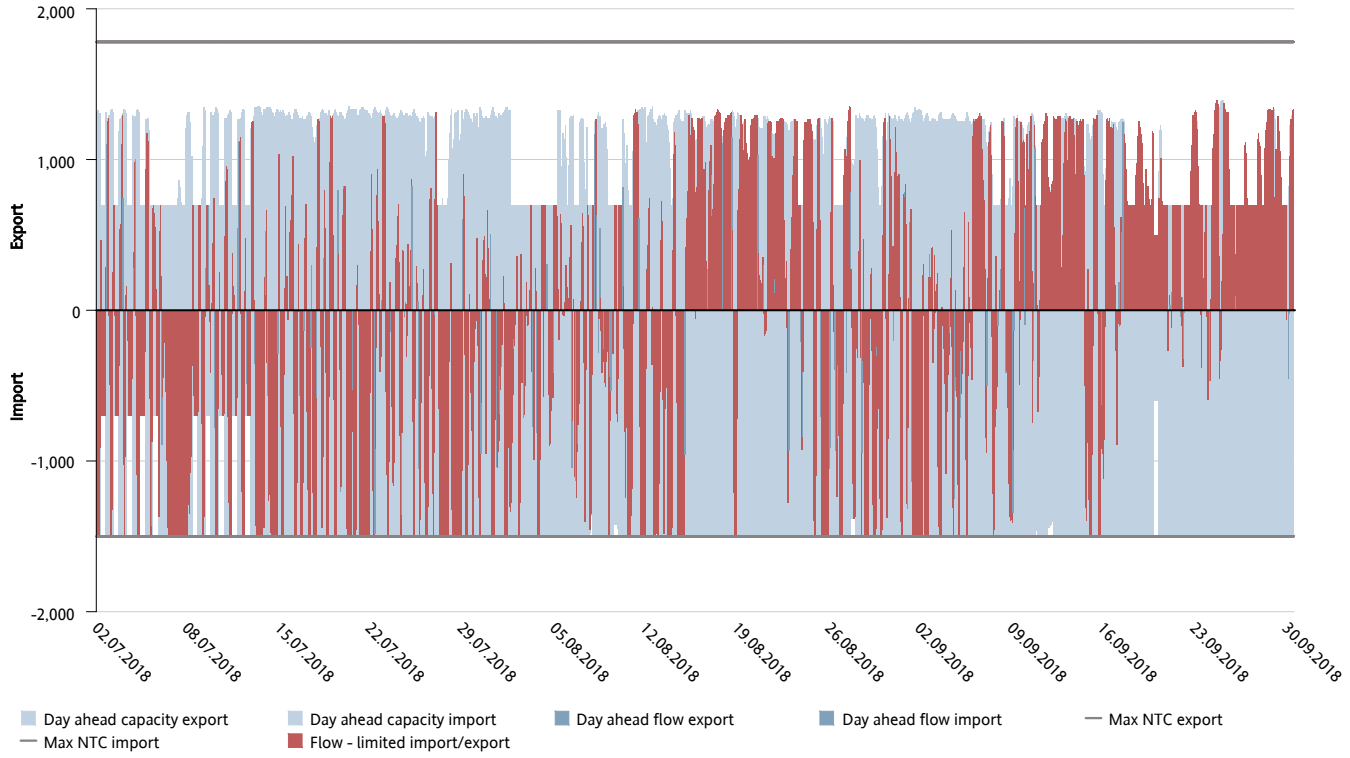

Figure 10: Shows cross-zonal day-ahead capacity result for the AC corridor DK1-DE, showing capacity given and flow (MW). Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from DK1 to DE, while import indicates flow from DE to DK1.

DK1-DE: price comparison in EUR

Quarter 3, 2018

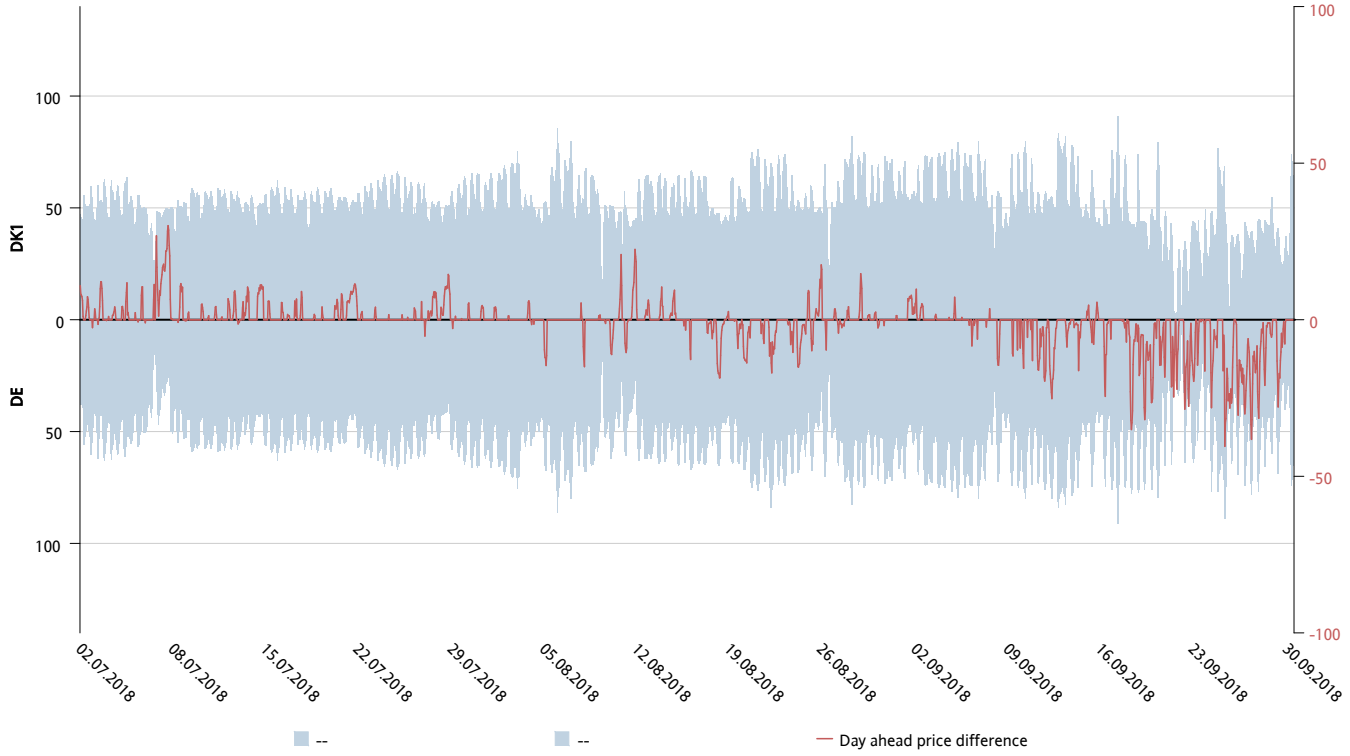

Figure 11: Shows day-ahead prices for the AC corridor DK1-DE, all prices are in EUR. The red line shows the price difference between the two areas.

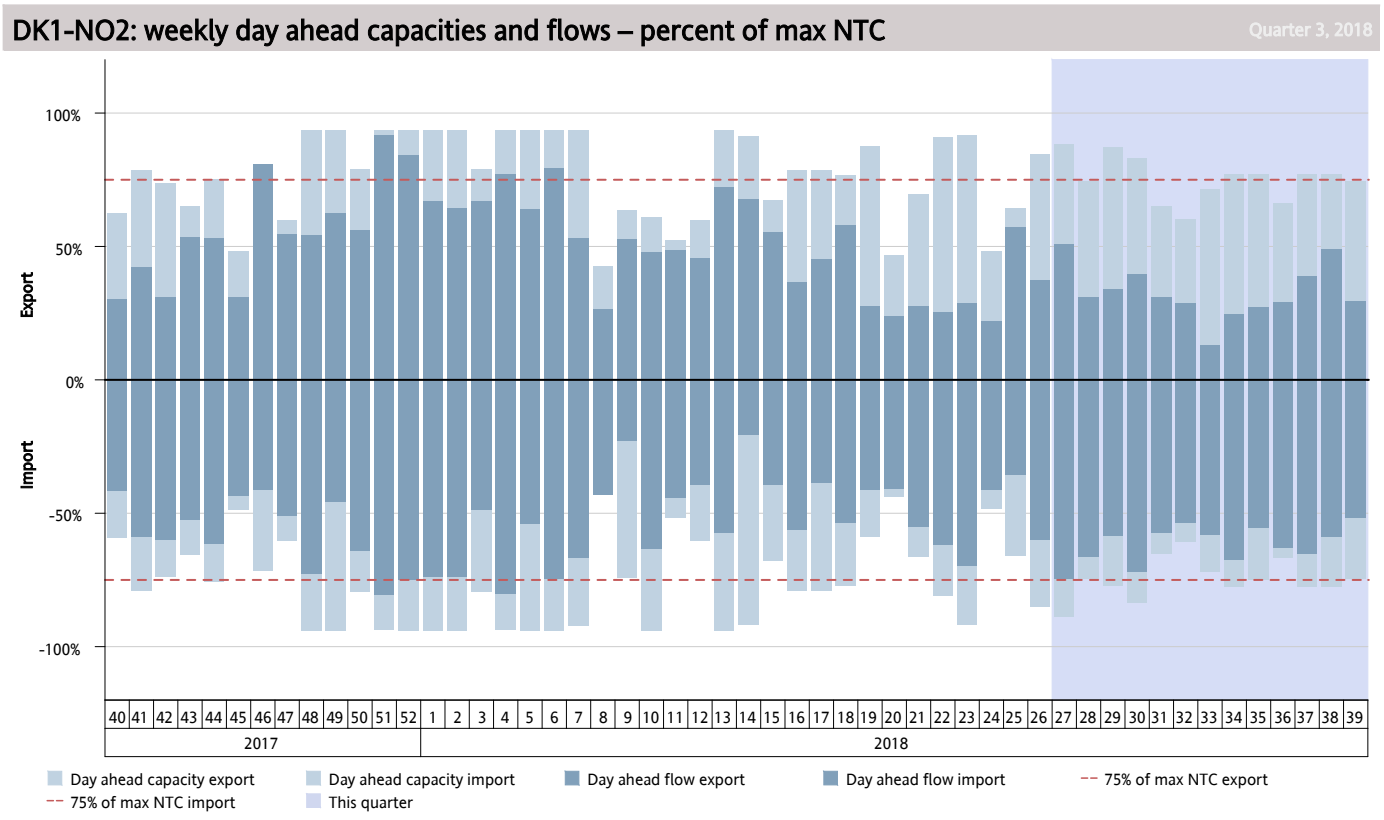

Figure 12: Shows cross-zonal day-ahead capacity result for the HVDC corridor DK1-NO2, showing average weekly capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from DK1 to NO2, while import indicates flow from NO2 to DK1.

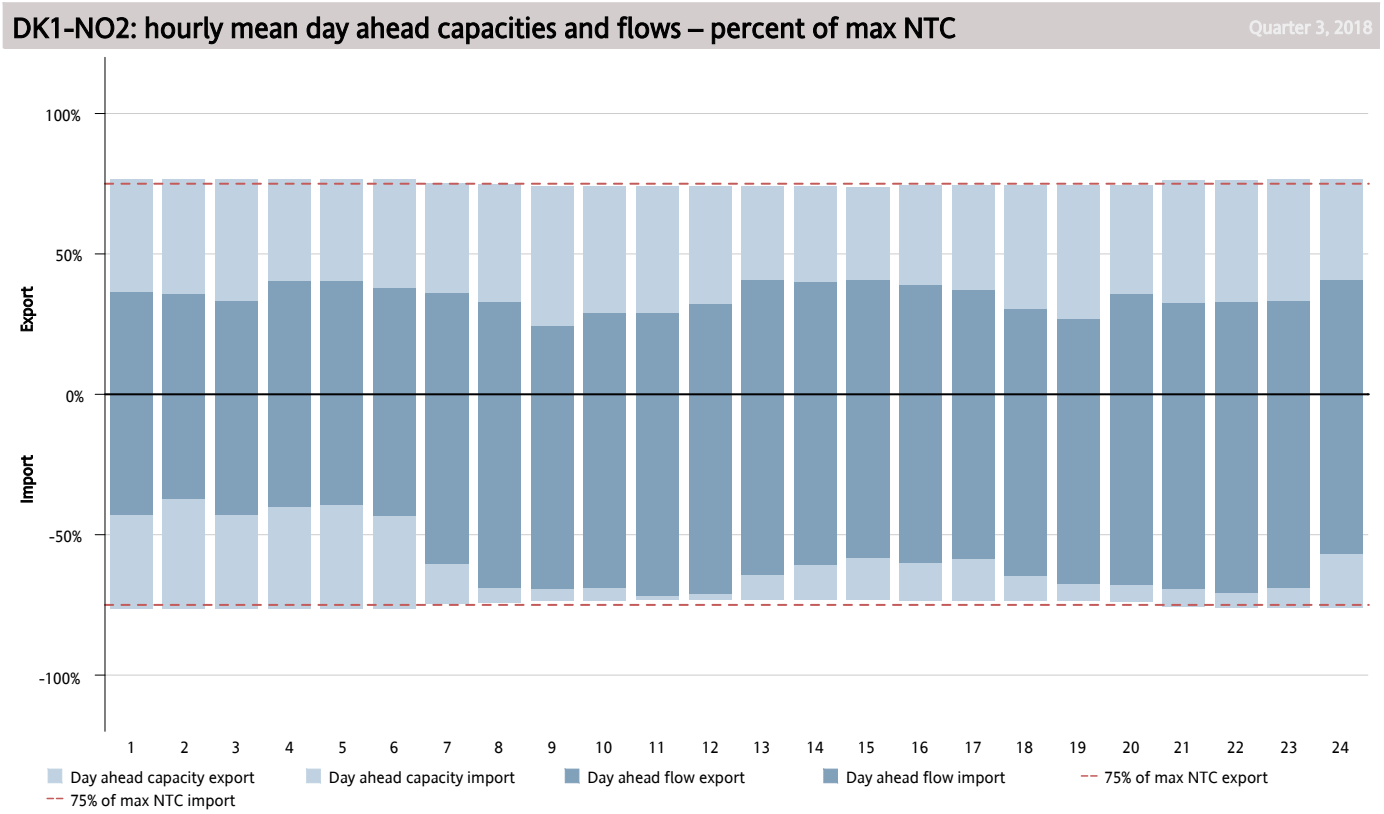

Figure 13: Shows cross-zonal day-ahead capacity result for the HVDC corridor DK1-NO2, showing average per hour of the day (1-24) capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from DK1 to NO2, while import indicates flow from NO2 to DK1.

DK1-NO2: hourly day ahead capacities and flows – MW

Quarter 3, 2018

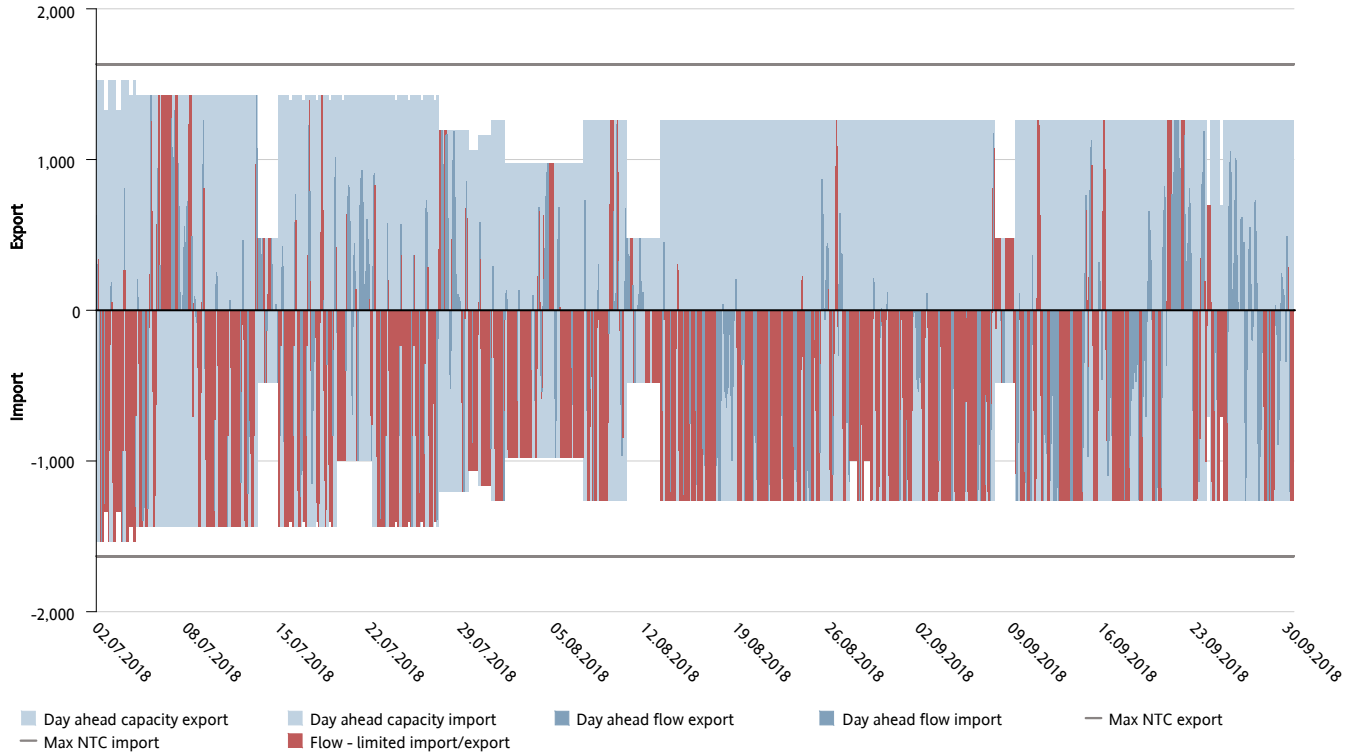

Figure 14: Shows cross-zonal day-ahead capacity result for the HVDC corridor DK1-NO2, showing capacity given and flow (MW). Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from DK1 to NO2, while import indicates flow from NO2 to DK1.

DK1-NO2: price comparison in EUR

Quarter 3, 2018

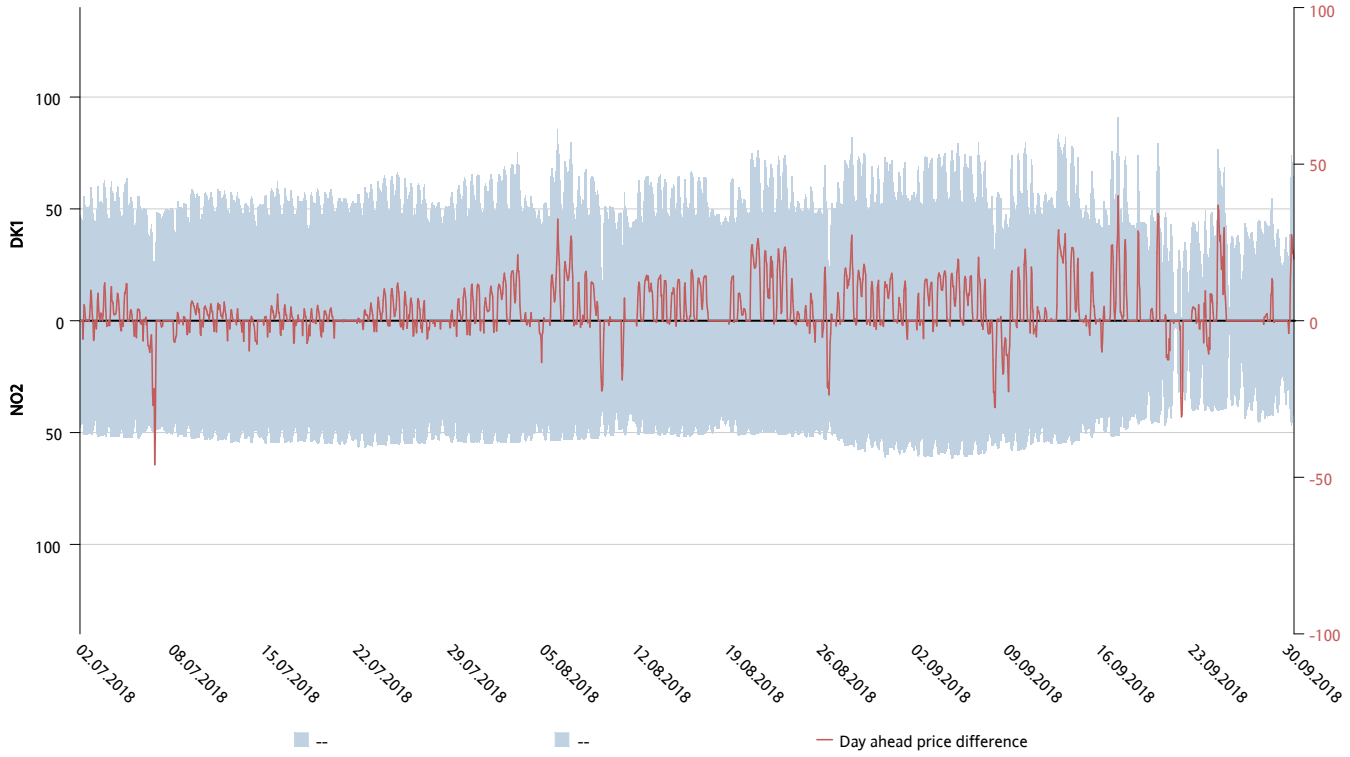

Figure 15: Shows day-ahead prices for the HVDC corridor DK1-NO2, all prices are in EUR. The red line shows the price difference between the two areas.

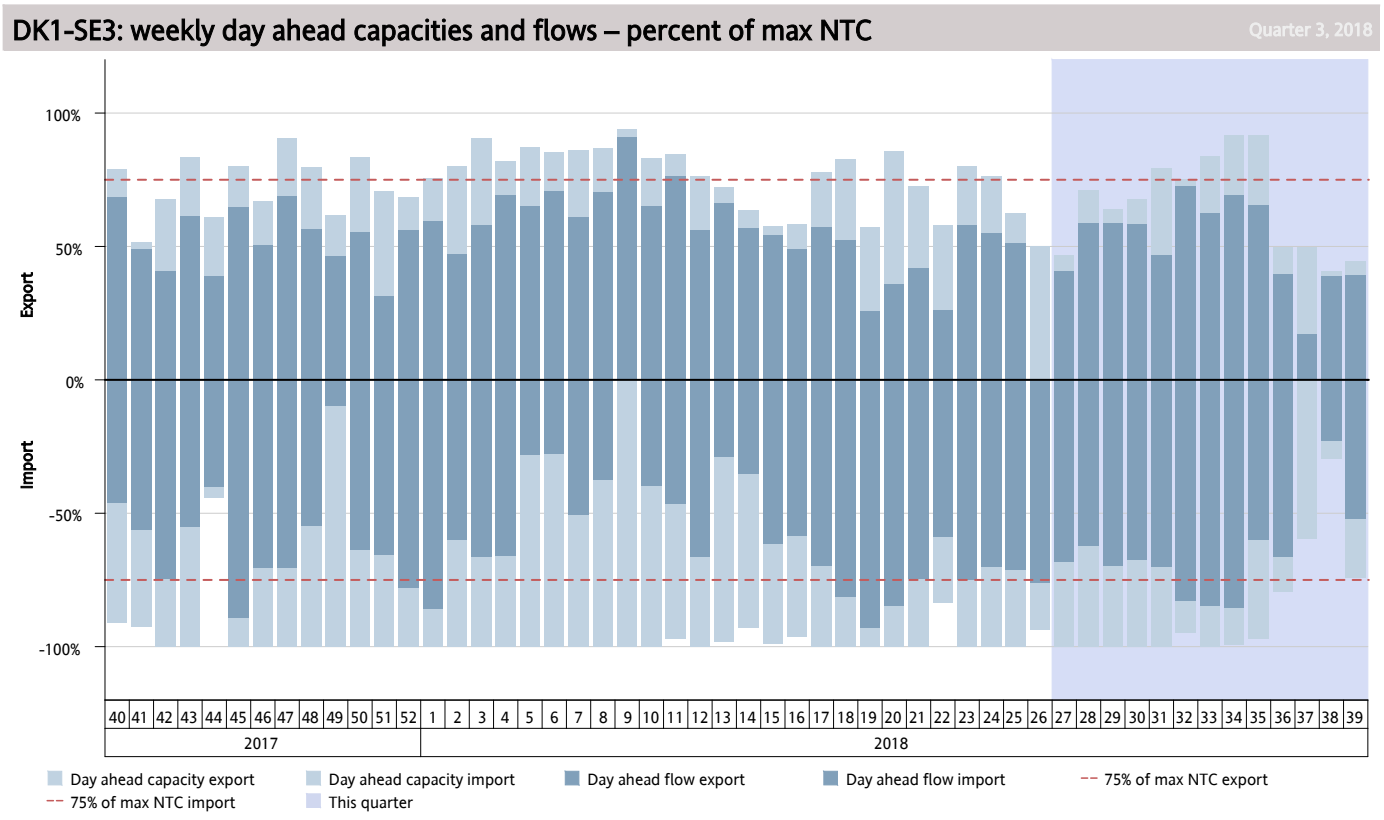

Figure 16: Shows cross-zonal day-ahead capacity result for the HVDC corridor DK1-SE3, showing average weekly capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from DK1 to SE3, while import indicates flow from SE3 to DK1.

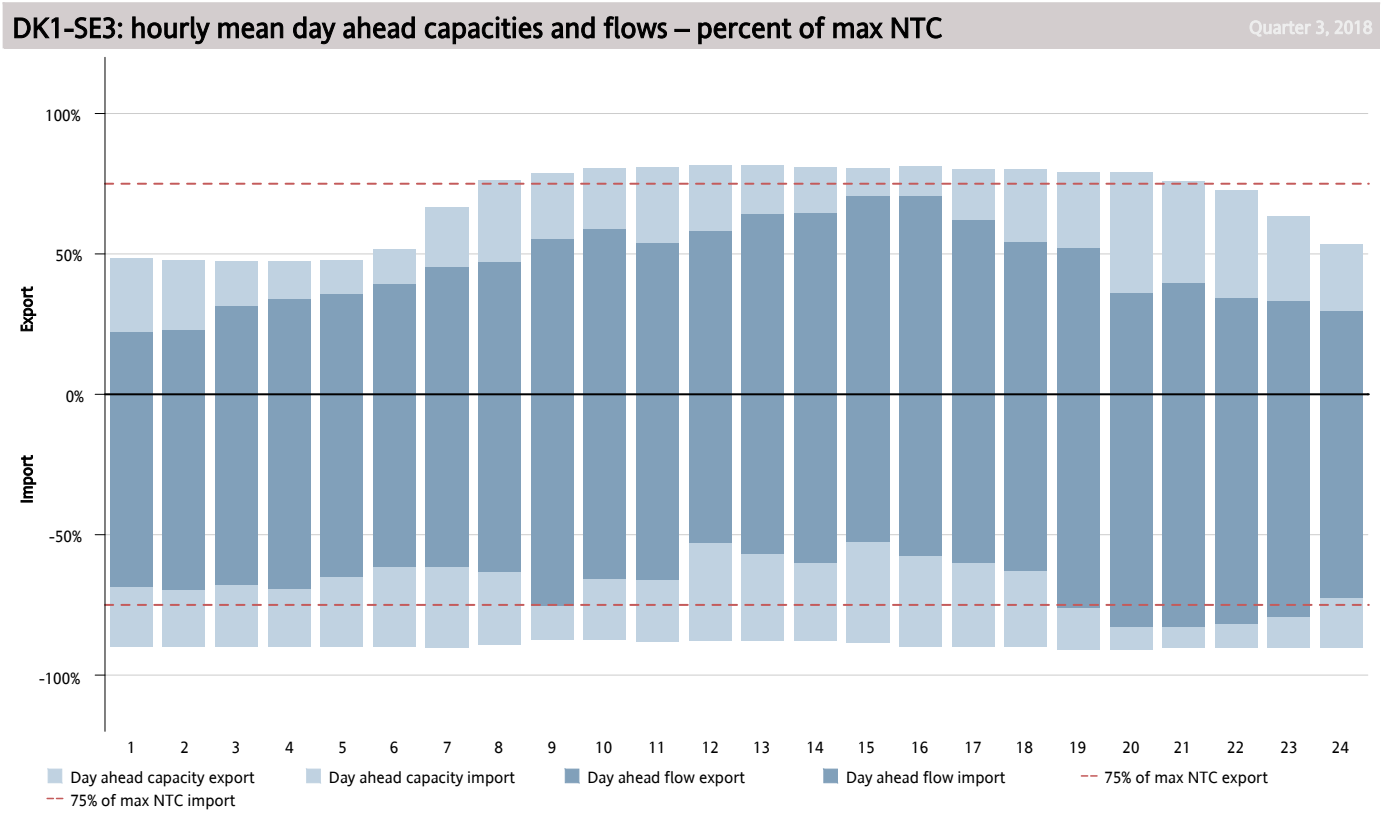

Figure 17: Shows cross-zonal day-ahead capacity result for the HVDC corridor DK1-SE3, showing average per hour of the day (1-24) capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from DK1 to SE3, while import indicates flow from SE3 to DK1.

DK1-SE3: hourly day ahead capacities and flows – MW

Quarter 3, 2018

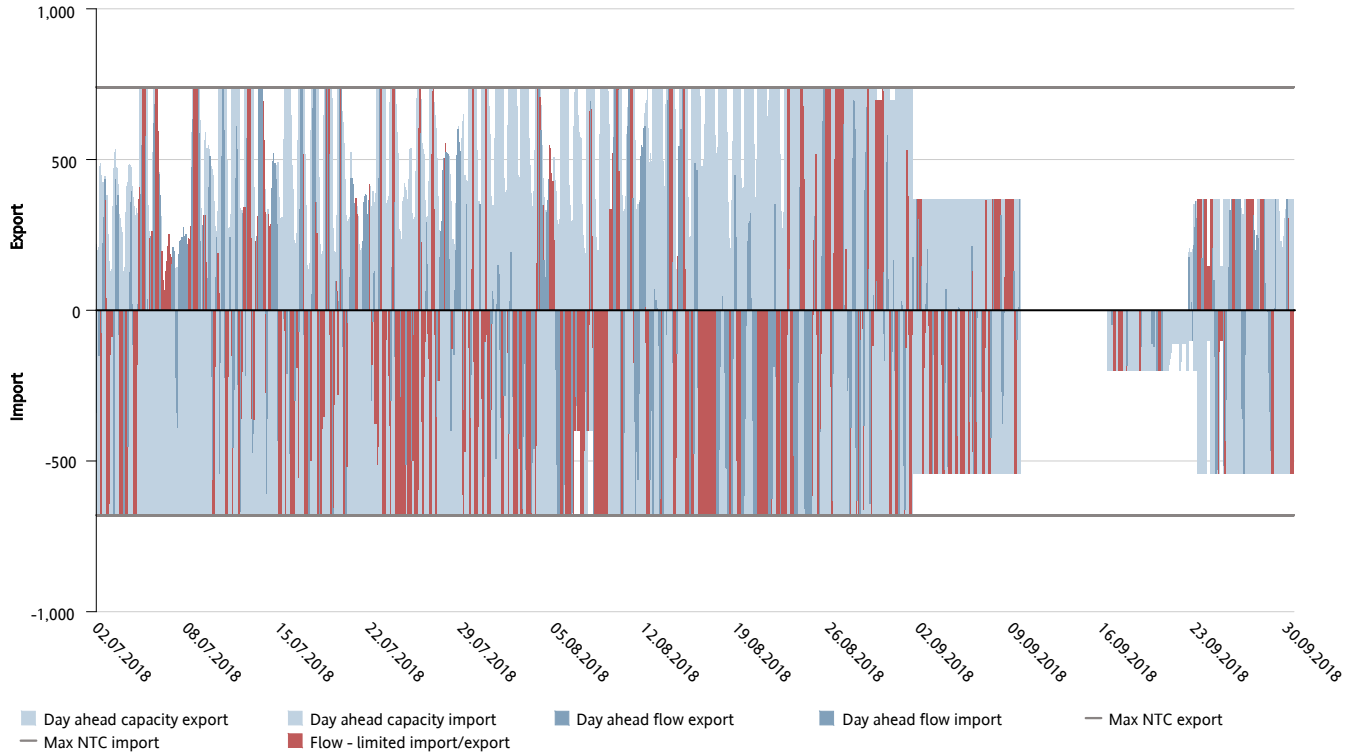

Figure 18: Shows cross-zonal day-ahead capacity result for the HVDC corridor DK1-SE3, showing capacity given and flow (MW). Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from DK1 to SE3, while import indicates flow from SE3 to DK1.

DK1-SE3: price comparison in EUR

Quarter 3, 2018

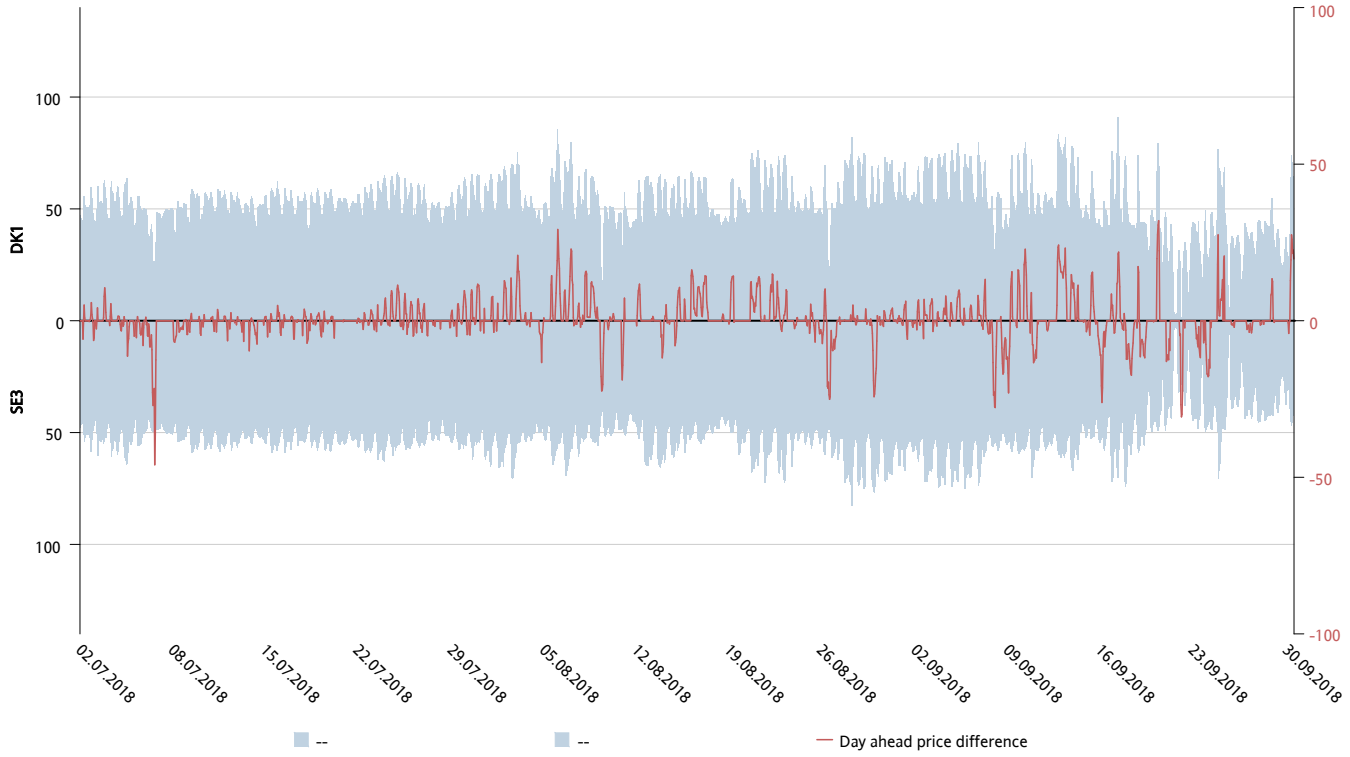

Figure 19: Shows day-ahead prices for the HVDC corridor DK1-SE3, all prices are in EUR. The red line shows the price difference between the two areas.

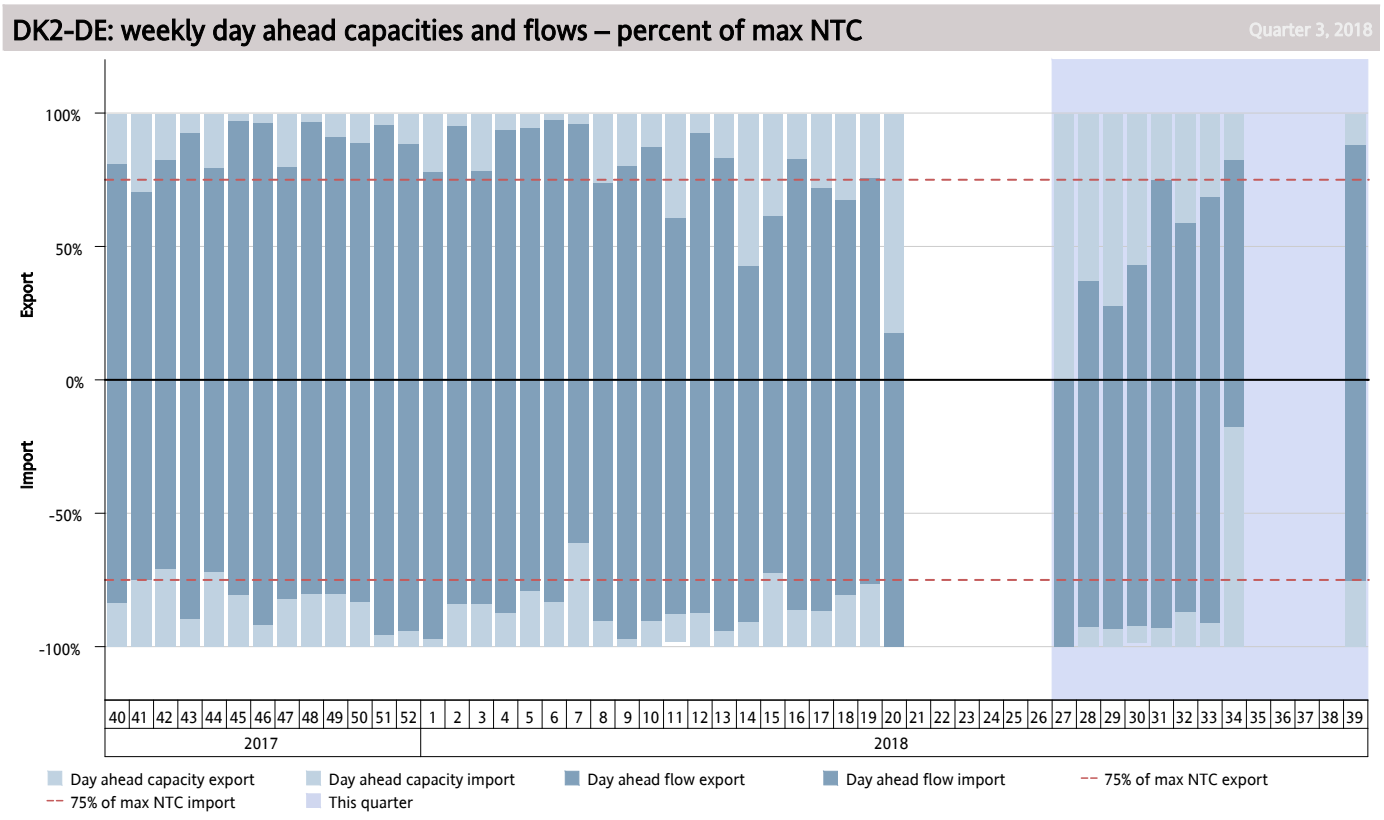

Figure 20: Shows cross-zonal day-ahead capacity result for the HVDC corridor DK2-DE, showing average weekly capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from DK2 to DE, while import indicates flow from DE to DK2.

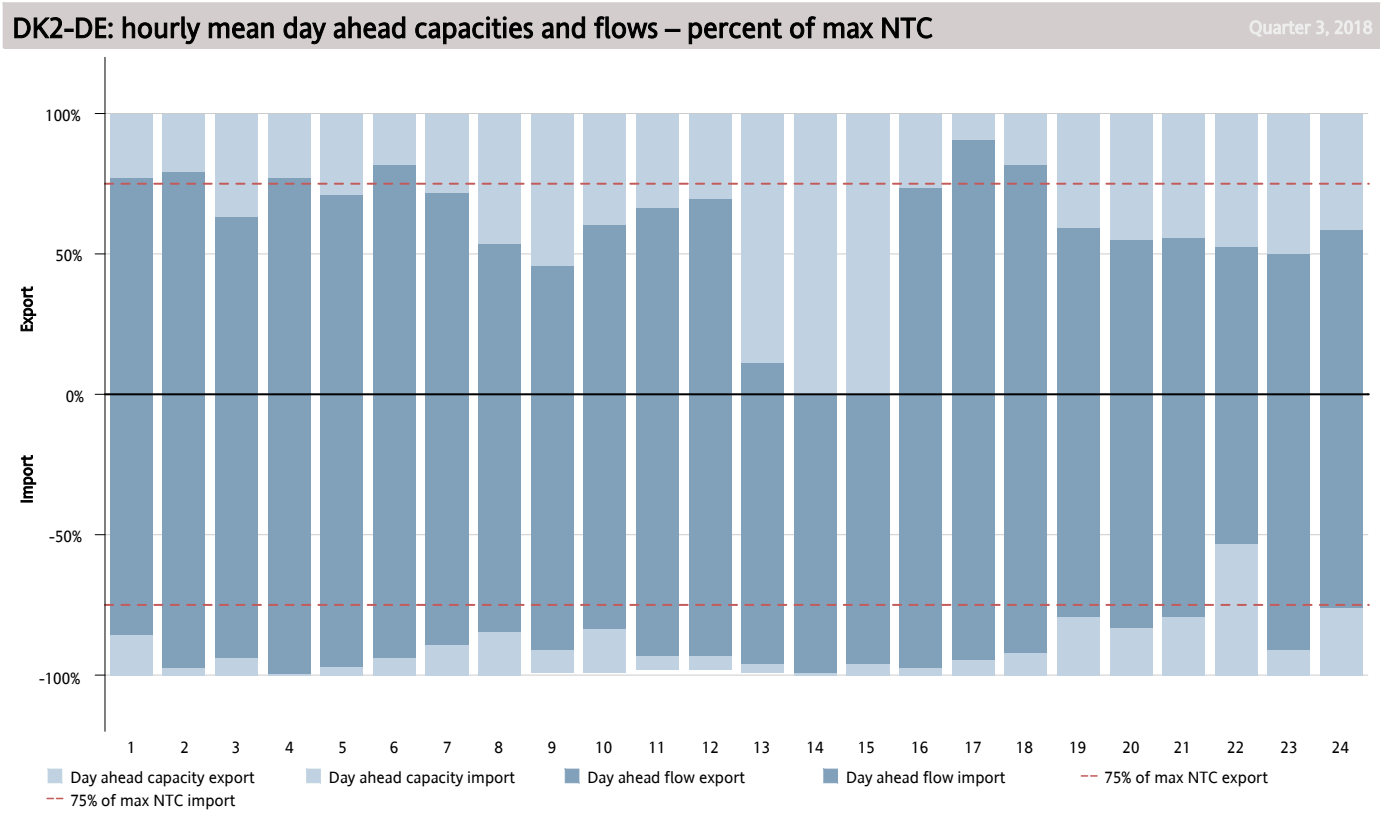

Figure 21: Shows cross-zonal day-ahead capacity result for the HVDC corridor DK2-DE, showing average per hour of the day (1-24) capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from DK2 to DE, while import indicates flow from DE to DK2.

DK2-DE: hourly day ahead capacities and flows – MW

Quarter 3, 2018

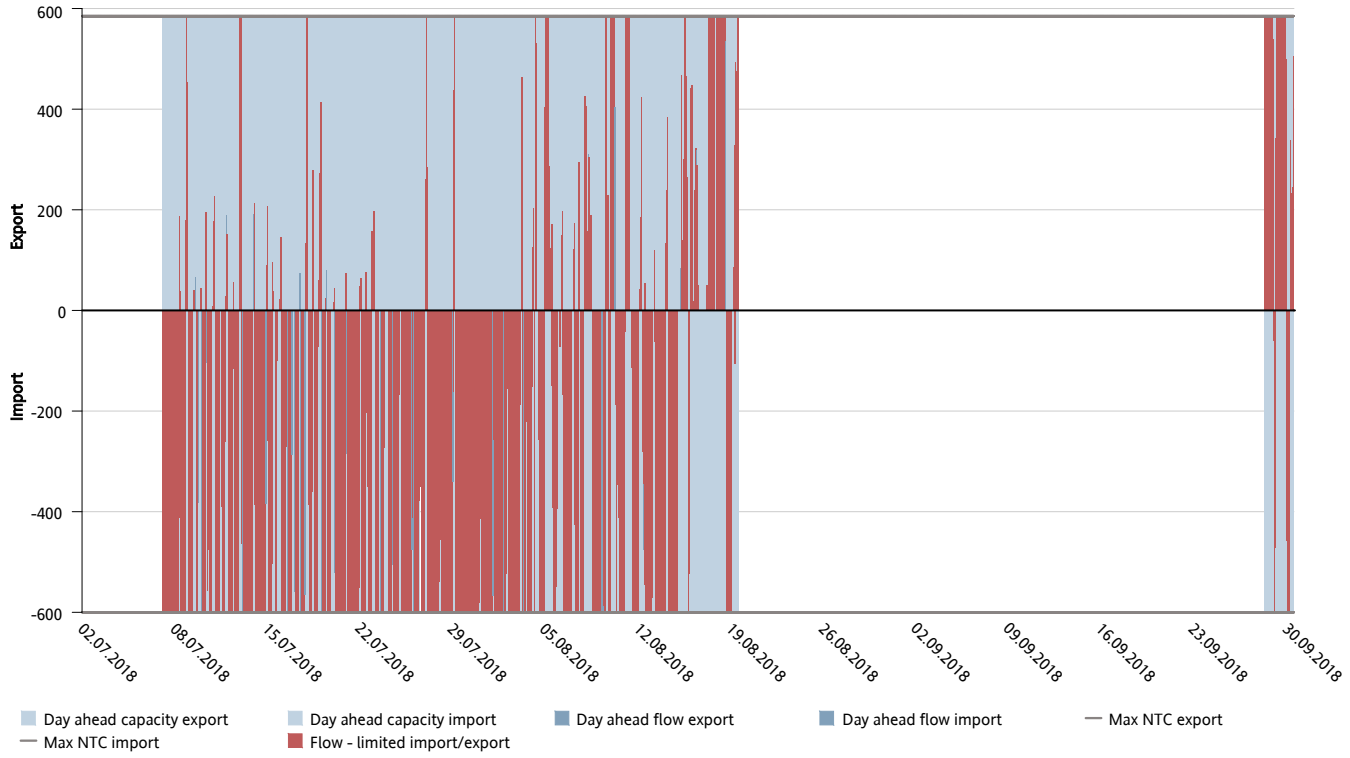

Figure 22: Shows cross-zonal day-ahead capacity result for the HVDC corridor DK2-DE, showing capacity given and flow (MW). Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from DK2 to DE, while import indicates flow from DE to DK2.

DK2-DE: price comparison in EUR

Quarter 3, 2018

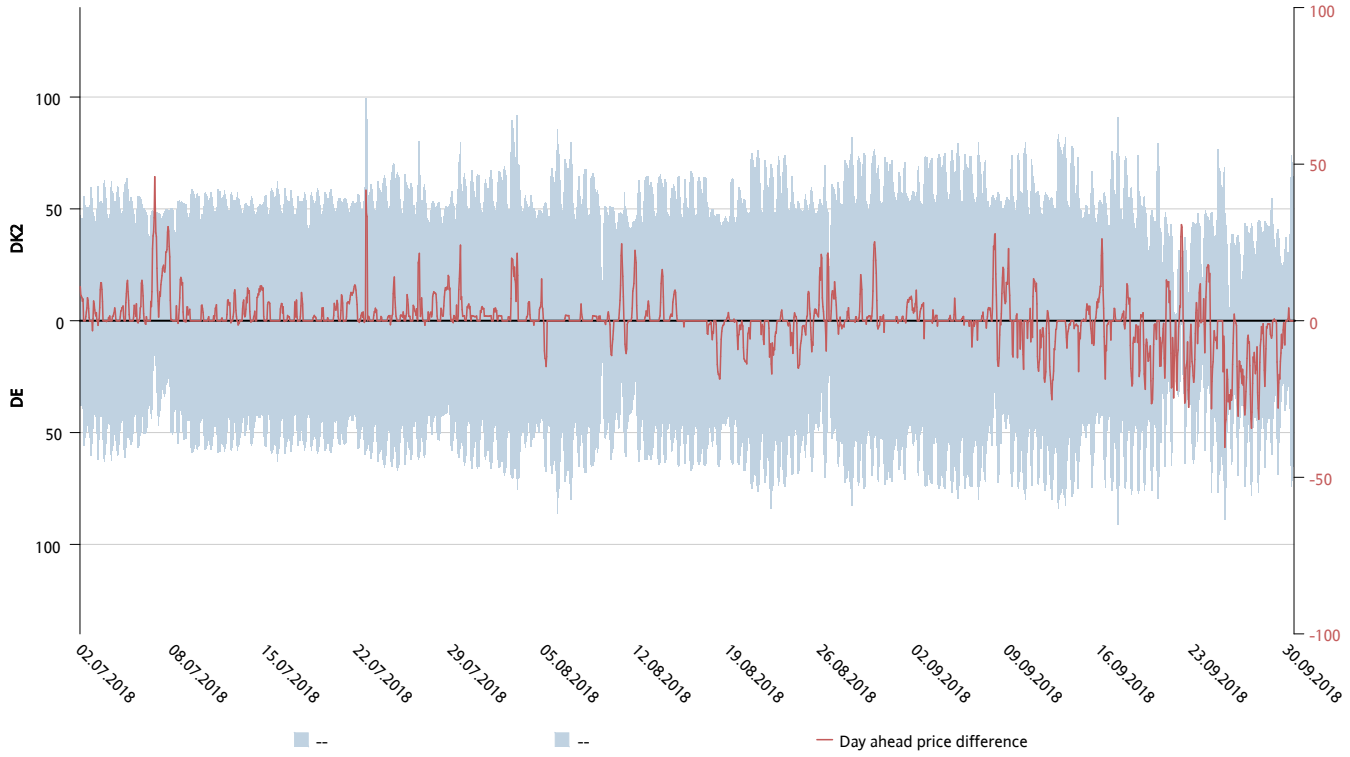

Figure 23: Shows day-ahead prices for the HVDC corridor DK2-DE, all prices are in EUR. The red line shows the price difference between the two areas.

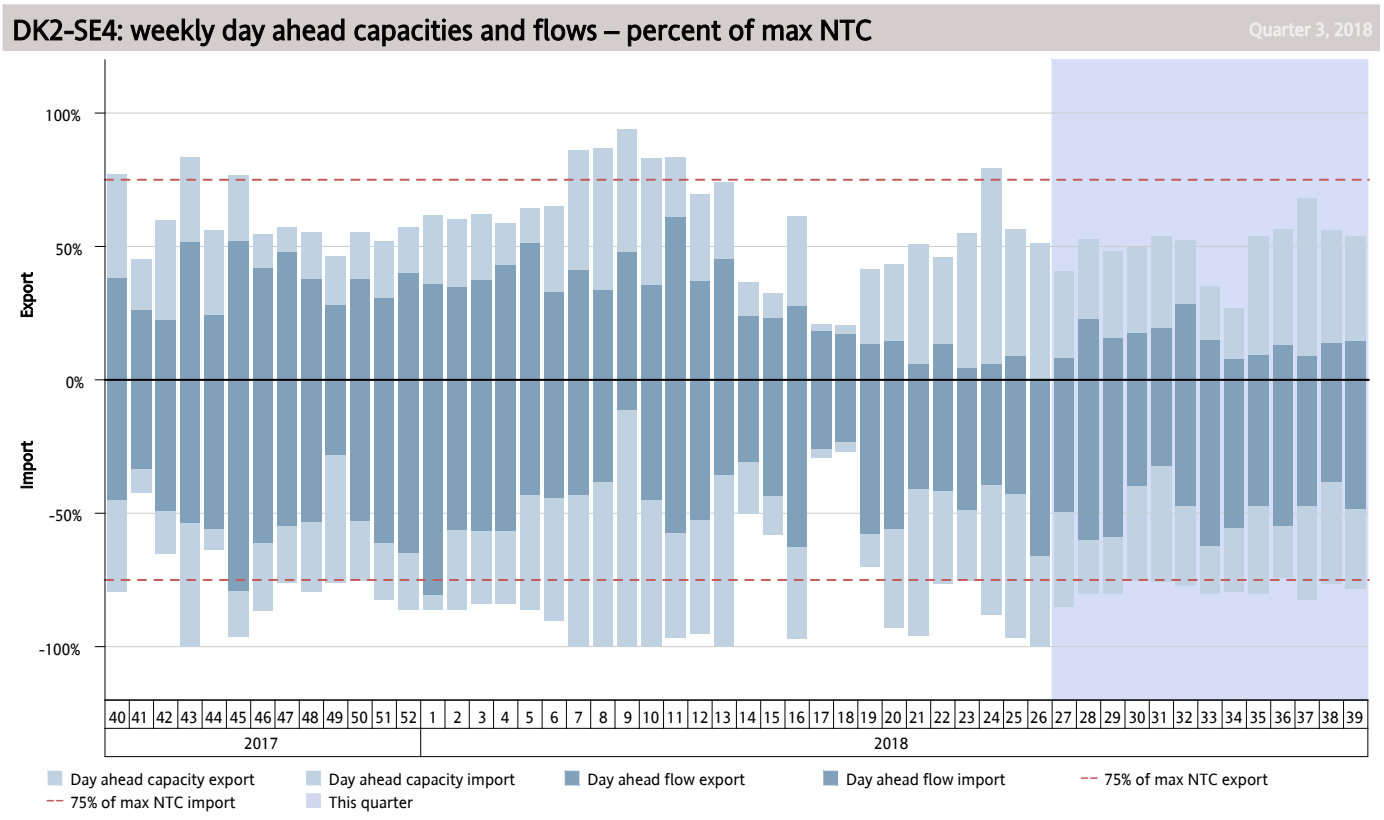

Figure 24: Shows cross-zonal day-ahead capacity result for the AC corridor DK2-SE4, showing average weekly capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from DK2 to SE4, while import indicates flow from SE4 to DK2.

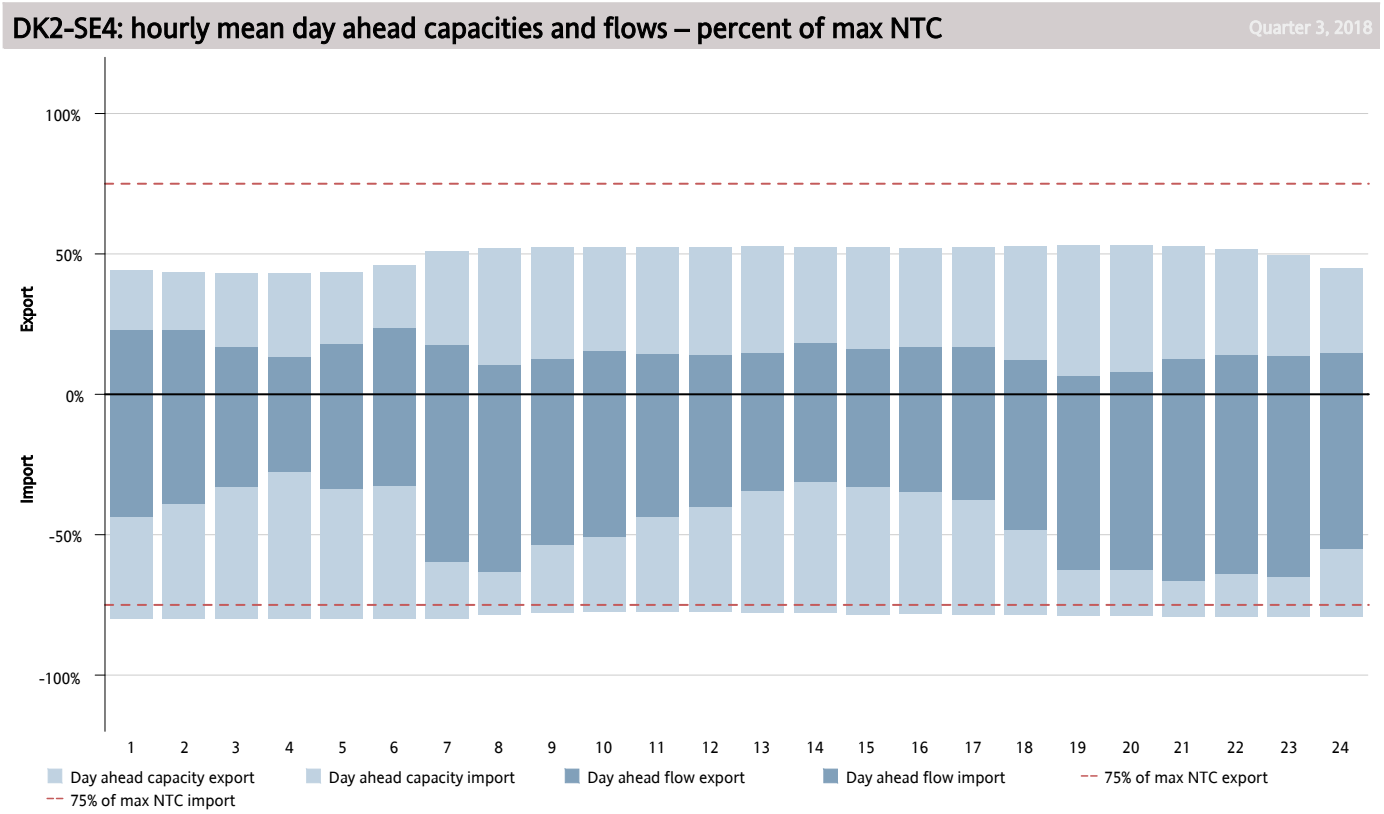

Figure 25: Shows cross-zonal day-ahead capacity result for the AC corridor DK2-SE4, showing average per hour of the day (1-24) capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from DK2 to SE4, while import indicates flow from SE4 to DK2.

DK2-SE4: hourly day ahead capacities and flows – MW

Quarter 3, 2018

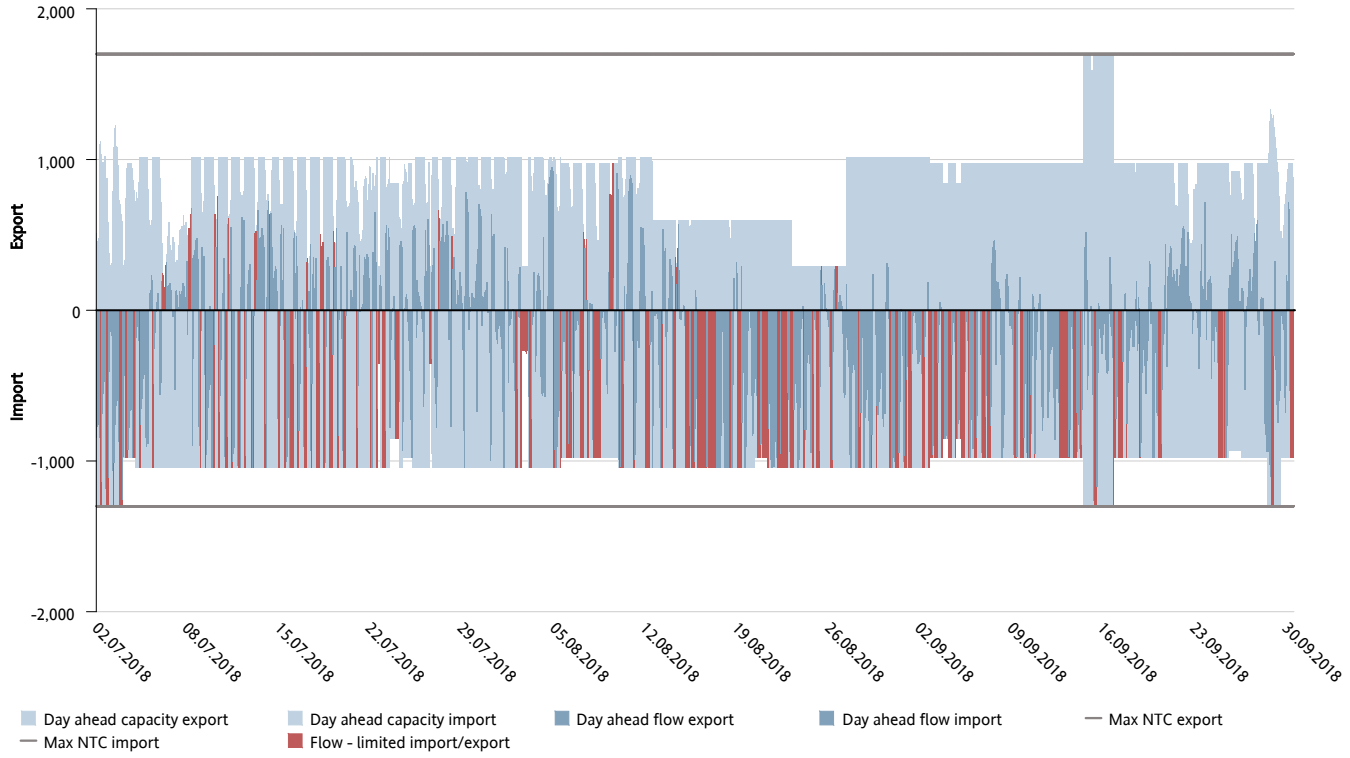

Figure 26: Shows cross-zonal day-ahead capacity result for the AC corridor DK2-SE4, showing capacity given and flow (MW). Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from DK2 to SE4, while import indicates flow from SE4 to DK2.

DK2-SE4: price comparison in EUR

Quarter 3, 2018

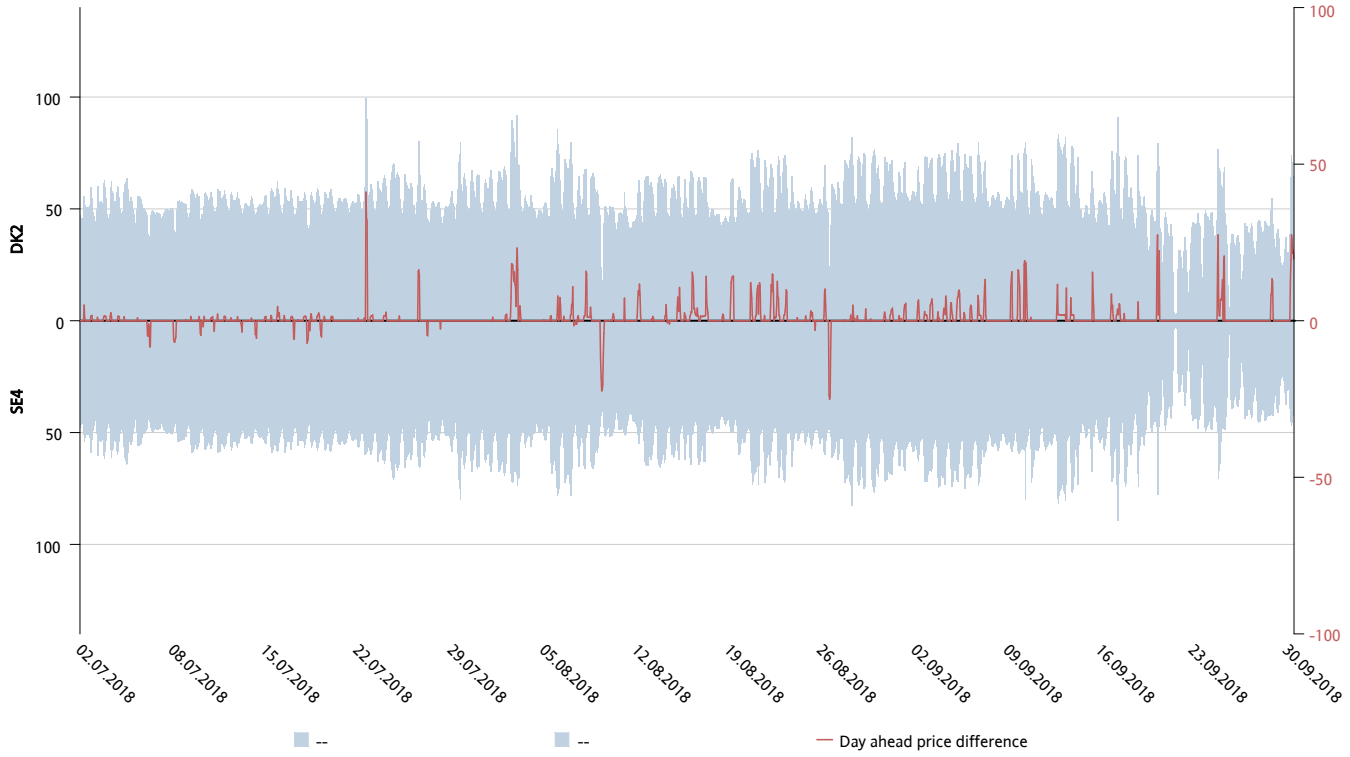

Figure 27: Shows day-ahead prices for the AC corridor DK2-SE4, all prices are in EUR. The red line shows the price difference between the two areas.

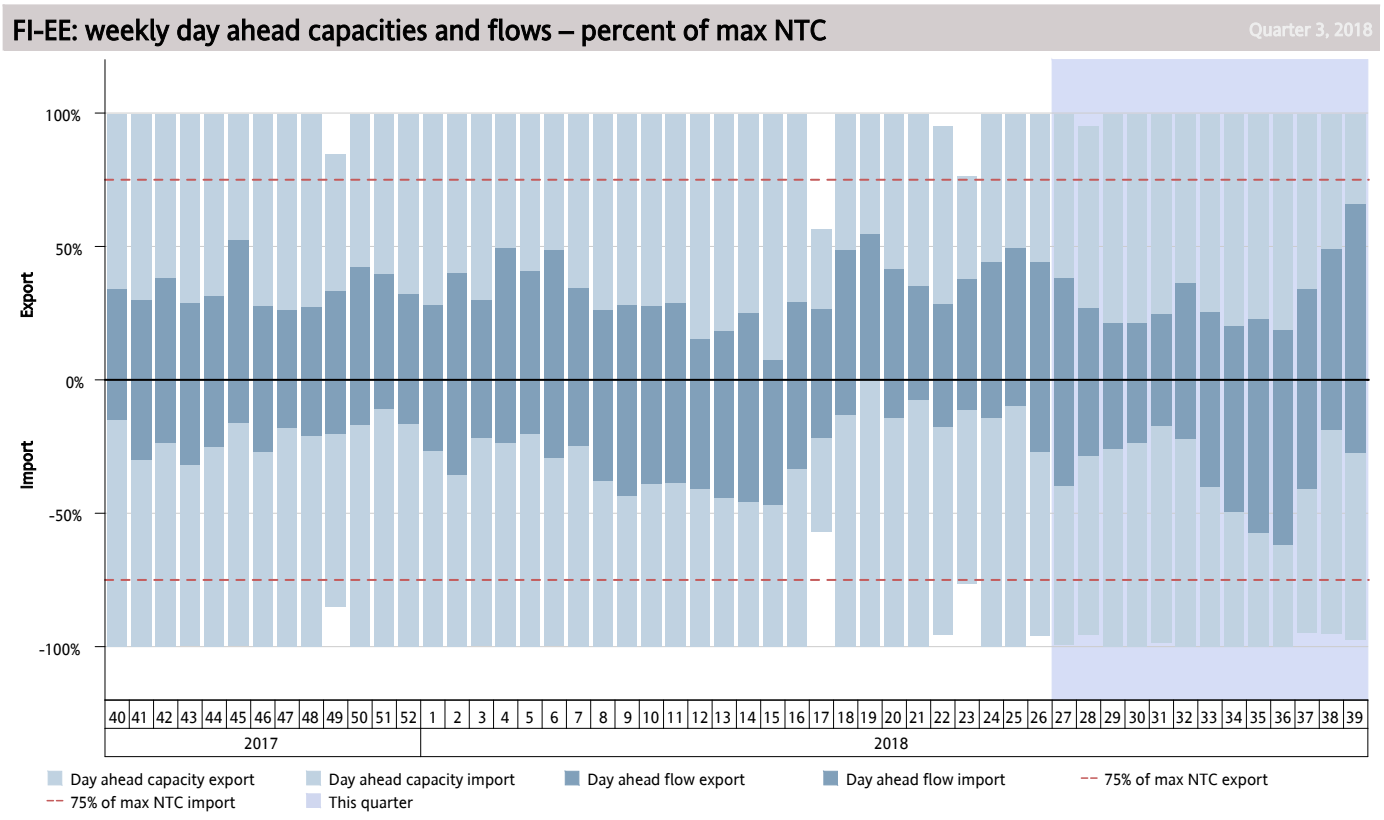

Figure 28: Shows cross-zonal day-ahead capacity result for the HVDC corridor FI-EE, showing average weekly capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from FI to EE, while import indicates flow from EE to FI.

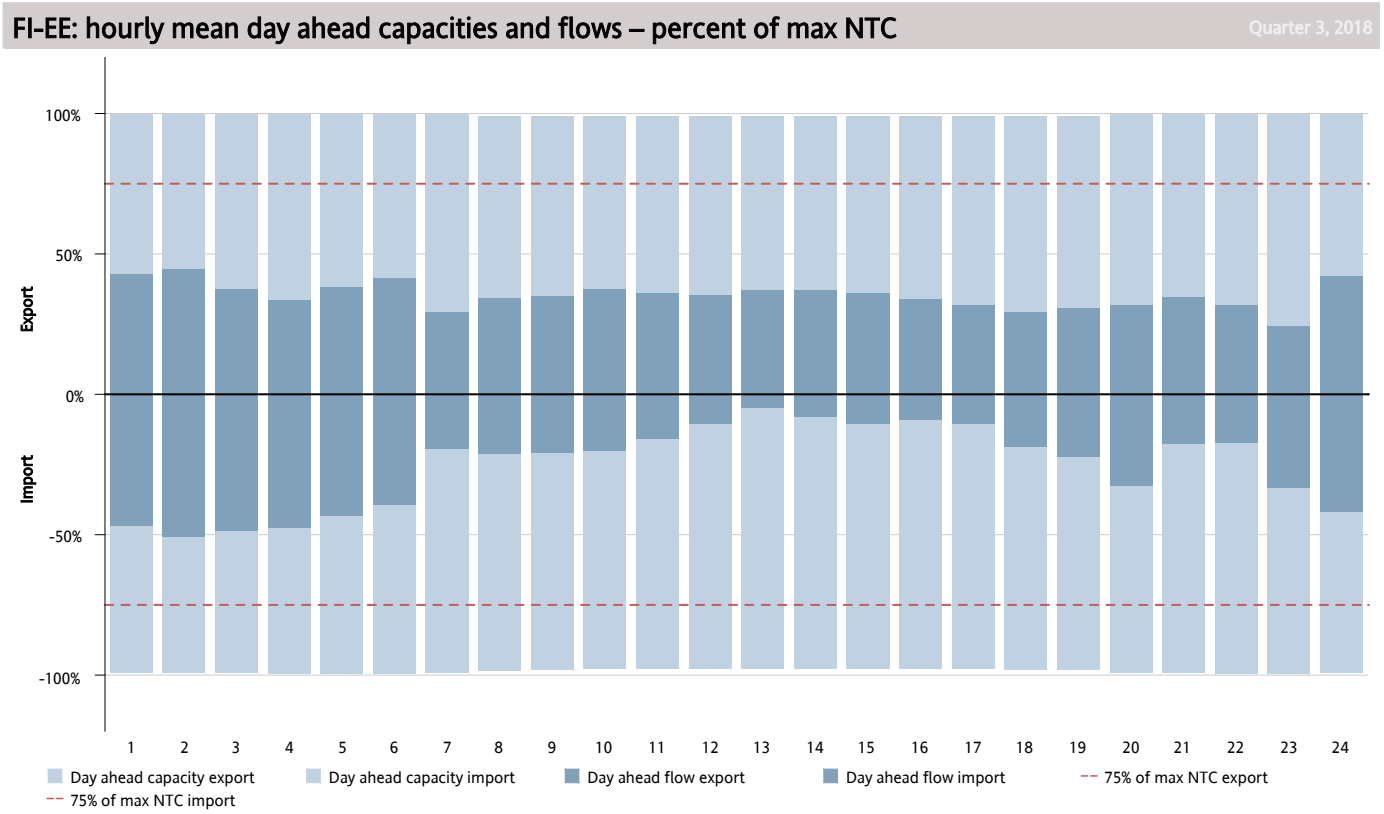

Figure 29: Shows cross-zonal day-ahead capacity result for the HVDC corridor FI-EE, showing average per hour of the day (1-24) capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from FI to EE, while import indicates flow from EE to FI.

FI-EE: hourly day ahead capacities and flows – MW

Quarter 3, 2018

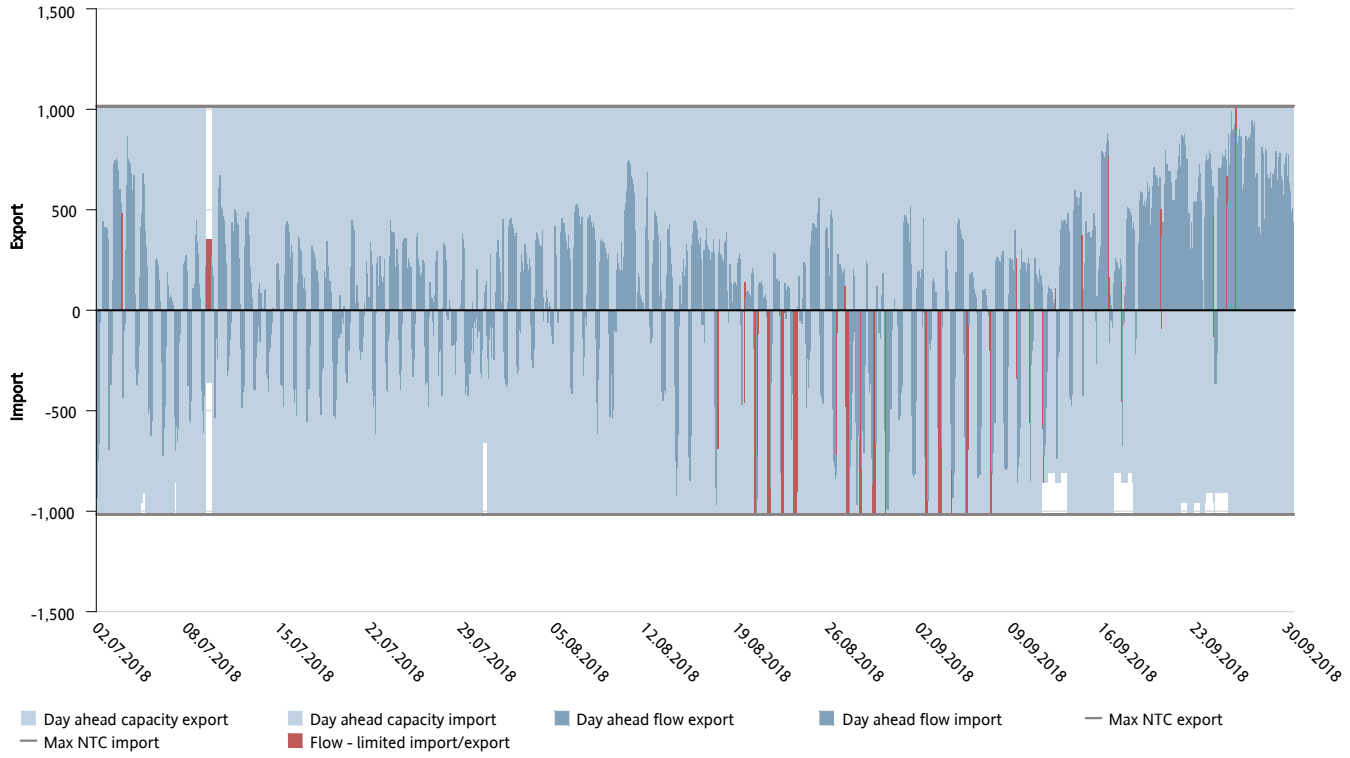

Figure 30: Shows cross-zonal day-ahead capacity result for the HVDC corridor FI-EE, showing capacity given and flow (MW). Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from FI to EE, while import indicates flow from EE to FI.

FI-EE: price comparison in EUR

Quarter 3, 2018

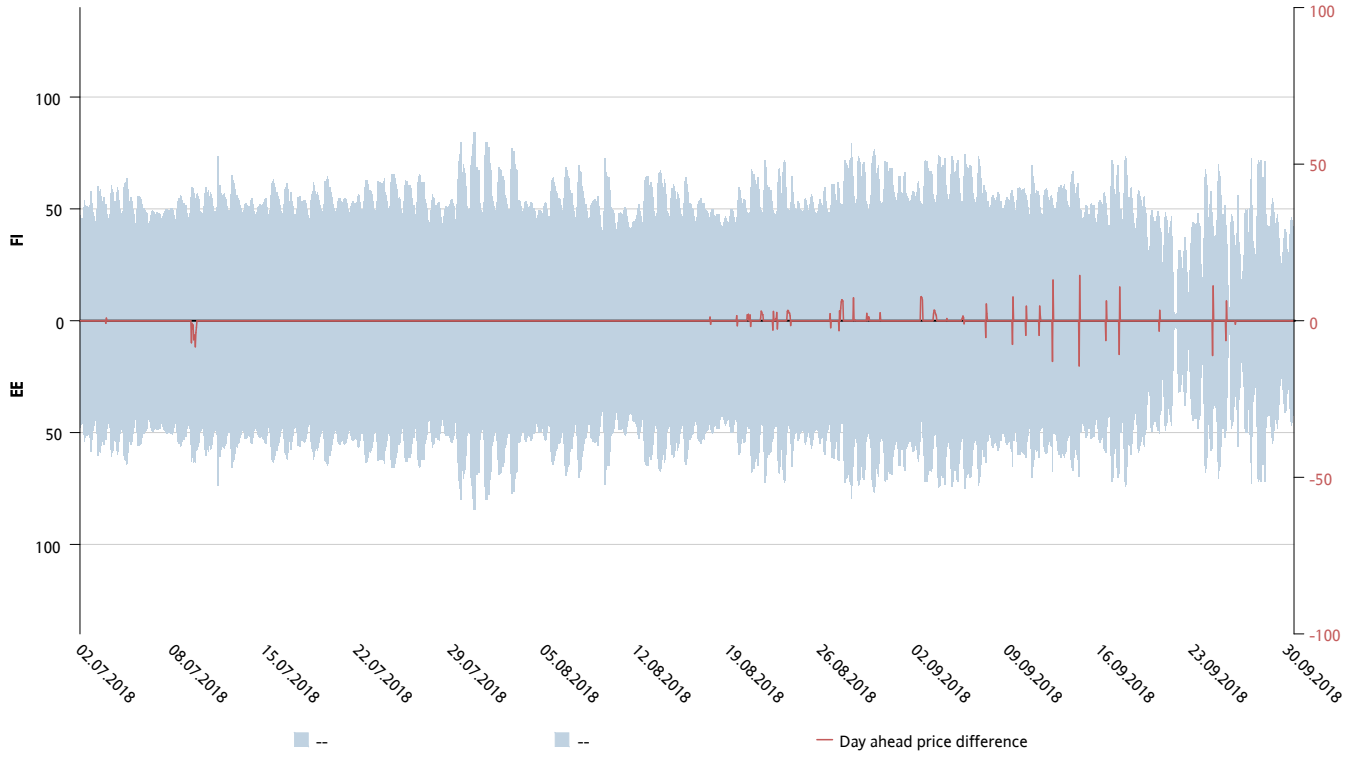

Figure 31: Shows day-ahead prices for the HVDC corridor FI-EE, all prices are in EUR. The red line shows the price difference between the two areas.

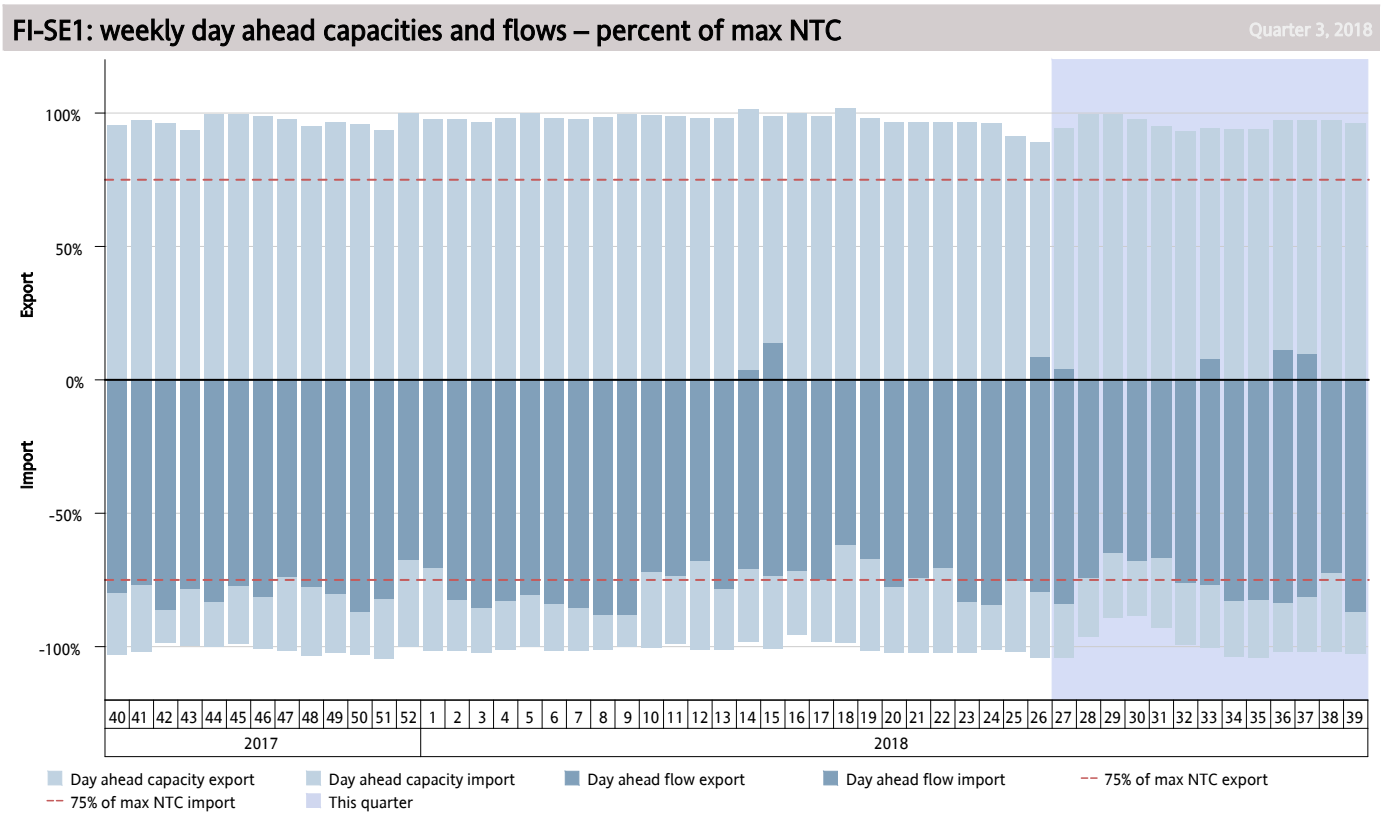

Figure 32: Shows cross-zonal day-ahead capacity result for the AC corridor FI-SE1, showing average weekly capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from FI to SE1, while import indicates flow from SE1 to FI.

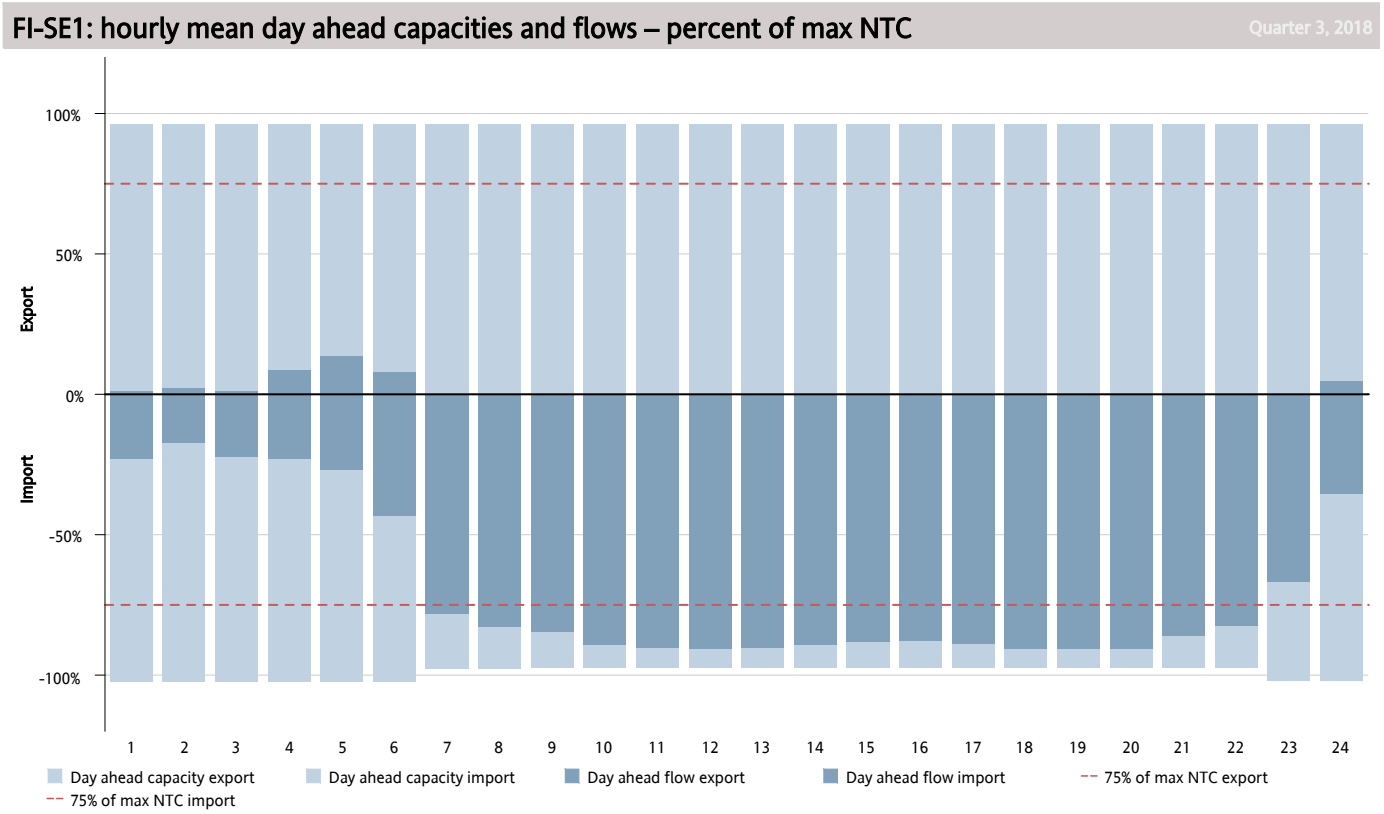

Figure 33: Shows cross-zonal day-ahead capacity result for the AC corridor FI-SE1, showing average per hour of the day (1-24) capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from FI to SE1, while import indicates flow from SE1 to FI.

FI-SE1: hourly day ahead capacities and flows – MW

Quarter 3, 2018

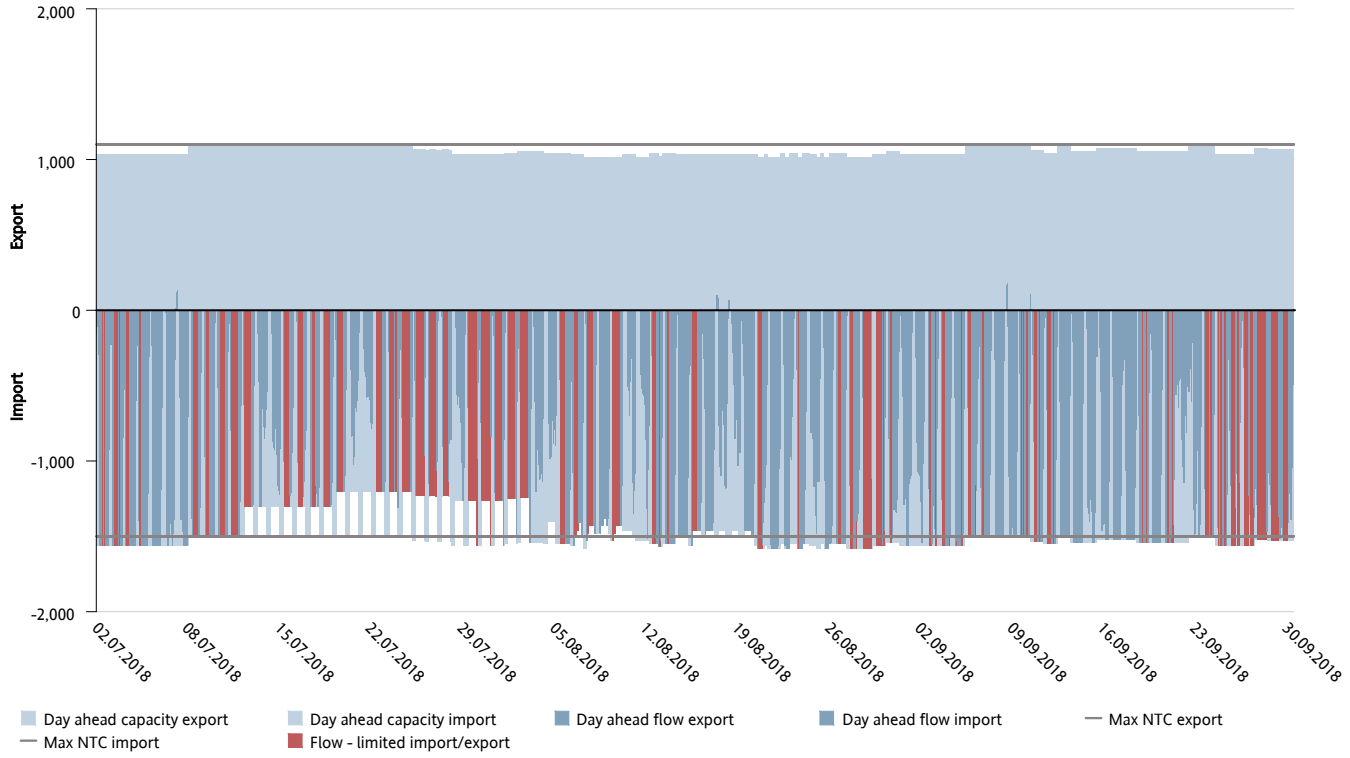

Figure 34: Shows cross-zonal day-ahead capacity result for the AC corridor FI-SE1, showing capacity given and flow (MW). Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from FI to SE1, while import indicates flow from SE1 to FI.

FI-SE1: price comparison in EUR

Quarter 3, 2018

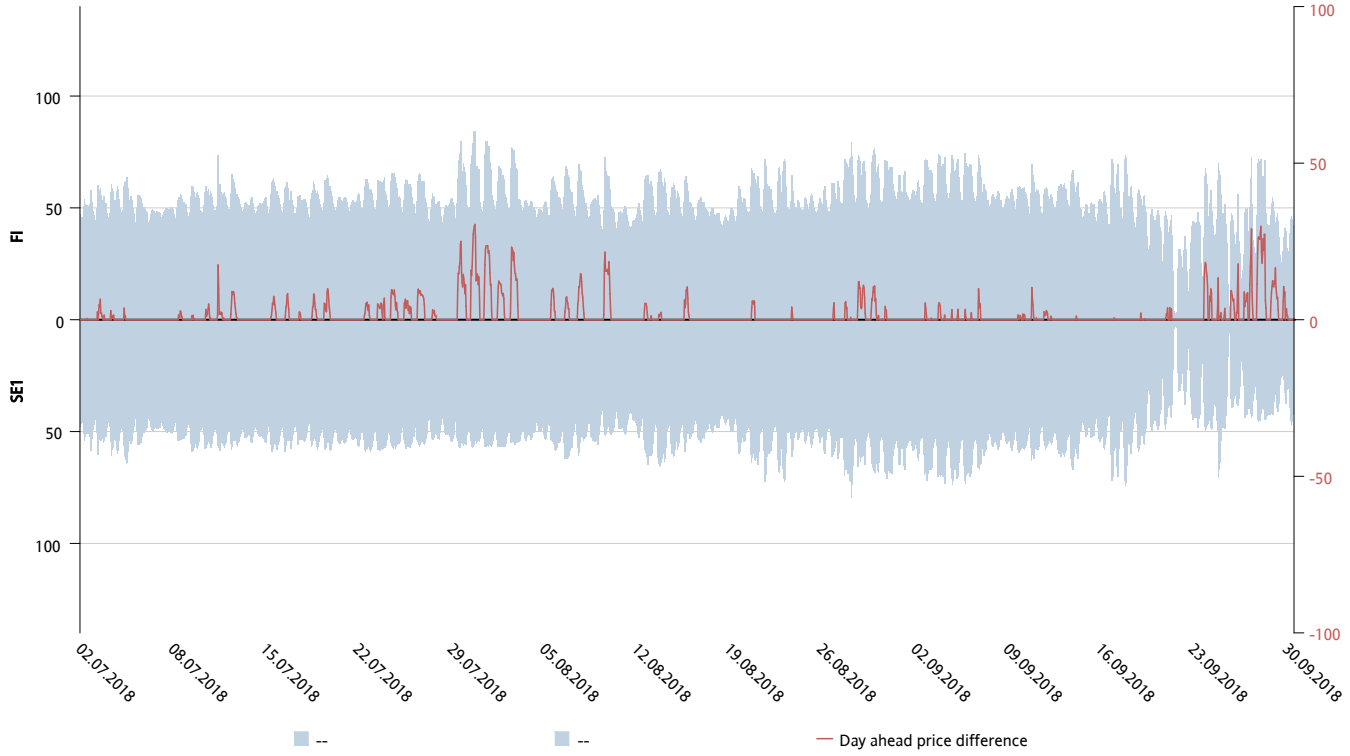

Figure 35: Shows day-ahead prices for the AC corridor FI-SE1, all prices are in EUR. The red line shows the price difference between the two areas.

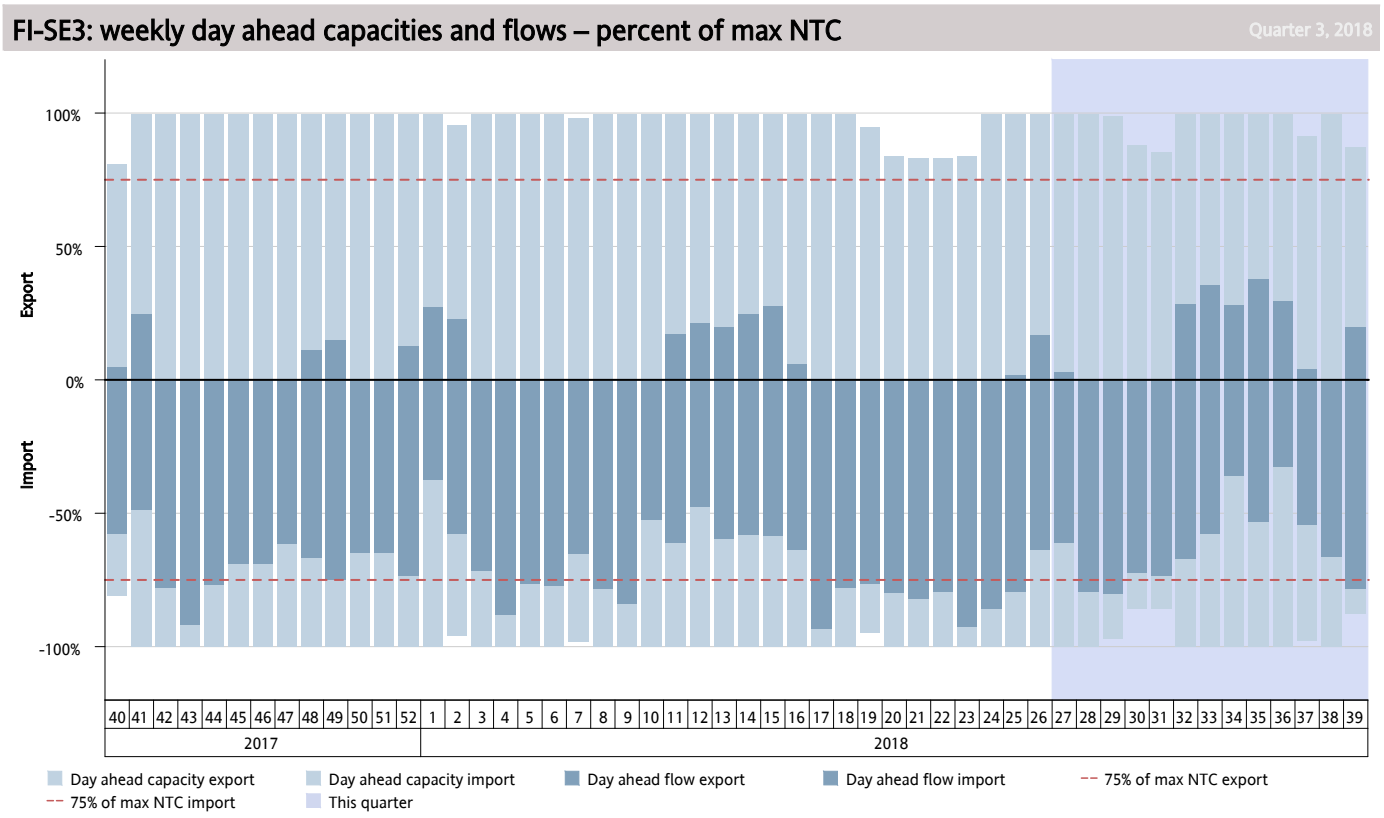

Figure 36: Shows cross-zonal day-ahead capacity result for the HVDC corridor FI-SE3, showing average weekly capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from FI to SE3, while import indicates flow from SE3 to FI.

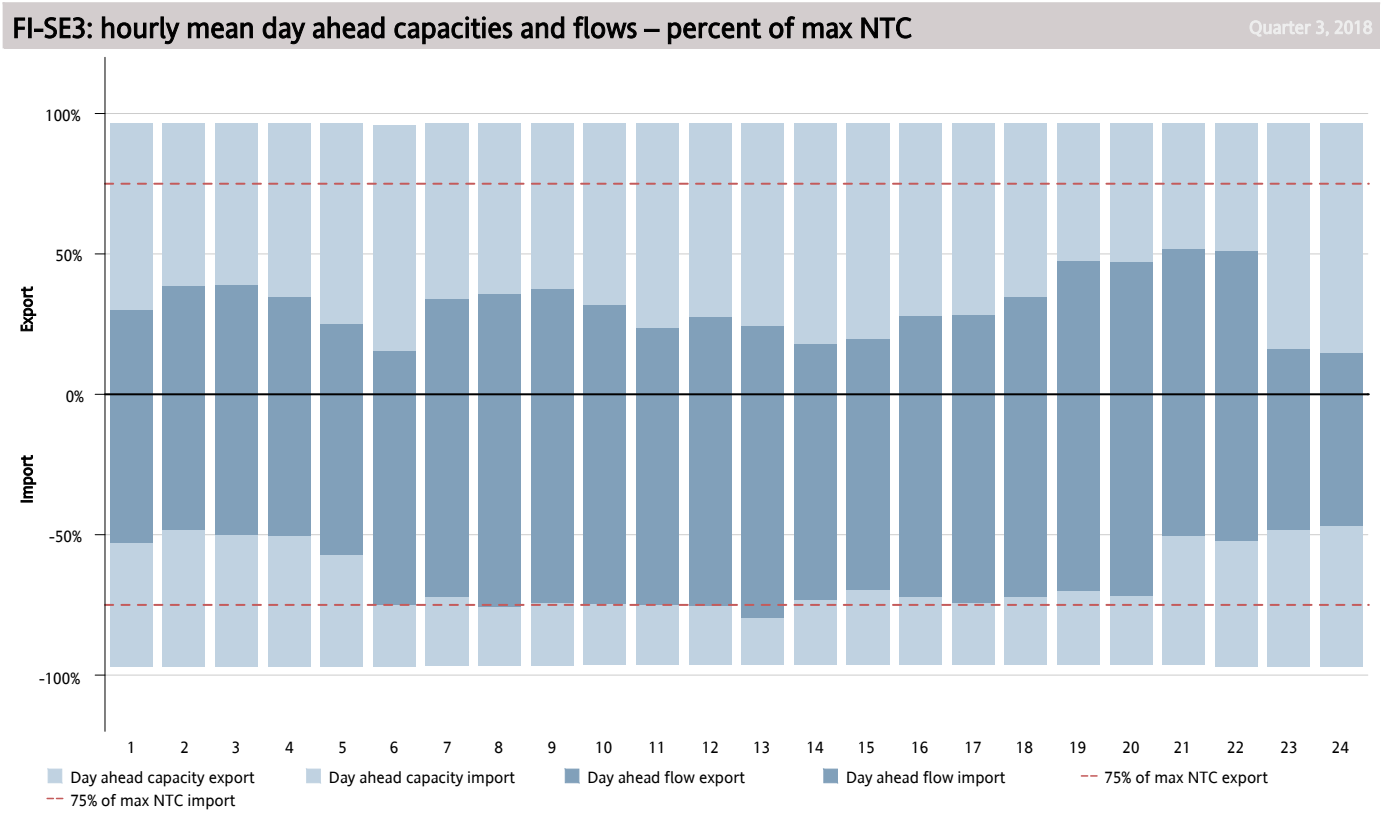

Figure 37: Shows cross-zonal day-ahead capacity result for the HVDC corridor FI-SE3, showing average per hour of the day (1-24) capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from FI to SE3, while import indicates flow from SE3 to FI.

FI-SE3: hourly day ahead capacities and flows – MW

Quarter 3, 2018

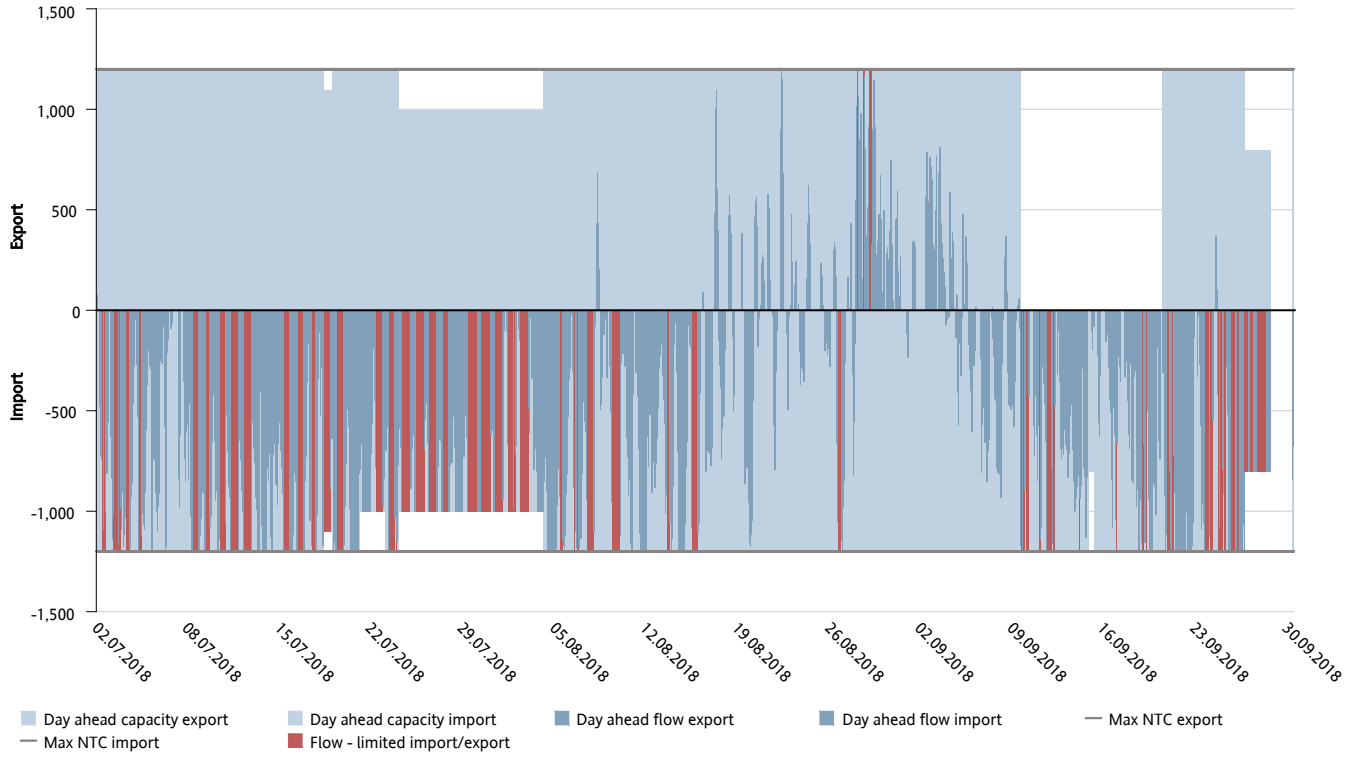

Figure 38: Shows cross-zonal day-ahead capacity result for the HVDC corridor FI-SE3, showing capacity given and flow (MW). Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from FI to SE3, while import indicates flow from SE3 to FI.

FI-SE3: price comparison in EUR

Quarter 3, 2018

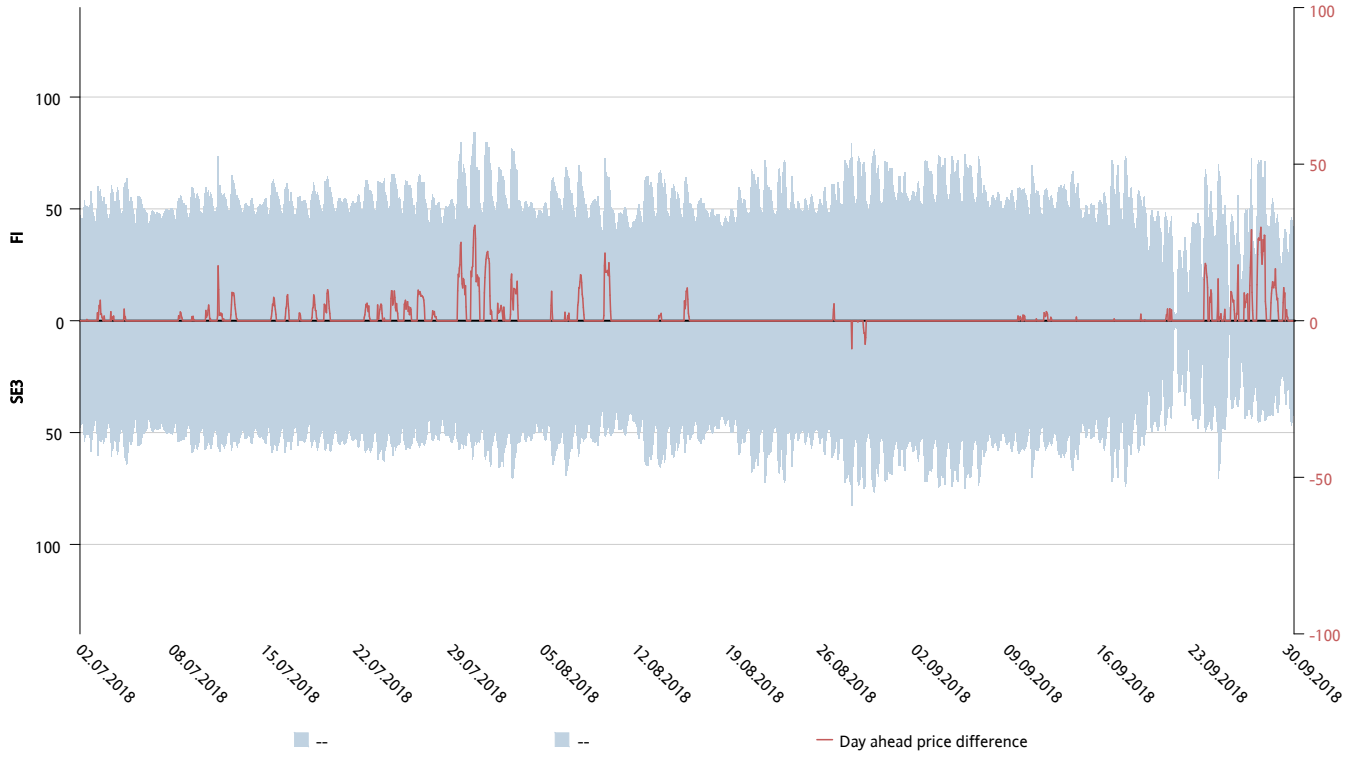

Figure 39: Shows day-ahead prices for the HVDC corridor FI-SE3, all prices are in EUR. The red line shows the price difference between the two areas.

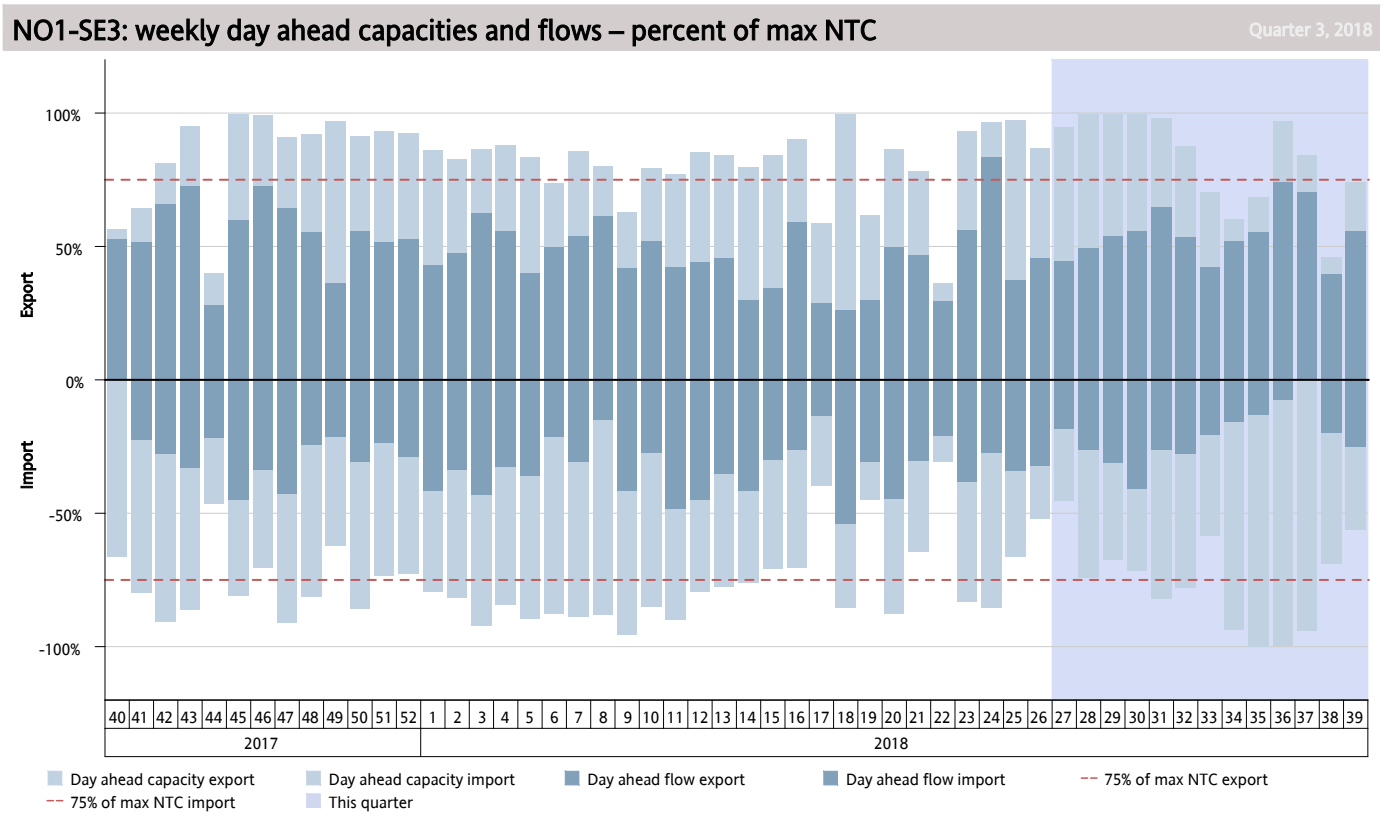

Figure 40: Shows cross-zonal day-ahead capacity result for the AC corridor NO1-SE3, showing average weekly capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from NO1 to SE3, while import indicates flow from SE3 to NO1.

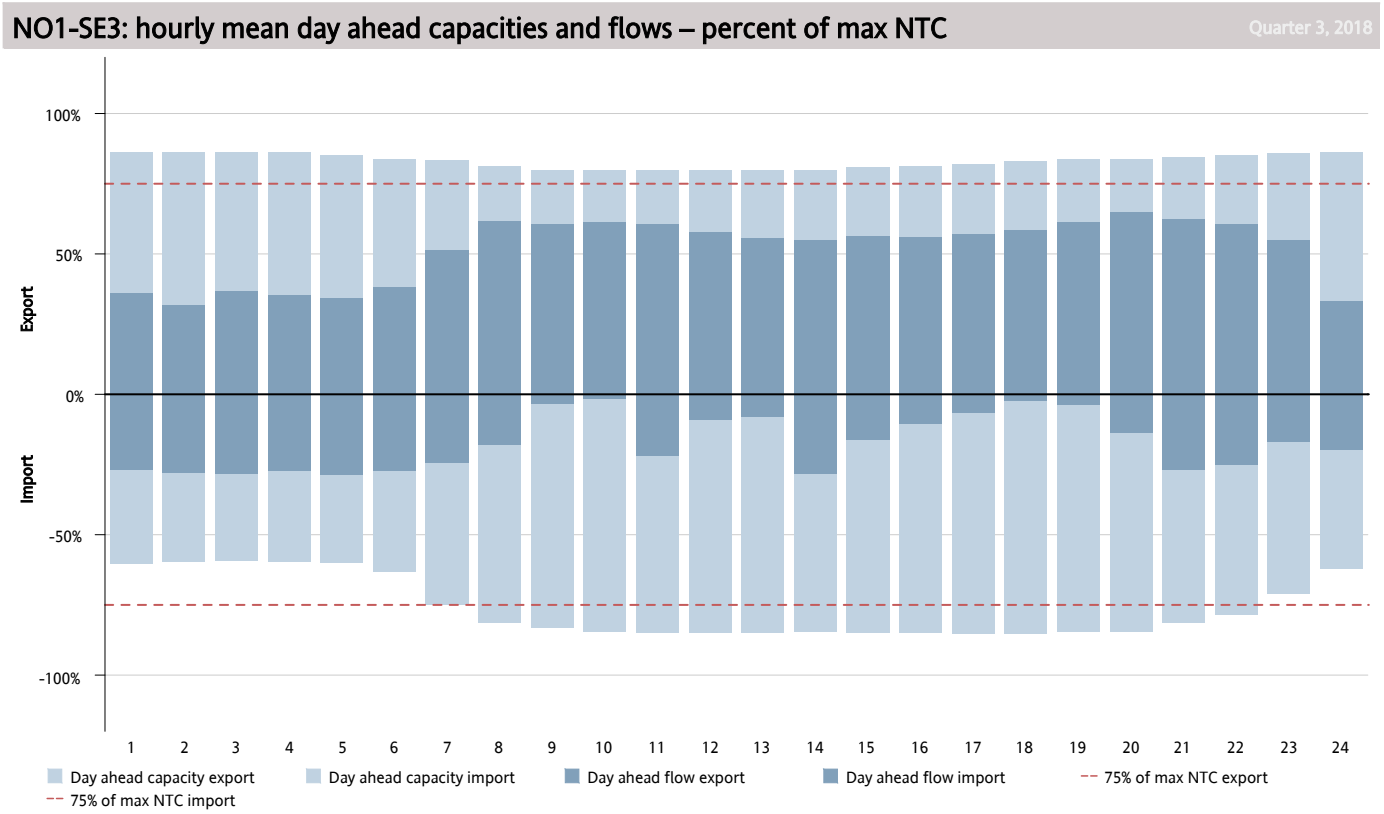

Figure 41: Shows cross-zonal day-ahead capacity result for the AC corridor NO1-SE3, showing average per hour of the day (1-24) capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from NO1 to SE3, while import indicates flow from SE3 to NO1.

NO1-SE3: hourly day ahead capacities and flows – MW

Quarter 3, 2018

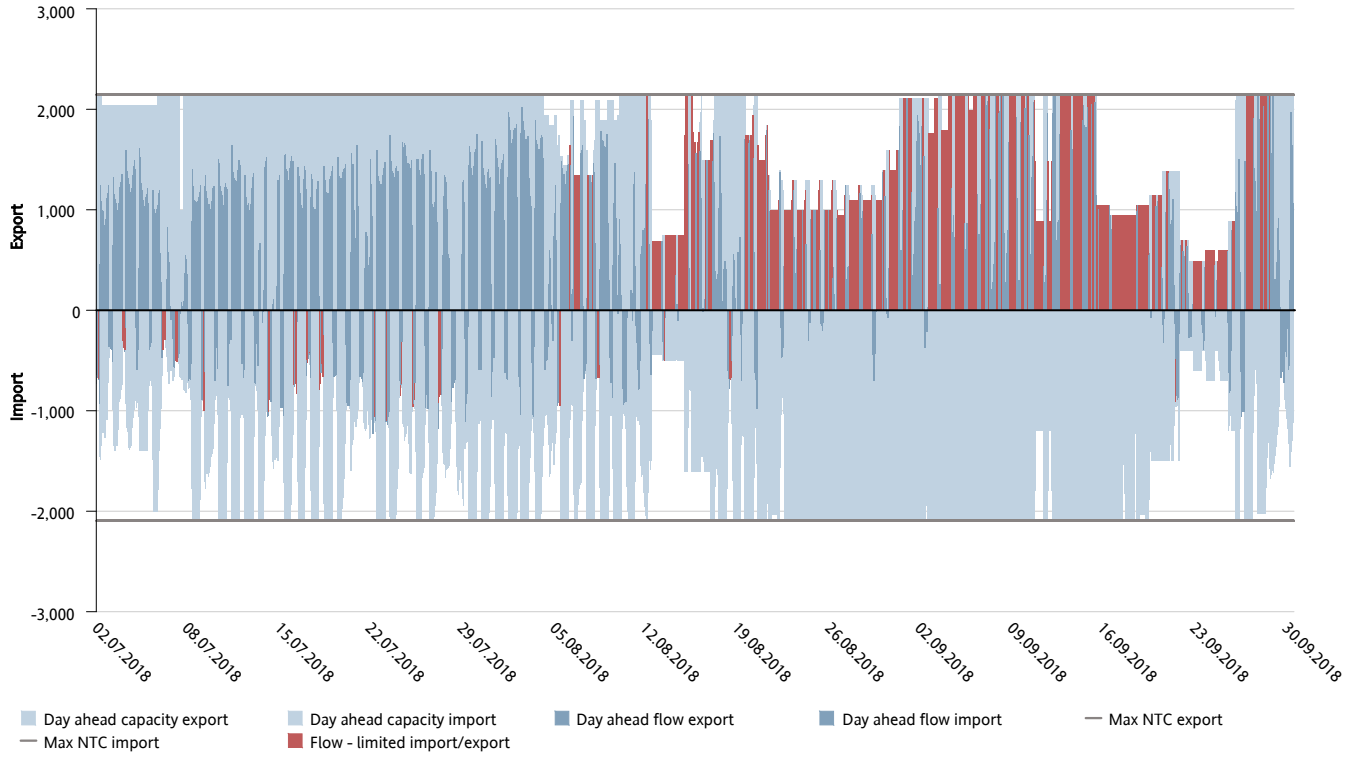

Figure 42: Shows cross-zonal day-ahead capacity result for the AC corridor NO1-SE3, showing capacity given and flow (MW). Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from NO1 to SE3, while import indicates flow from SE3 to NO1.

NO1-SE3: price comparison in EUR

Quarter 3, 2018

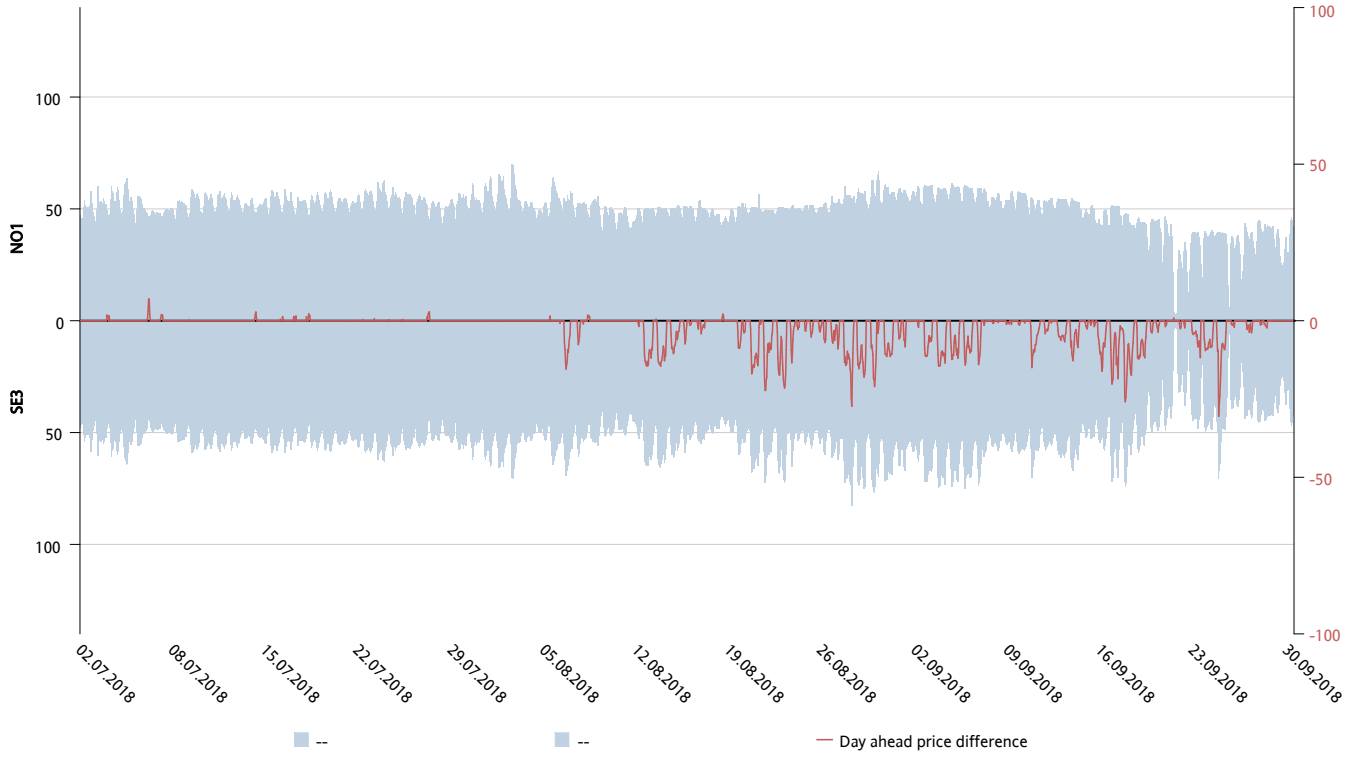

Figure 43: Shows day-ahead prices for the AC corridor NO1-SE3, all prices are in EUR. The red line shows the price difference between the two areas.

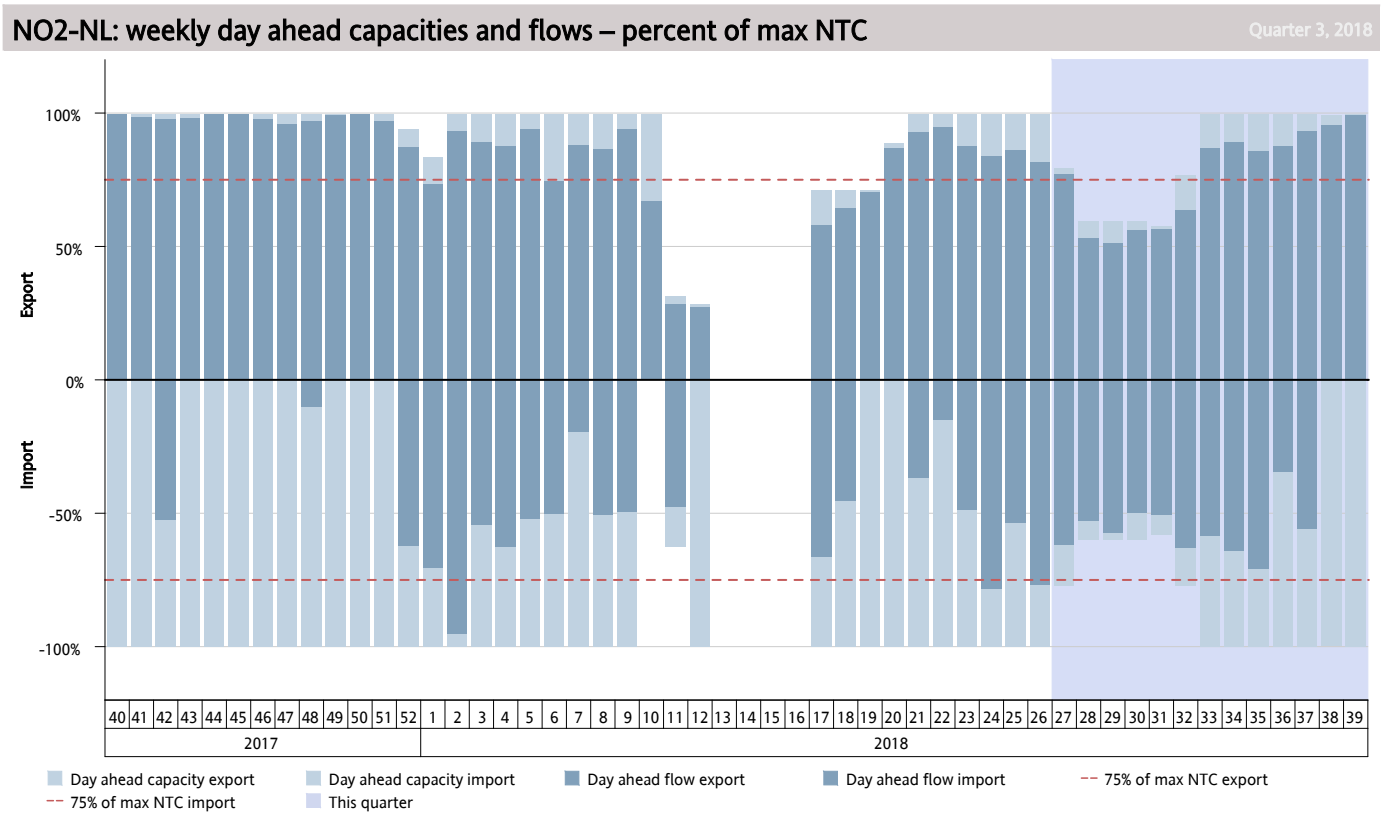

Figure 44: Shows cross-zonal day-ahead capacity result for the HVDC corridor NO2-NL, showing average weekly capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from NO2 to NL, while import indicates flow from NL to NO2.

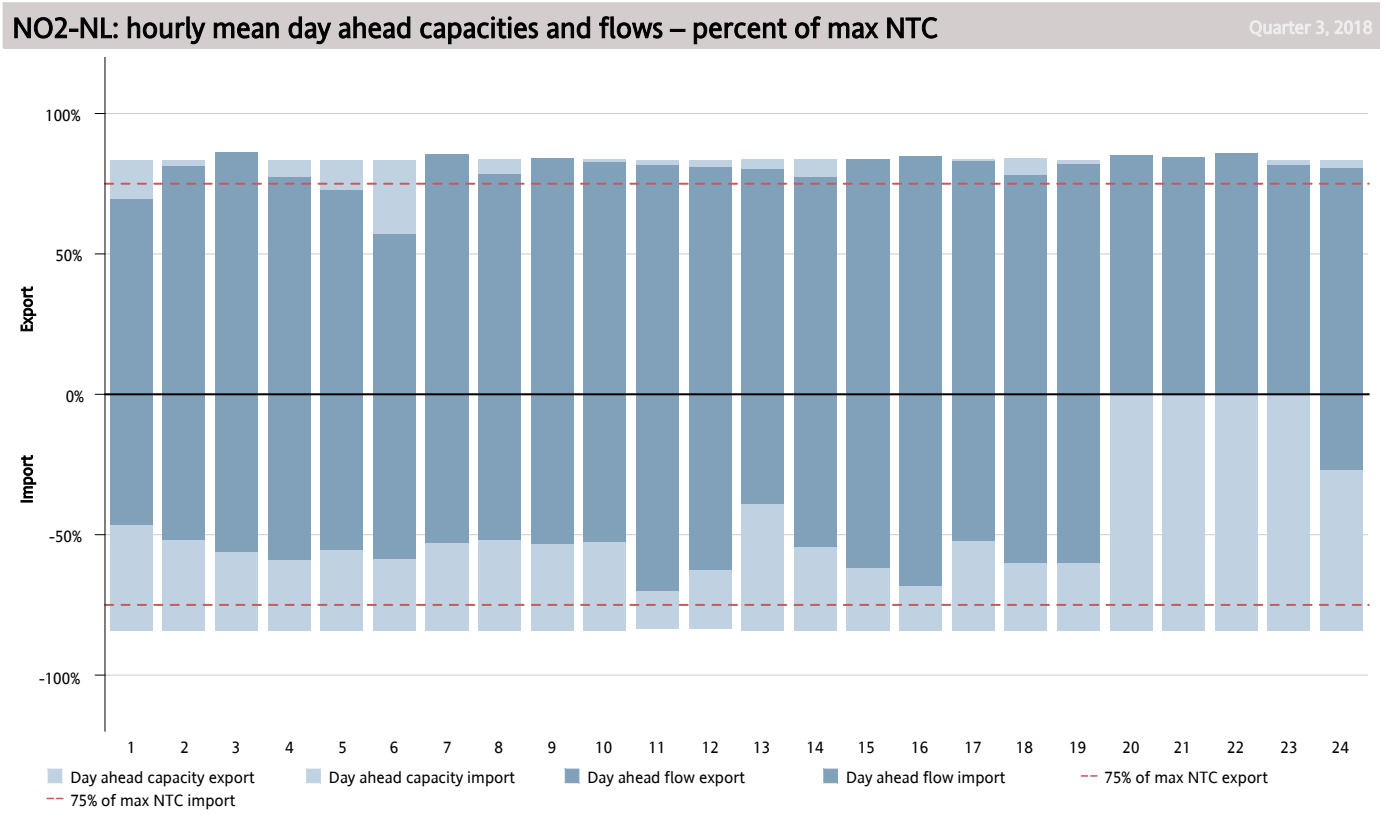

Figure 45: Shows cross-zonal day-ahead capacity result for the HVDC corridor NO2-NL, showing average per hour of the day (1-24) capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from NO2 to NL, while import indicates flow from NL to NO2.

NO2-NL: hourly day ahead capacities and flows – MW

Quarter 3, 2018

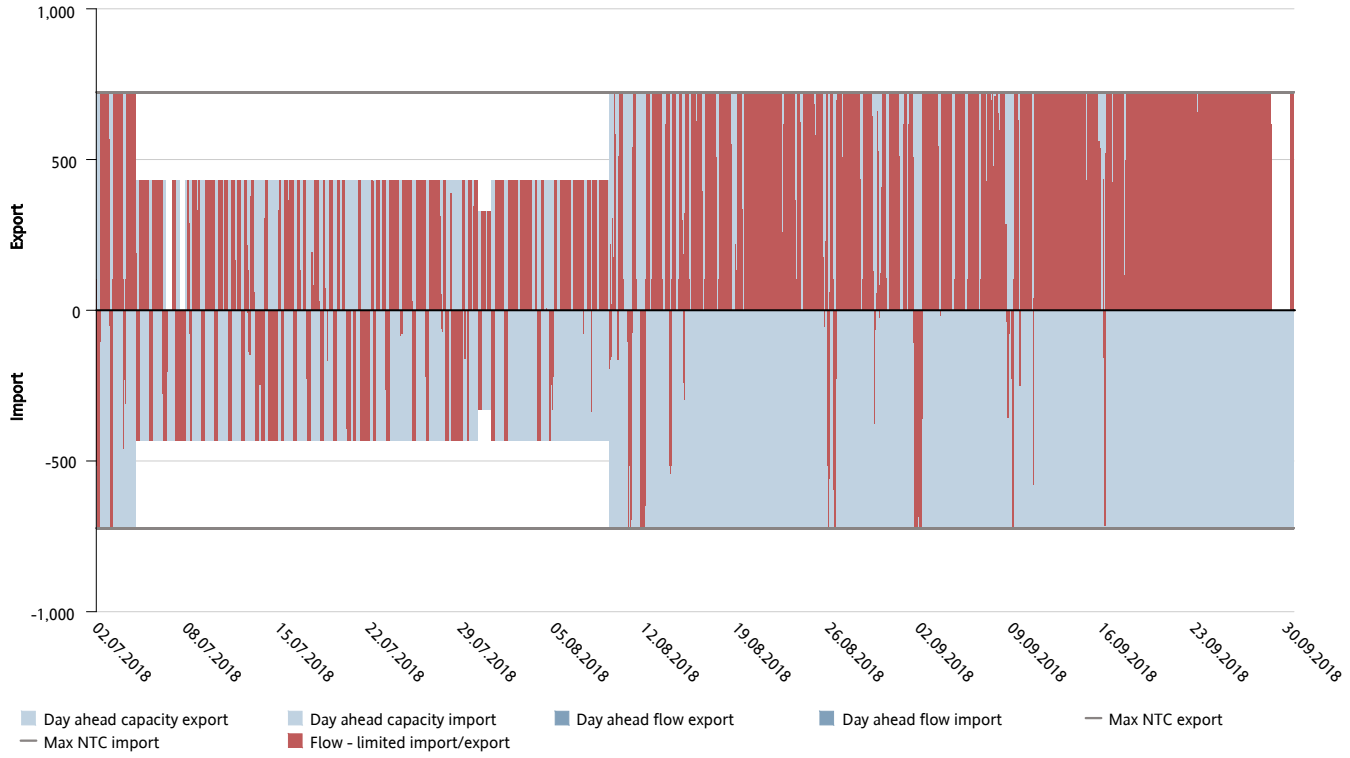

Figure 46: Shows cross-zonal day-ahead capacity result for the HVDC corridor NO2-NL, showing capacity given and flow (MW). Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from NO2 to NL, while import indicates flow from NL to NO2.

NO2-NL: price comparison in EUR

Quarter 3, 2018

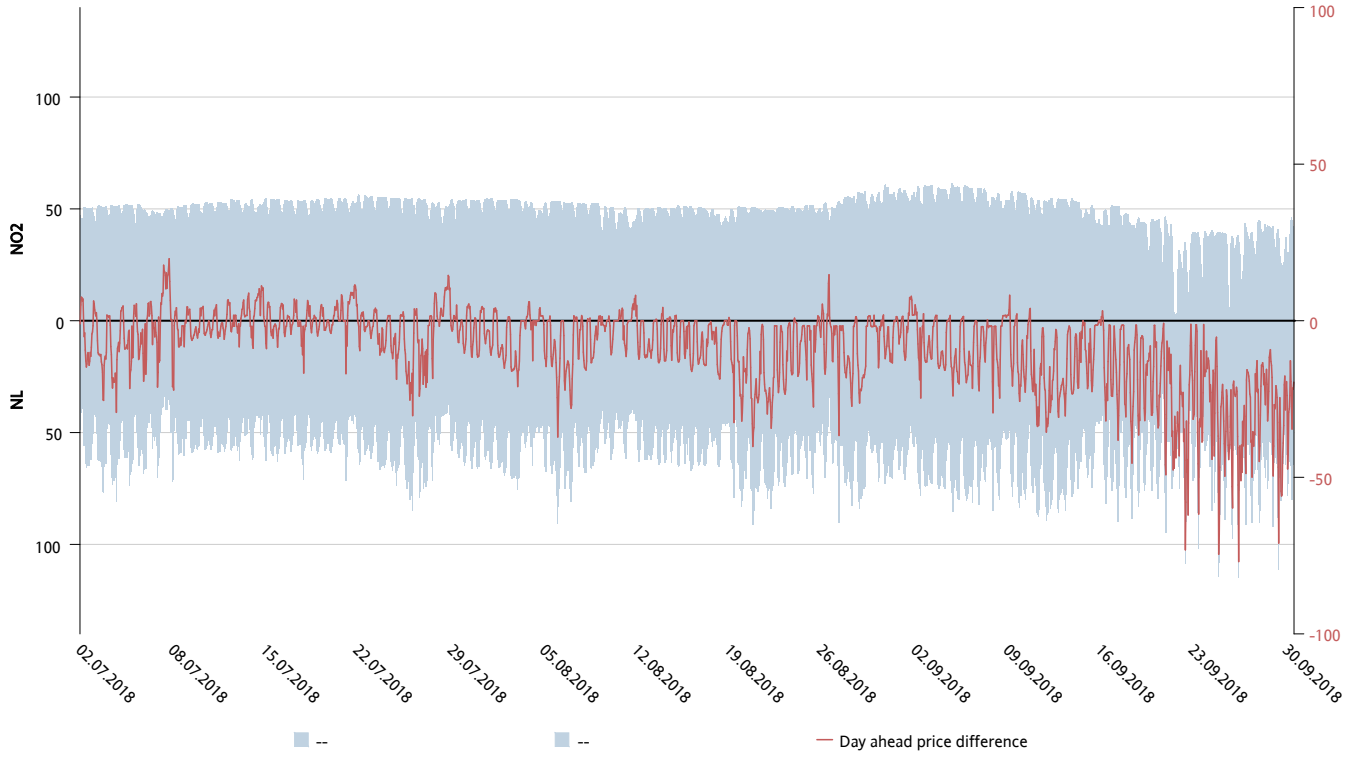

Figure 47: Shows day-ahead prices for the HVDC corridor NO2-NL, all prices are in EUR. The red line shows the price difference between the two areas.

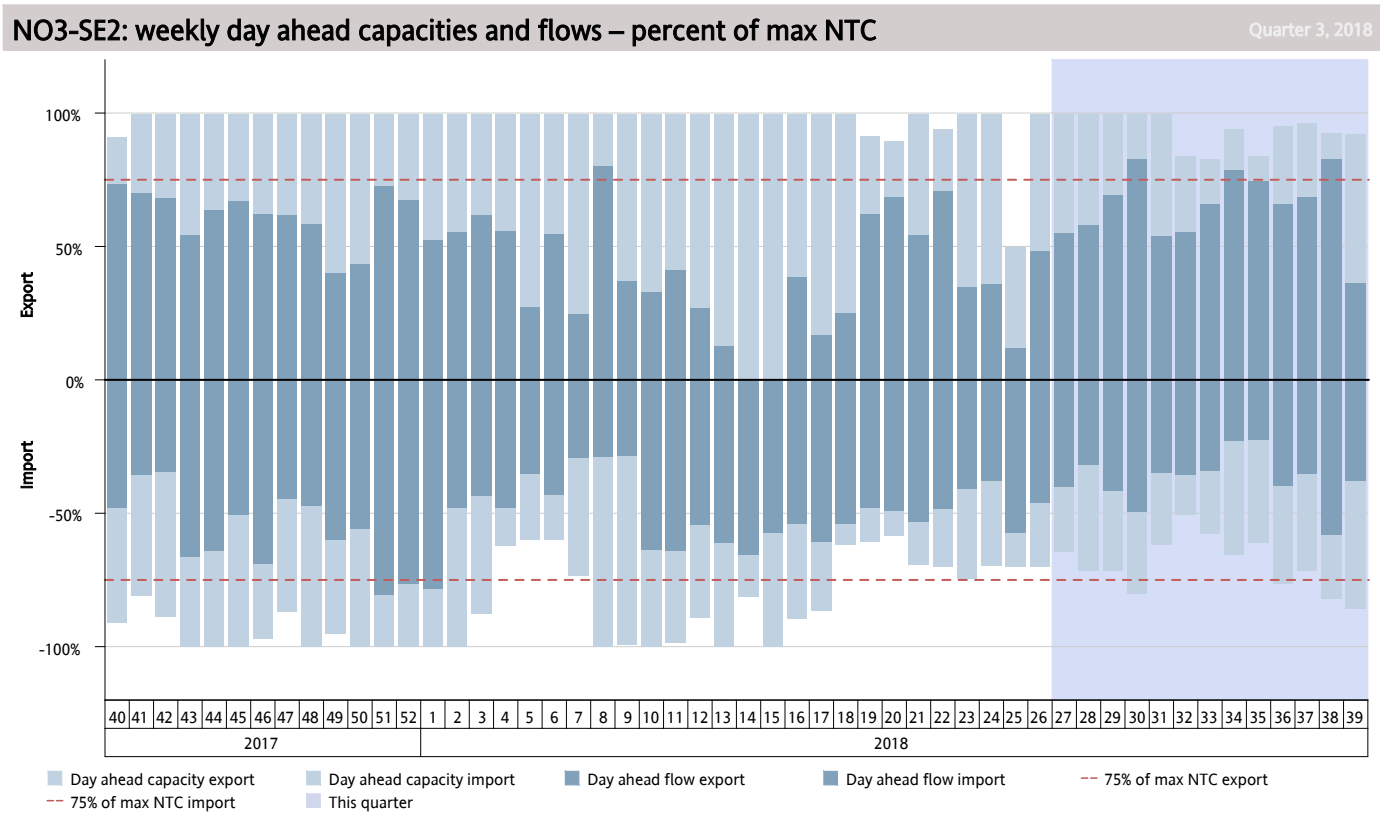

Figure 48: Shows cross-zonal day-ahead capacity result for the AC corridor NO3-SE2, showing average weekly capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from NO3 to SE2, while import indicates flow from SE2 to NO3.

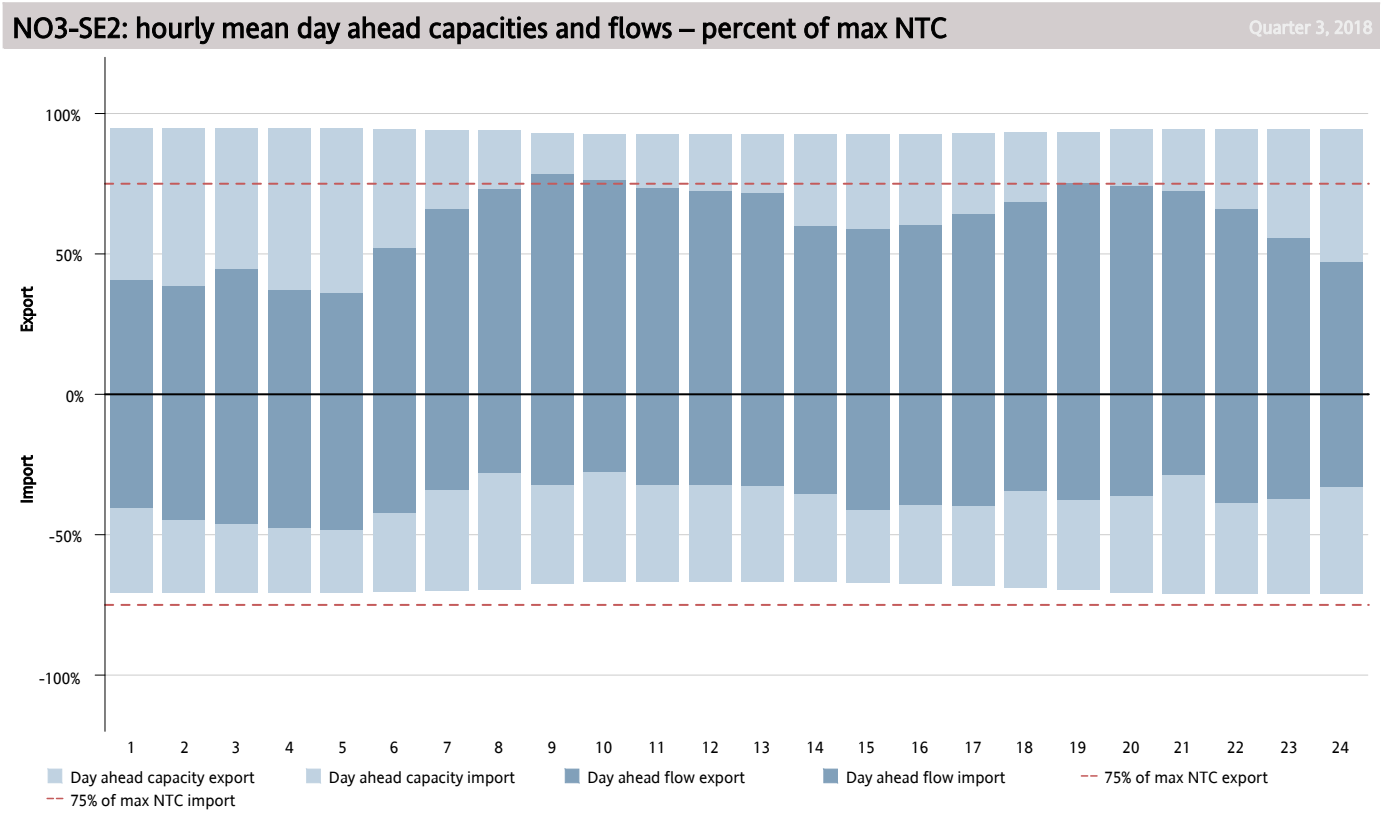

Figure 49: Shows cross-zonal day-ahead capacity result for the AC corridor NO3-SE2, showing average per hour of the day (1-24) capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from NO3 to SE2, while import indicates flow from SE2 to NO3.

NO3-SE2: hourly day ahead capacities and flows – MW

Quarter 3, 2018

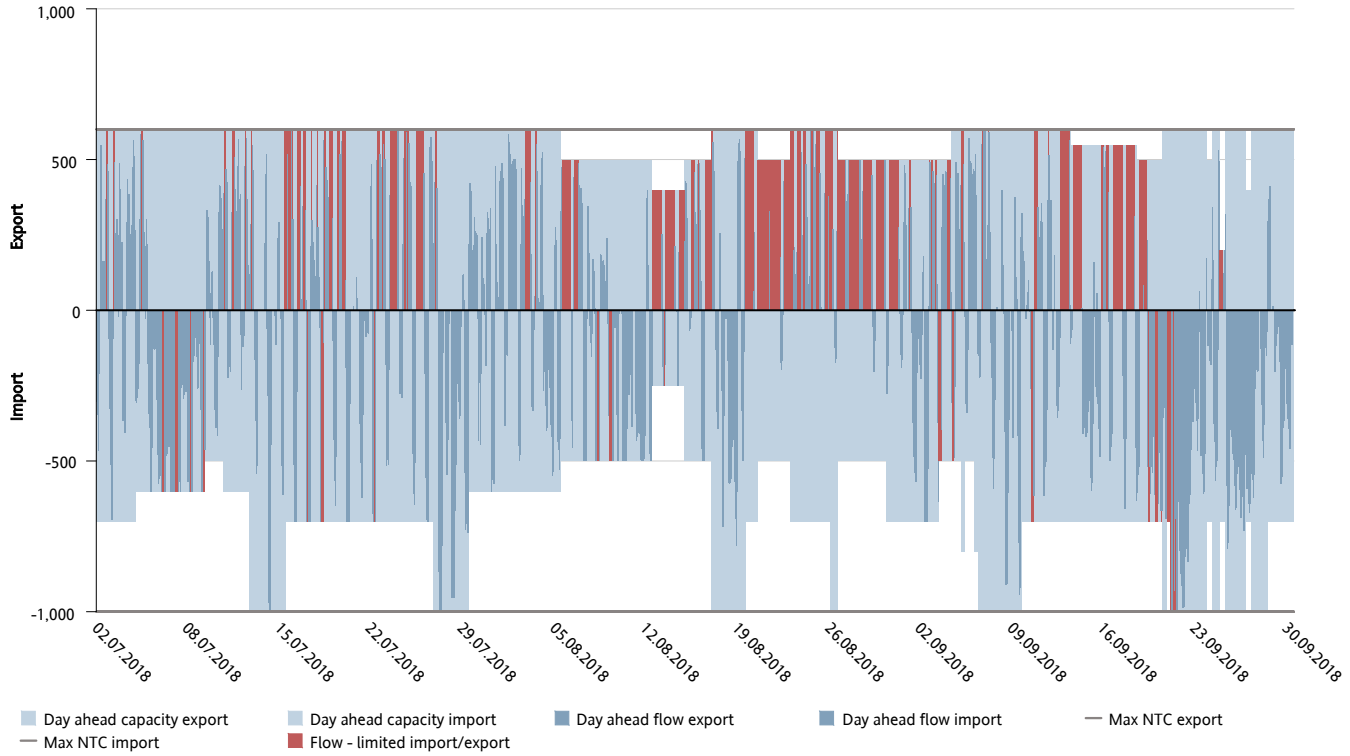

Figure 50: Shows cross-zonal day-ahead capacity result for the AC corridor NO3-SE2, showing capacity given and flow (MW). Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from NO3 to SE2, while import indicates flow from SE2 to NO3.

NO3-SE2: price comparison in EUR

Quarter 3, 2018

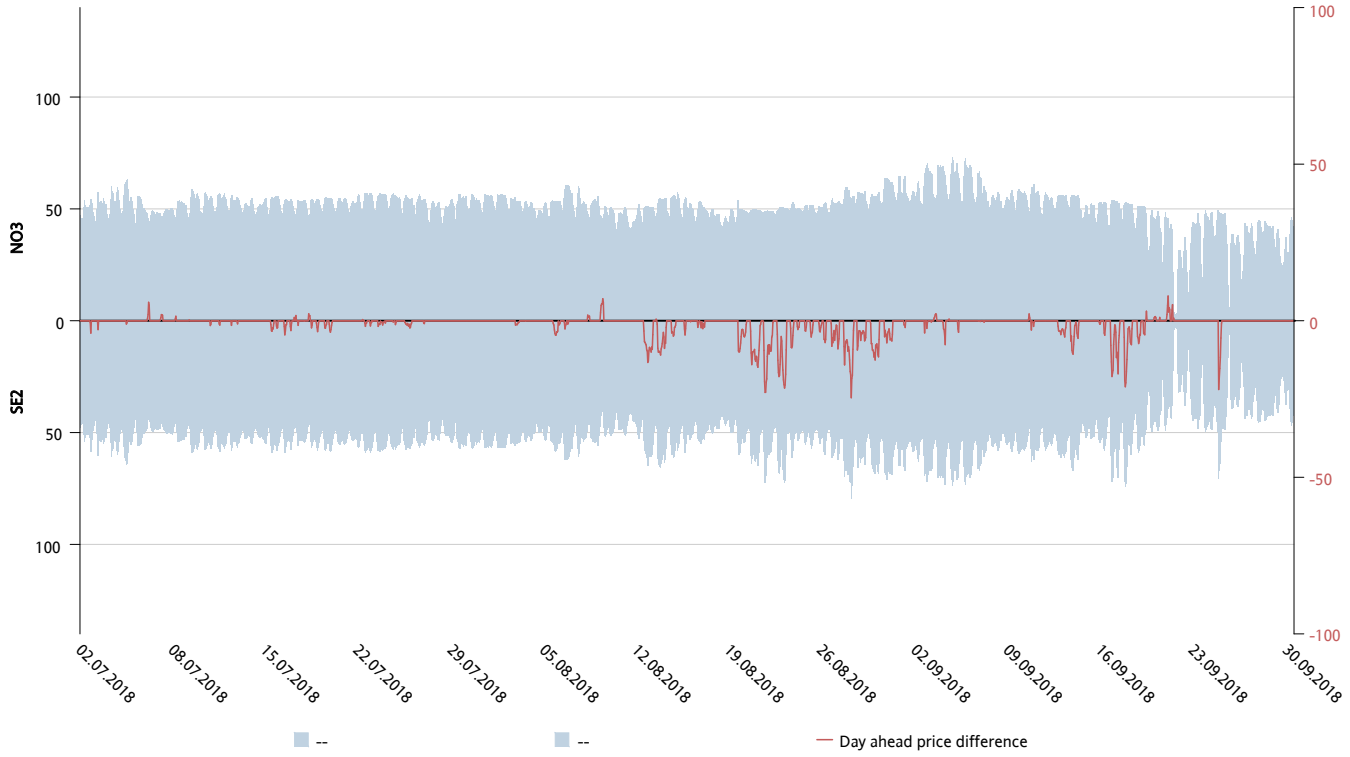

Figure 51: Shows day-ahead prices for the AC corridor NO3-SE2, all prices are in EUR. The red line shows the price difference between the two areas.

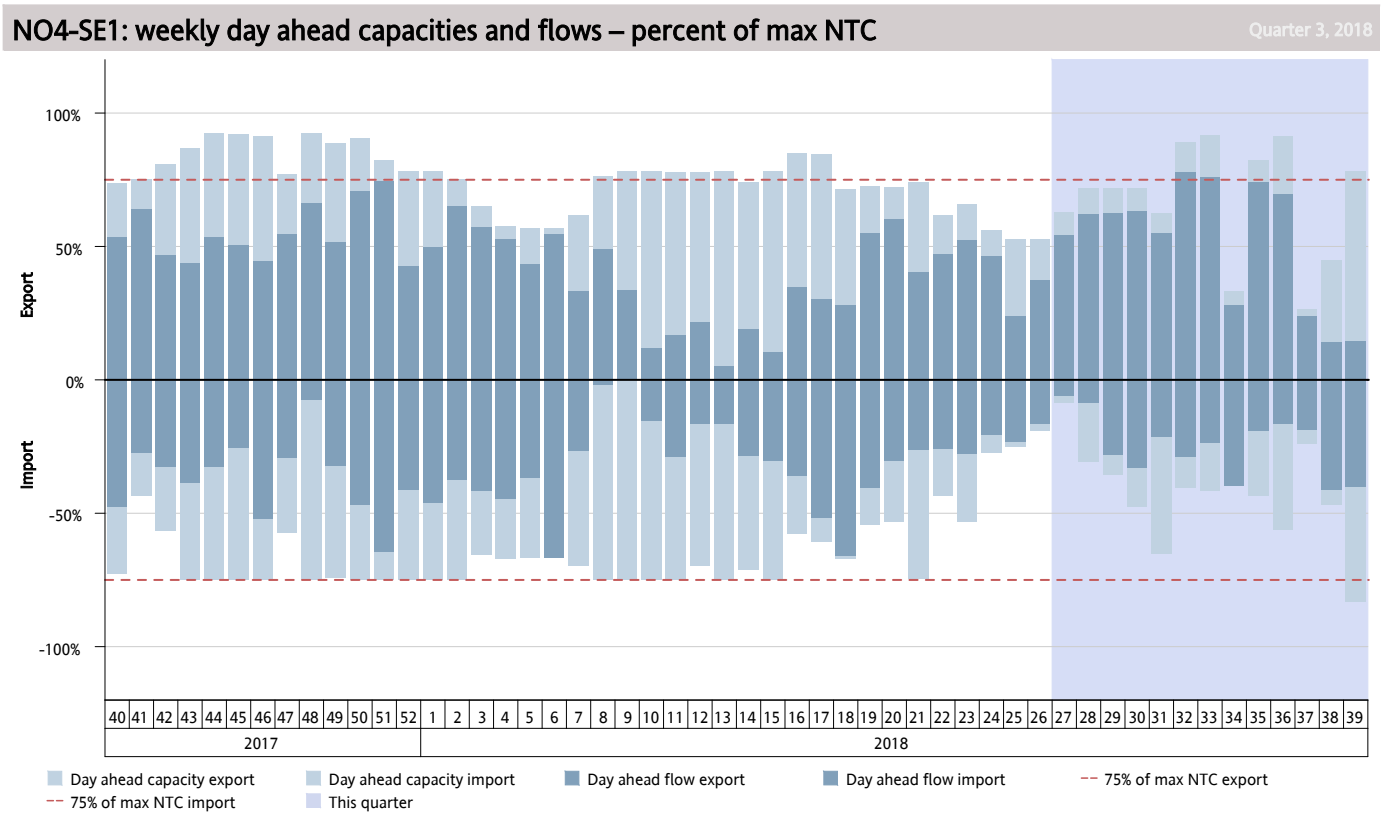

Figure 52: Shows cross-zonal day-ahead capacity result for the AC corridor NO4-SE1, showing average weekly capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from NO4 to SE1, while import indicates flow from SE1 to NO4.

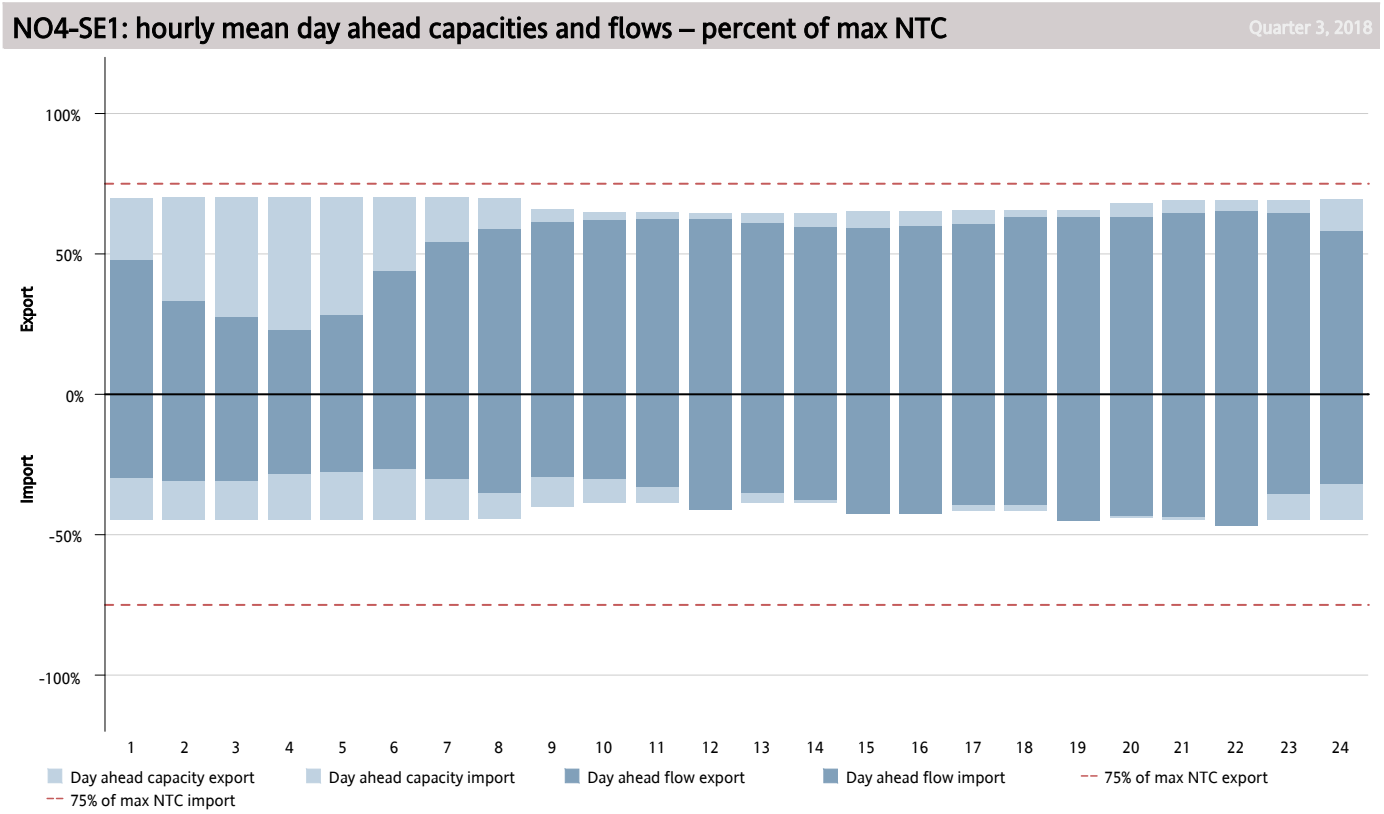

Figure 53: Shows cross-zonal day-ahead capacity result for the AC corridor NO4-SE1, showing average per hour of the day (1-24) capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from NO4 to SE1, while import indicates flow from SE1 to NO4.

NO4-SE1: hourly day ahead capacities and flows – MW

Quarter 3, 2018

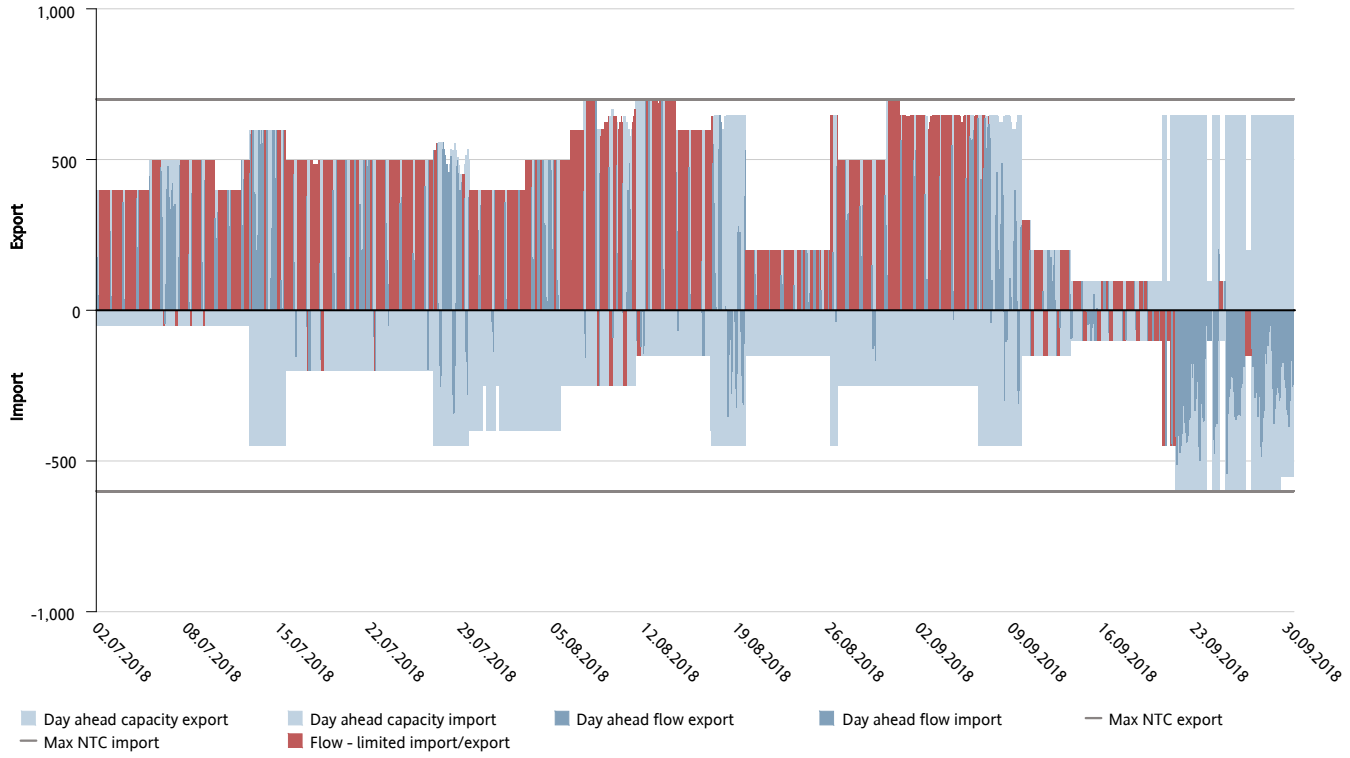

Figure 54: Shows cross-zonal day-ahead capacity result for the AC corridor NO4-SE1, showing capacity given and flow (MW). Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from NO4 to SE1, while import indicates flow from SE1 to NO4.

NO4-SE1: price comparison in EUR

Quarter 3, 2018

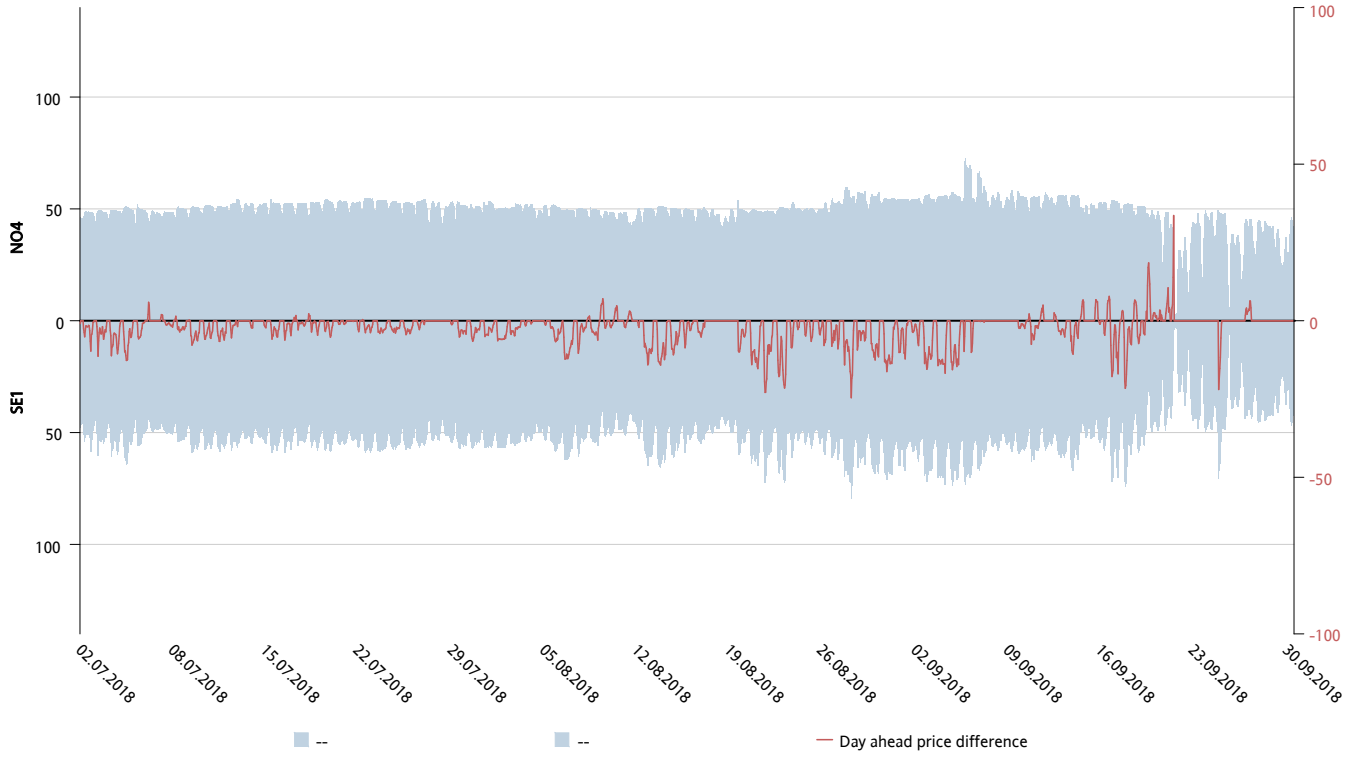

Figure 55: Shows day-ahead prices for the AC corridor NO4-SE1, all prices are in EUR. The red line shows the price difference between the two areas.

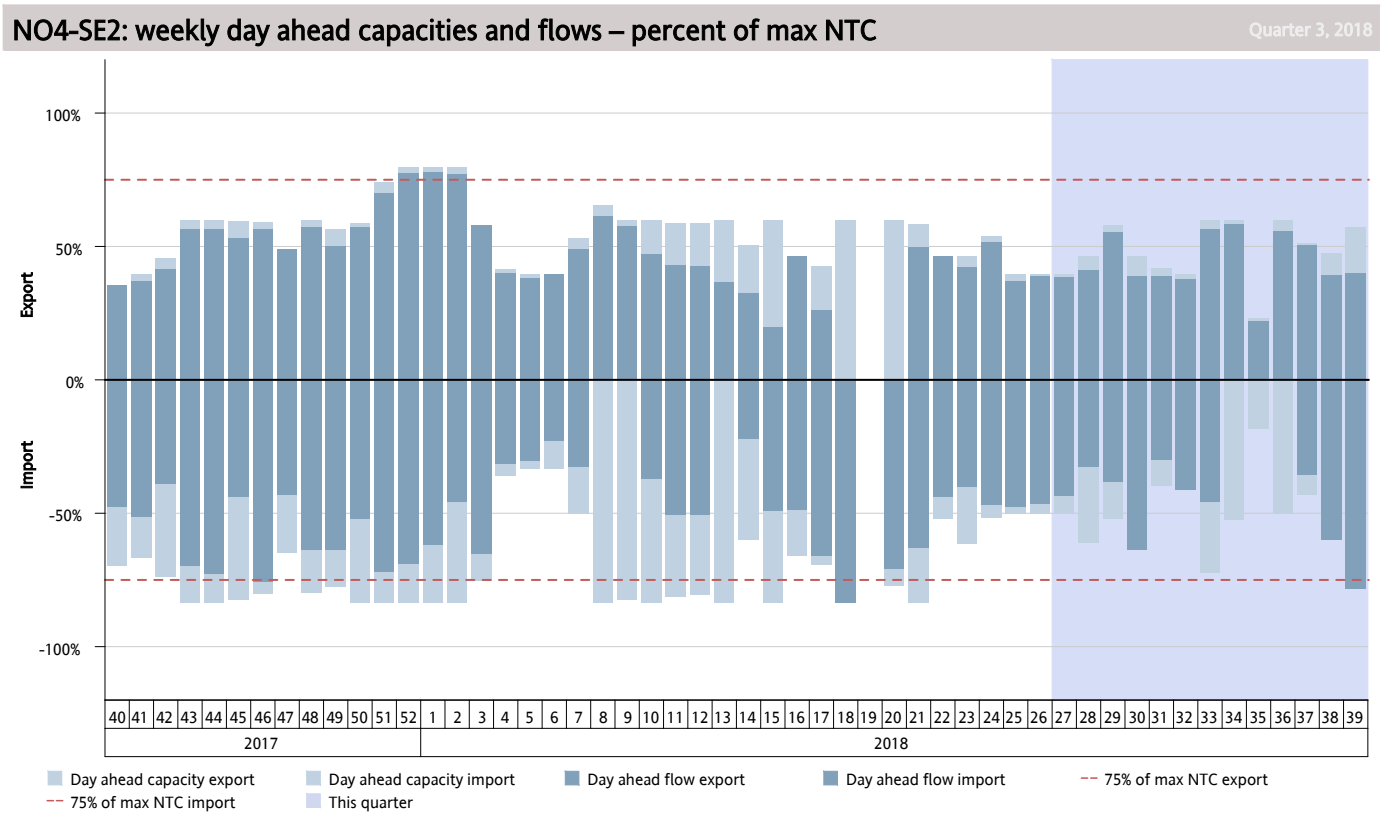

Figure 56: Shows cross-zonal day-ahead capacity result for the AC corridor NO4-SE2, showing average weekly capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from NO4 to SE2, while import indicates flow from SE2 to NO4.

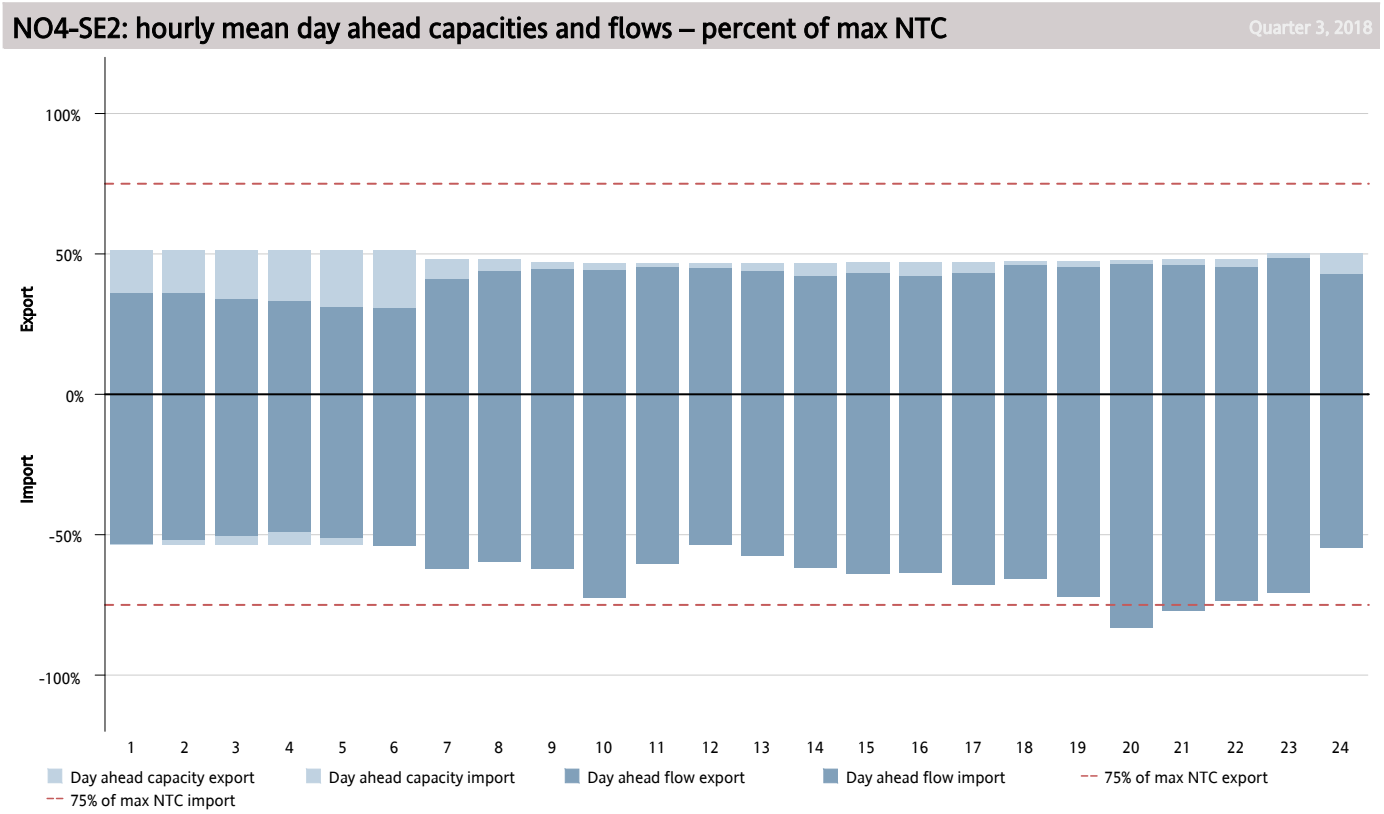

Figure 57: Shows cross-zonal day-ahead capacity result for the AC corridor NO4-SE2, showing average per hour of the day (1-24) capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from NO4 to SE2, while import indicates flow from SE2 to NO4.

NO4-SE2: hourly day ahead capacities and flows – MW

Quarter 3, 2018

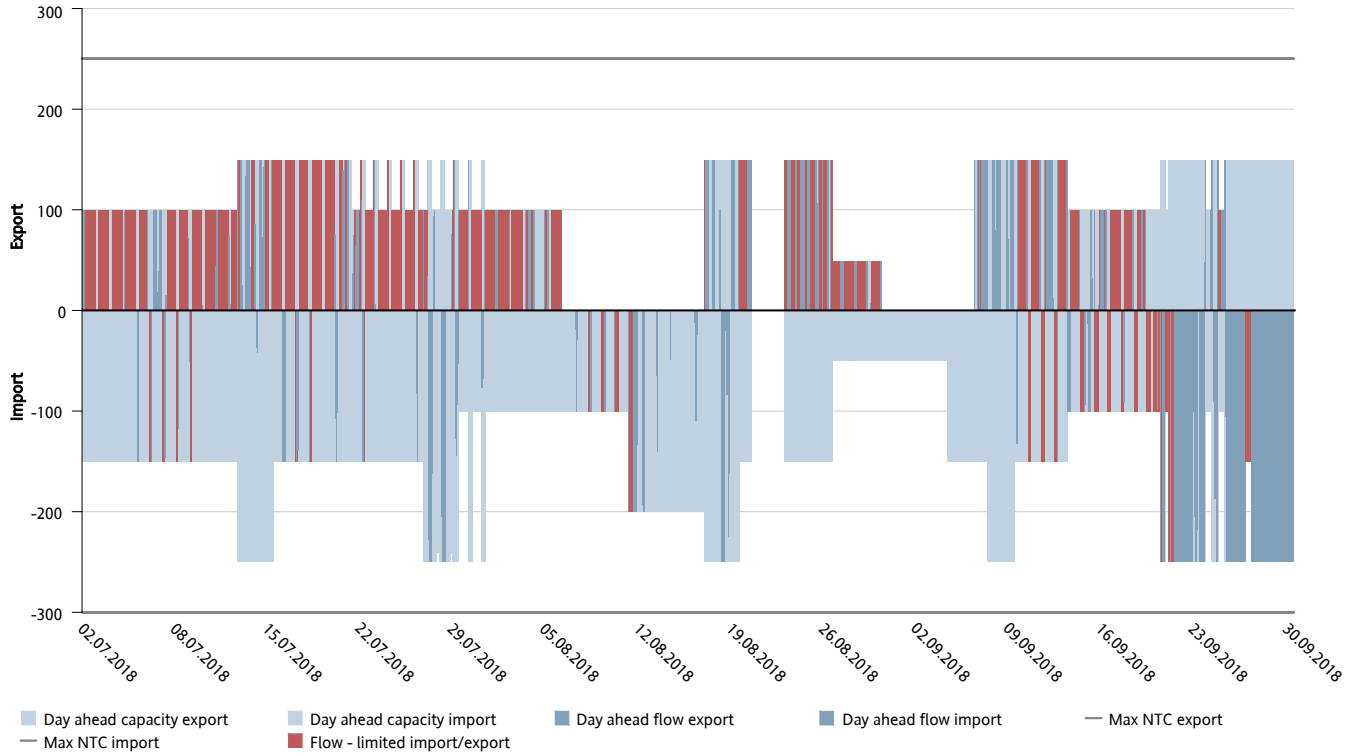

Figure 58: Shows cross-zonal day-ahead capacity result for the AC corridor NO4-SE2, showing capacity given and flow (MW). Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from NO4 to SE2, while import indicates flow from SE2 to NO4.

NO4-SE2: price comparison in EUR

Quarter 3, 2018

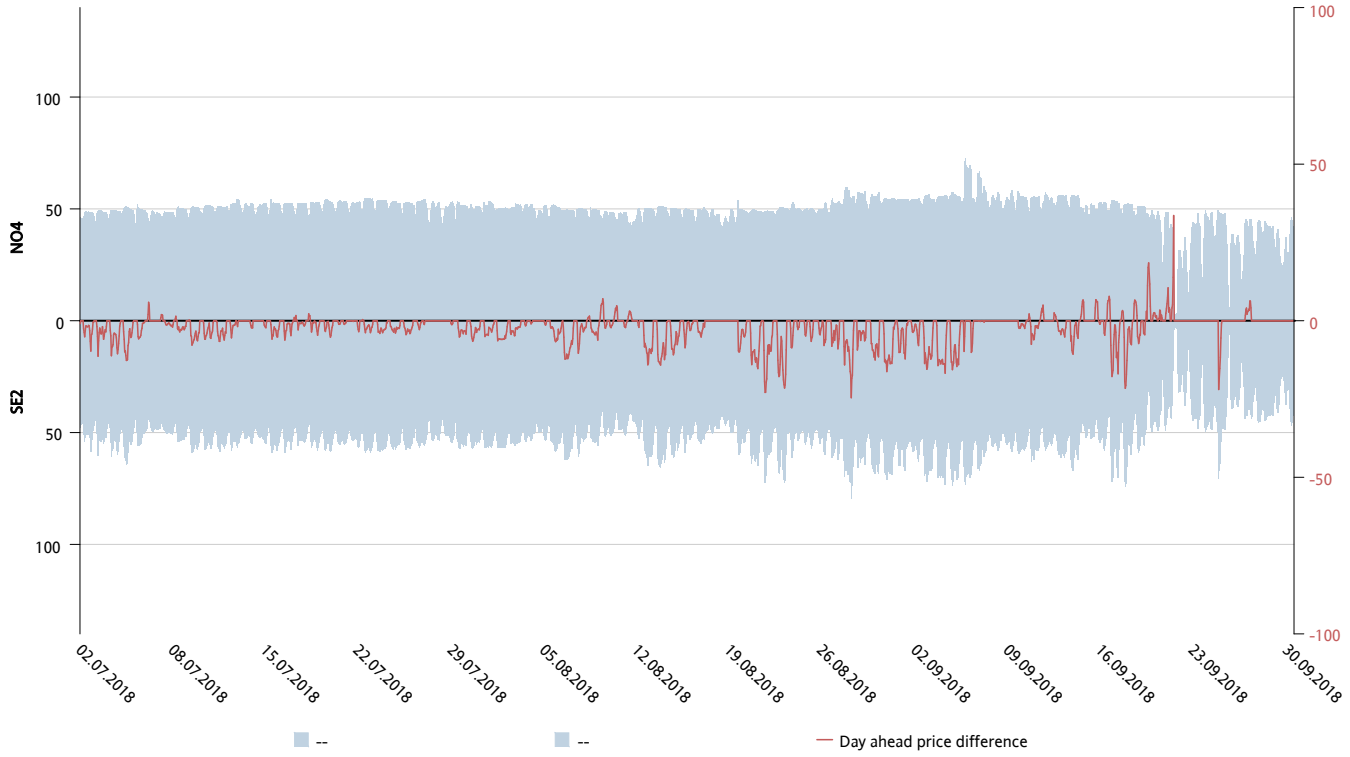

Figure 59: Shows day-ahead prices for the AC corridor NO4-SE2, all prices are in EUR. The red line shows the price difference between the two areas.

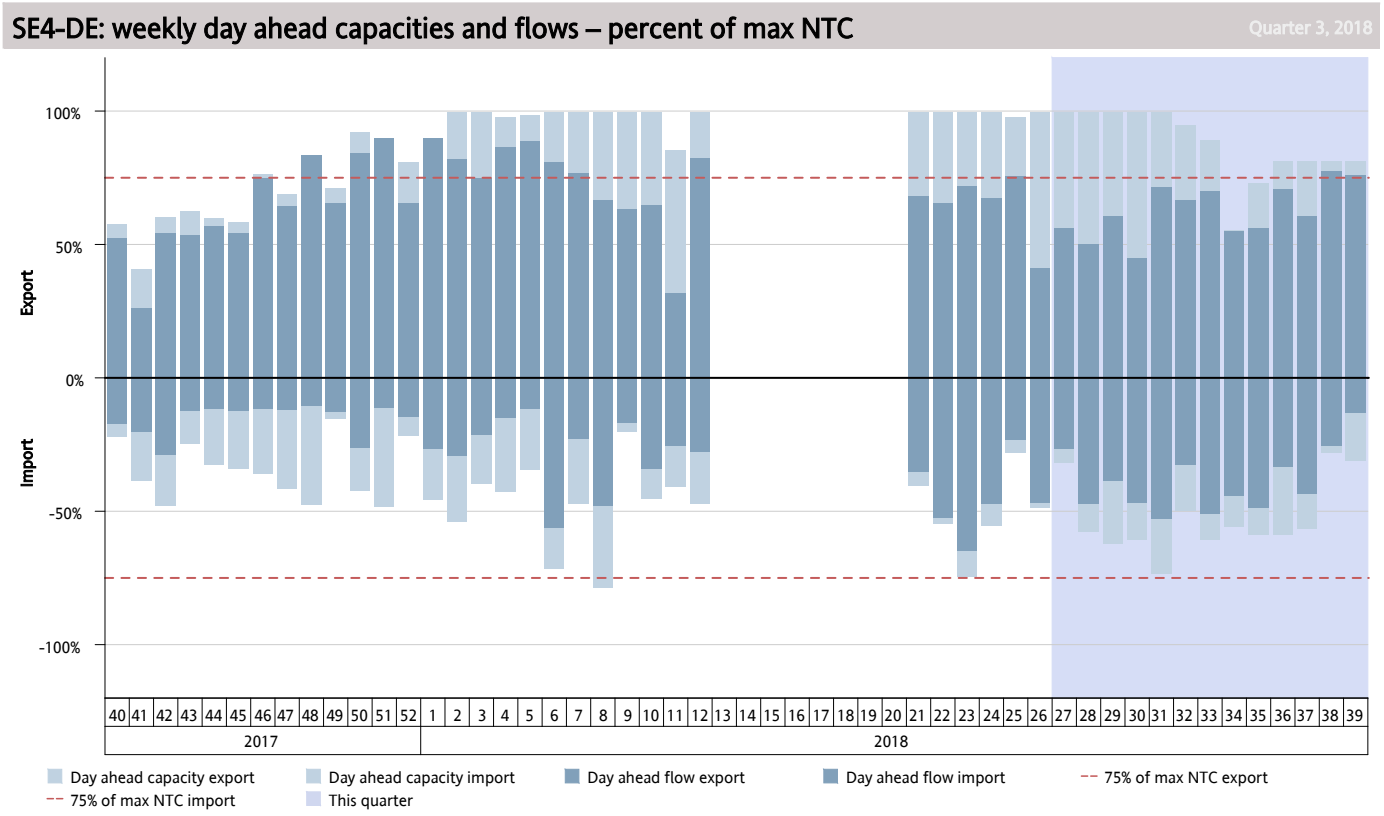

Figure 60: Shows cross-zonal day-ahead capacity result for the HVDC corridor SE4-DE, showing average weekly capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from SE4 to DE, while import indicates flow from DE to SE4.

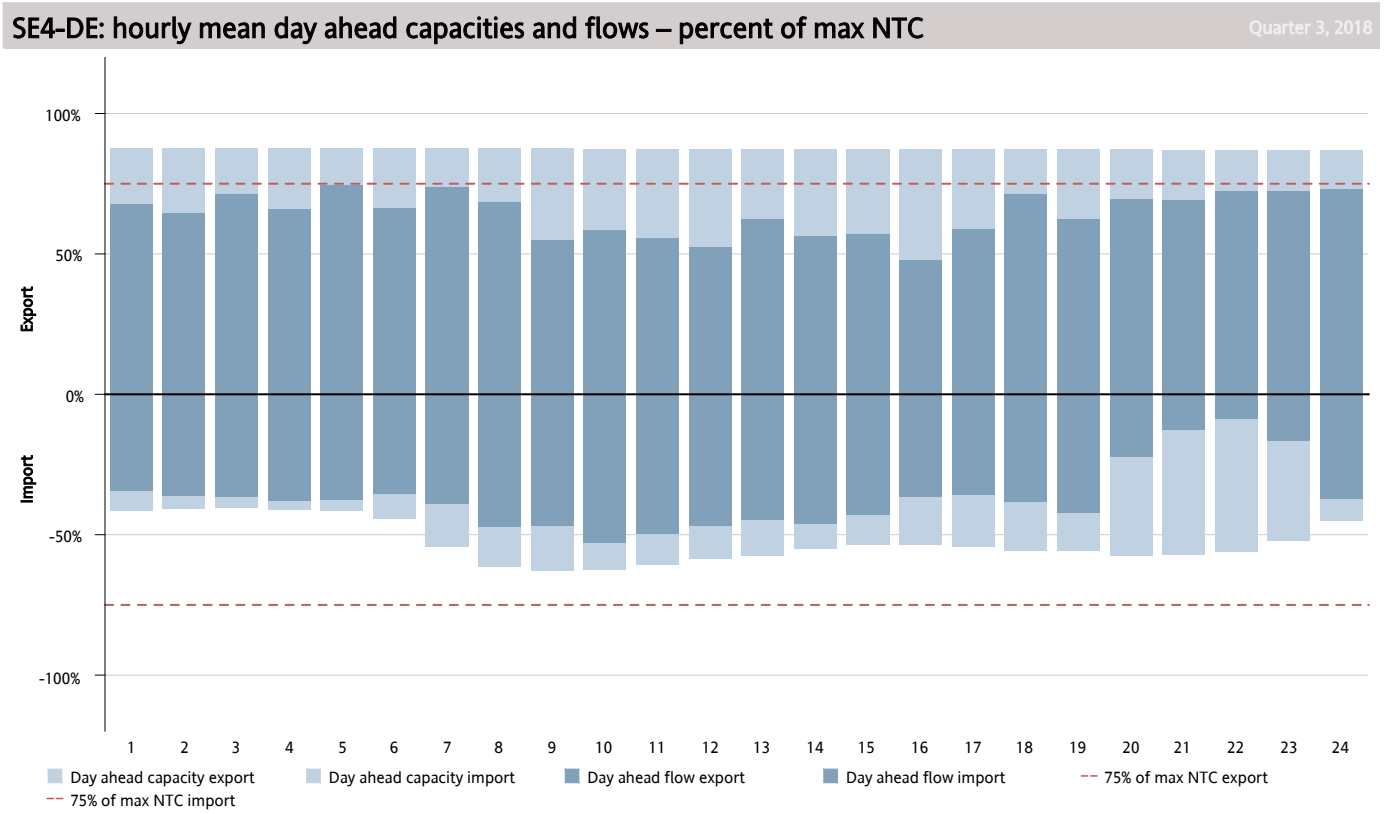

Figure 61: Shows cross-zonal day-ahead capacity result for the HVDC corridor SE4-DE, showing average per hour of the day (1-24) capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from SE4 to DE, while import indicates flow from DE to SE4.

SE4-DE: hourly day ahead capacities and flows – MW

Quarter 3, 2018

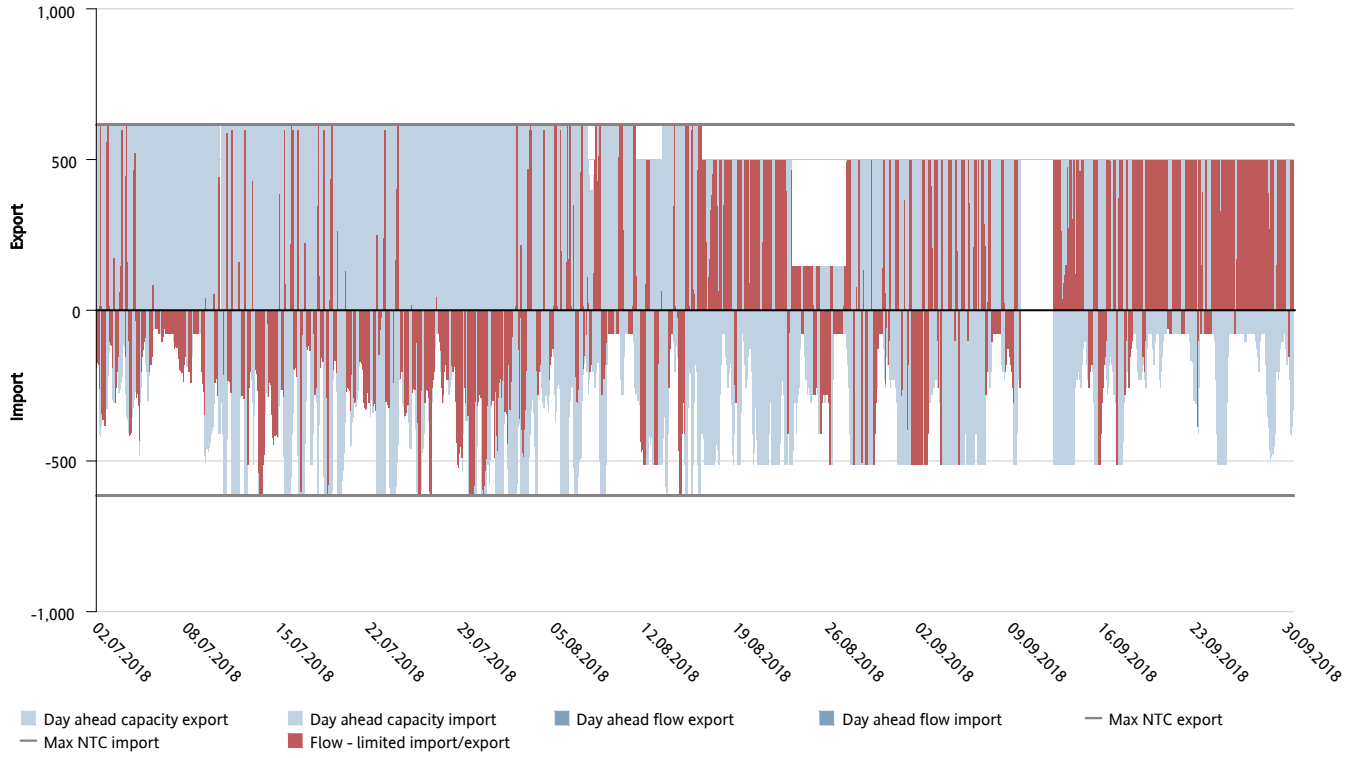

Figure 62: Shows cross-zonal day-ahead capacity result for the HVDC corridor SE4-DE, showing capacity given and flow (MW). Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from SE4 to DE, while import indicates flow from DE to SE4.

SE4-DE: price comparison in EUR

Quarter 3, 2018

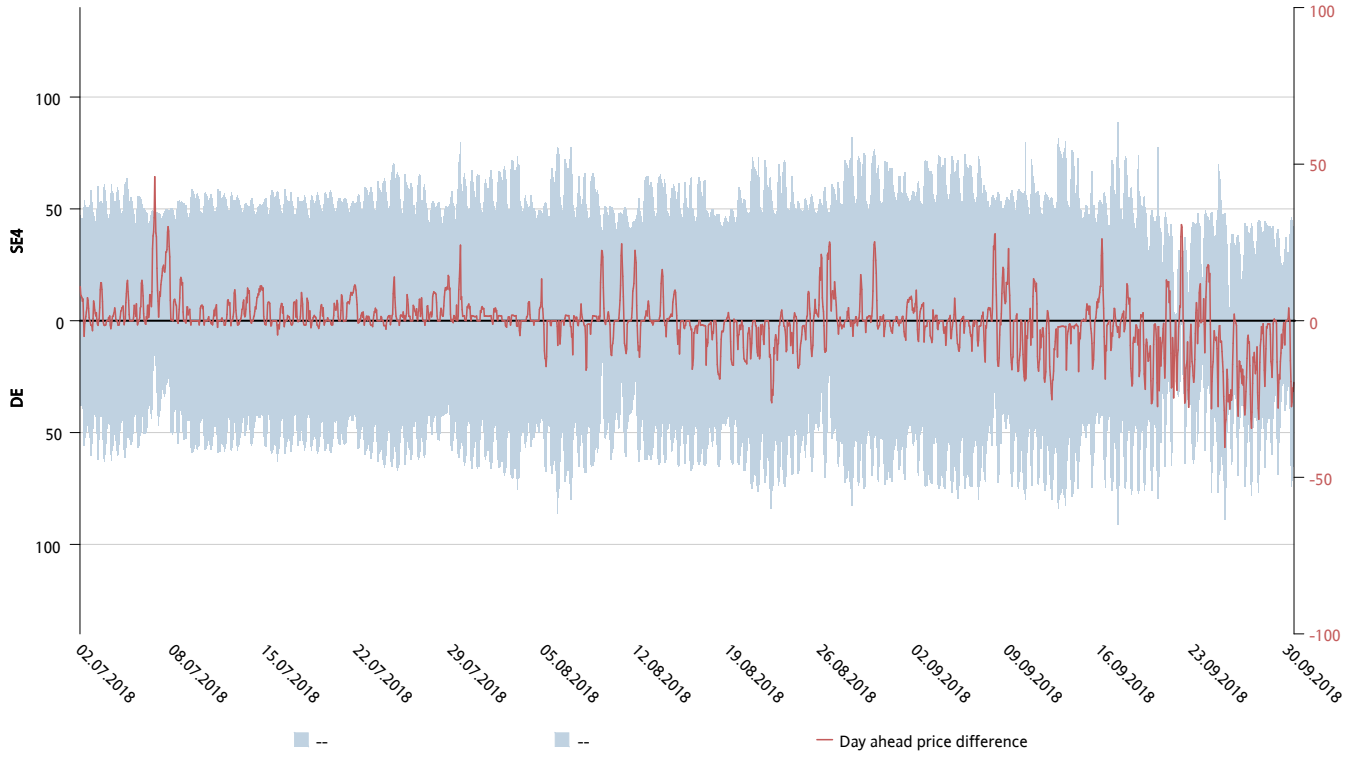

Figure 63: Shows day-ahead prices for the HVDC corridor SE4-DE, all prices are in EUR. The red line shows the price difference between the two areas.

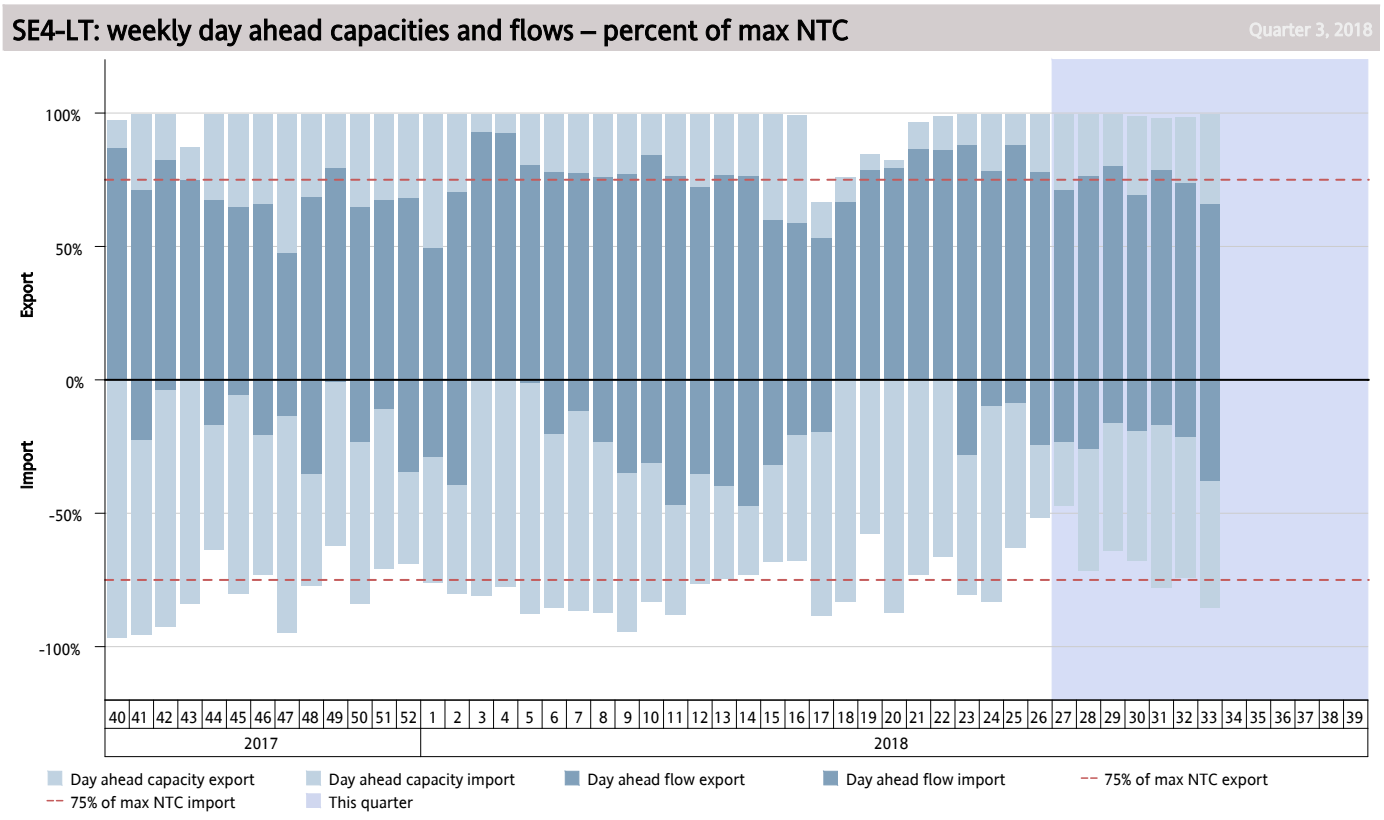

Figure 64: Shows cross-zonal day-ahead capacity result for the HVDC corridor SE4-LT, showing average weekly capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from SE4 to LT, while import indicates flow from LT to SE4.

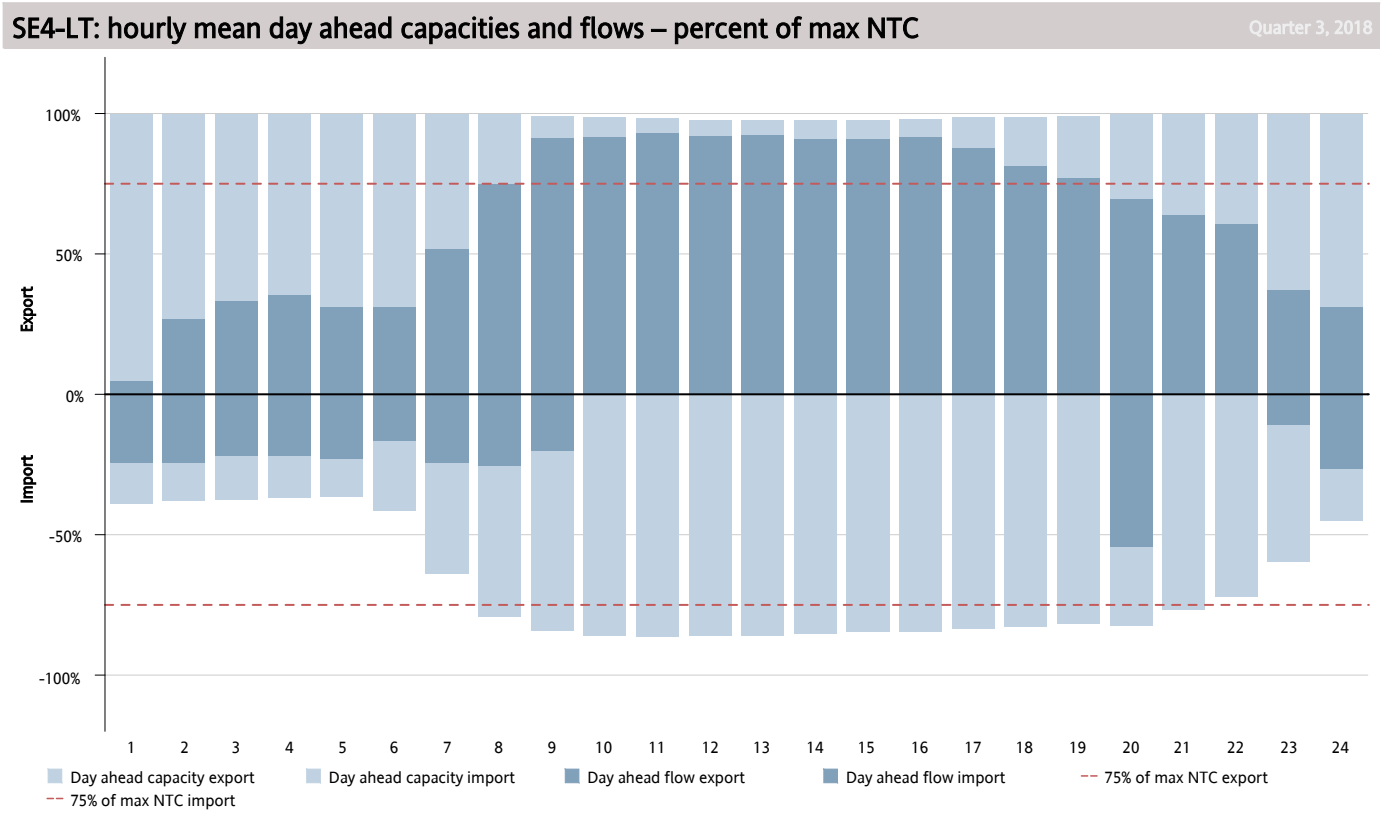

Figure 65: Shows cross-zonal day-ahead capacity result for the HVDC corridor SE4-LT, showing average per hour of the day (1-24) capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from SE4 to LT, while import indicates flow from LT to SE4.

SE4-LT: hourly day ahead capacities and flows – MW

Quarter 3, 2018

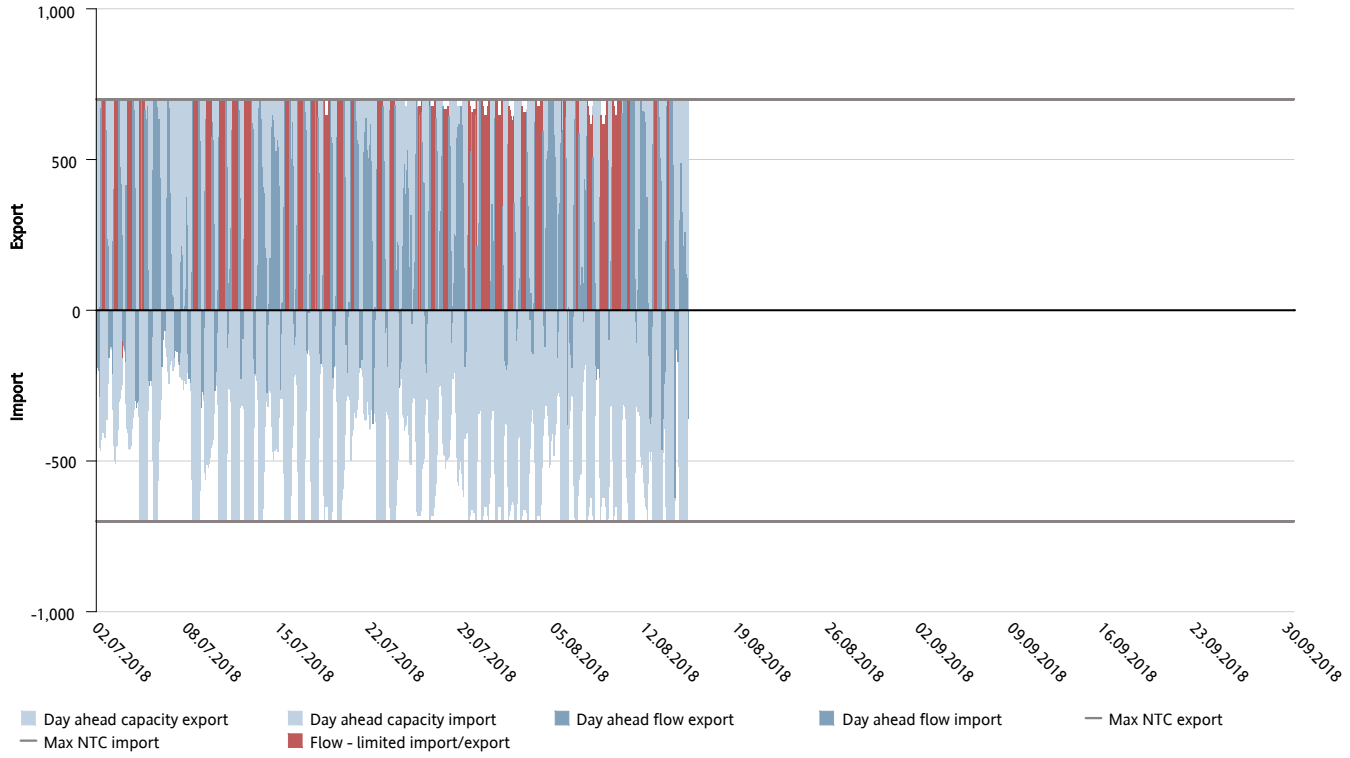

Figure 66: Shows cross-zonal day-ahead capacity result for the HVDC corridor SE4-LT, showing capacity given and flow (MW). Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from SE4 to LT, while import indicates flow from LT to SE4.

SE4-LT: price comparison in EUR

Quarter 3, 2018

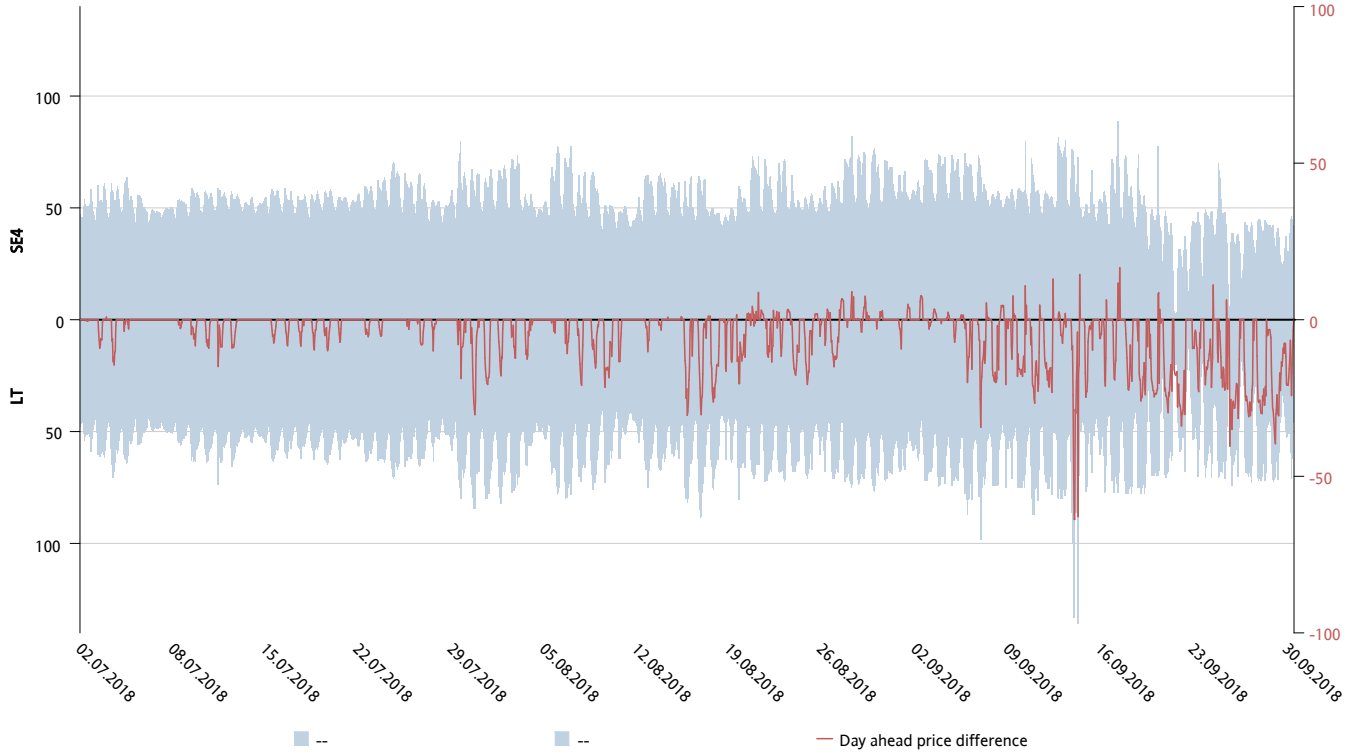

Figure 67: Shows day-ahead prices for the HVDC corridor SE4-LT, all prices are in EUR. The red line shows the price difference between the two areas.

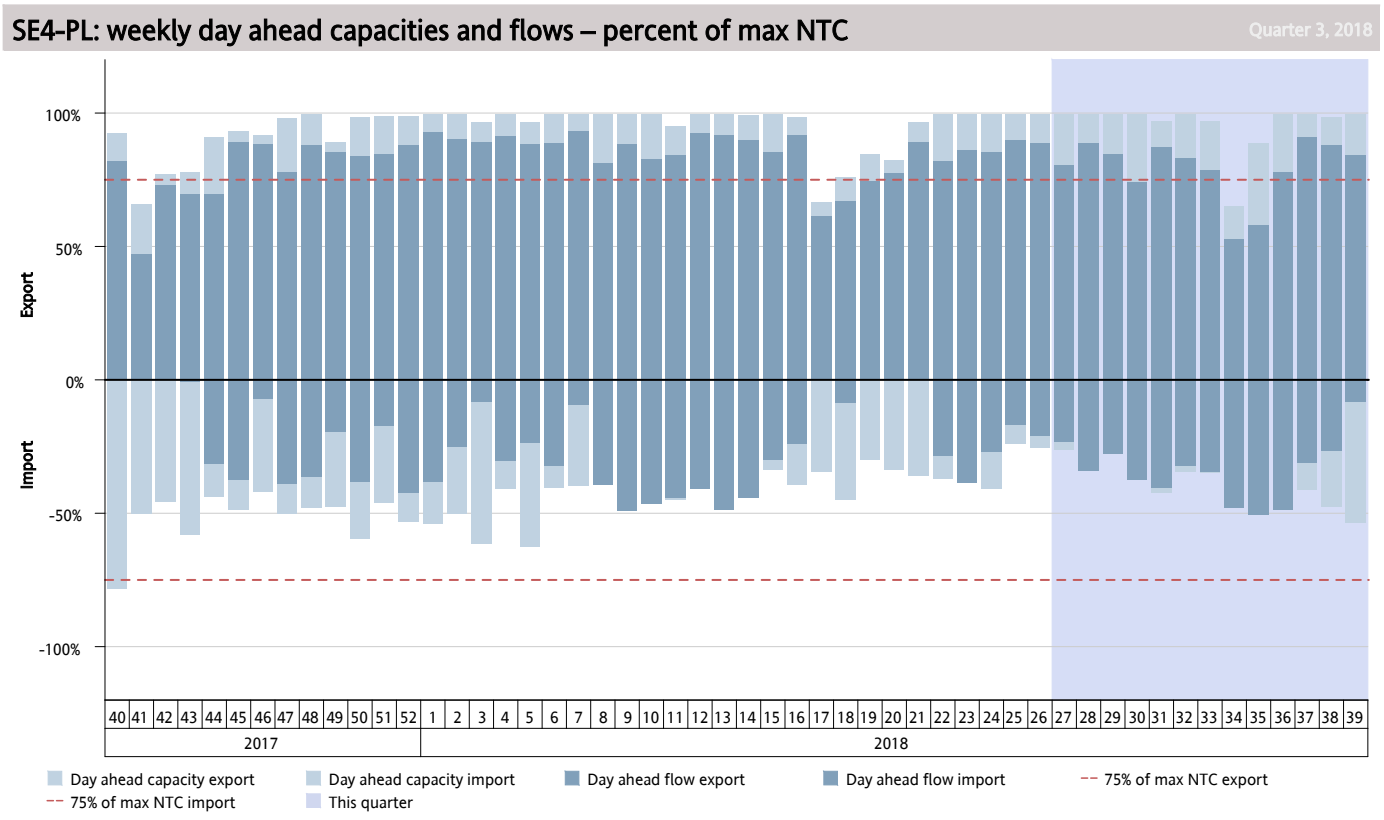

Figure 68: Shows cross-zonal day-ahead capacity result for the HVDC corridor SE4-PL, showing average weekly capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from SE4 to PL, while import indicates flow from PL to SE4.

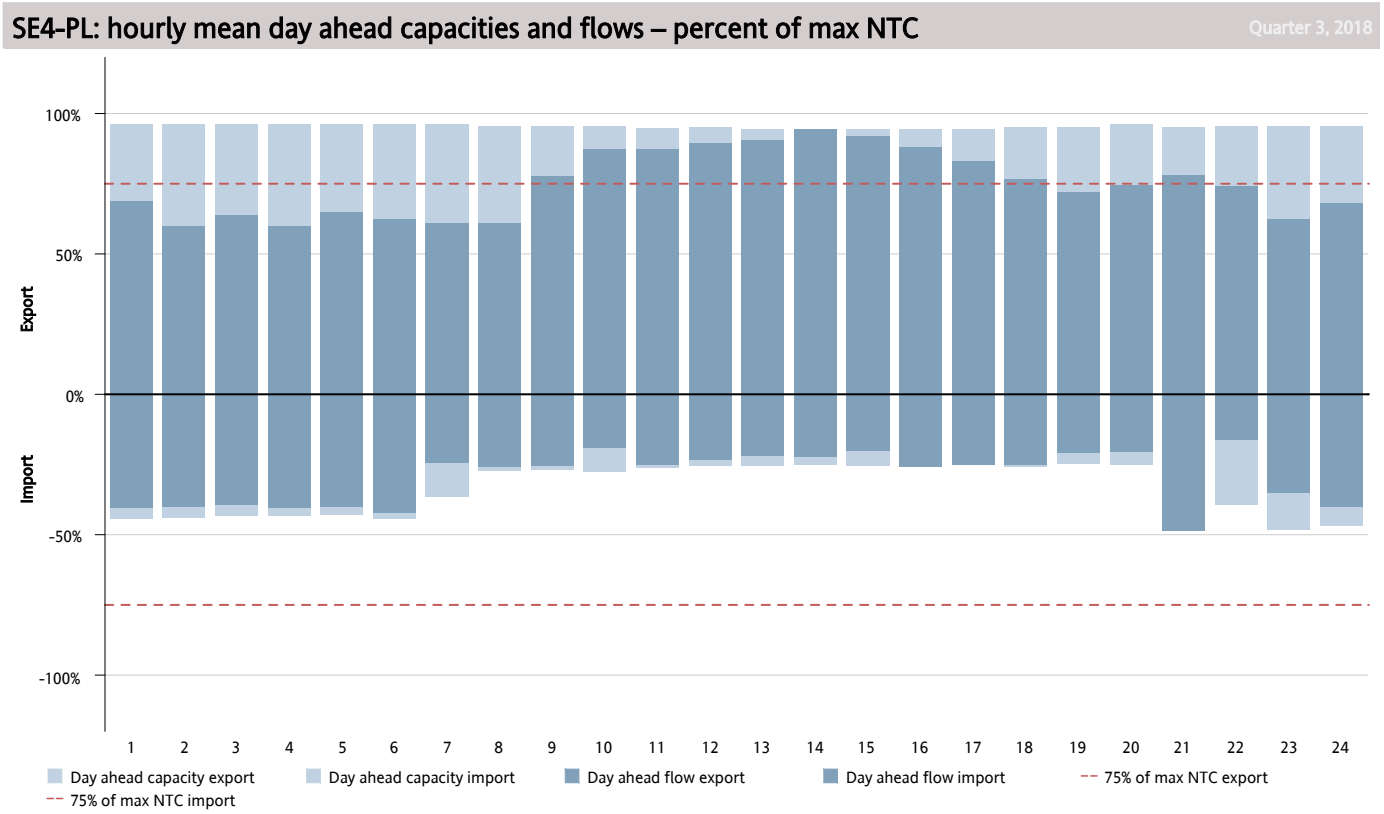

Figure 69: Shows cross-zonal day-ahead capacity result for the HVDC corridor SE4-PL, showing average per hour of the day (1-24) capacity given and flow as a percentage of max NTC. Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from SE4 to PL, while import indicates flow from PL to SE4.

SE4-PL: hourly day ahead capacities and flows – MW

Quarter 3, 2018

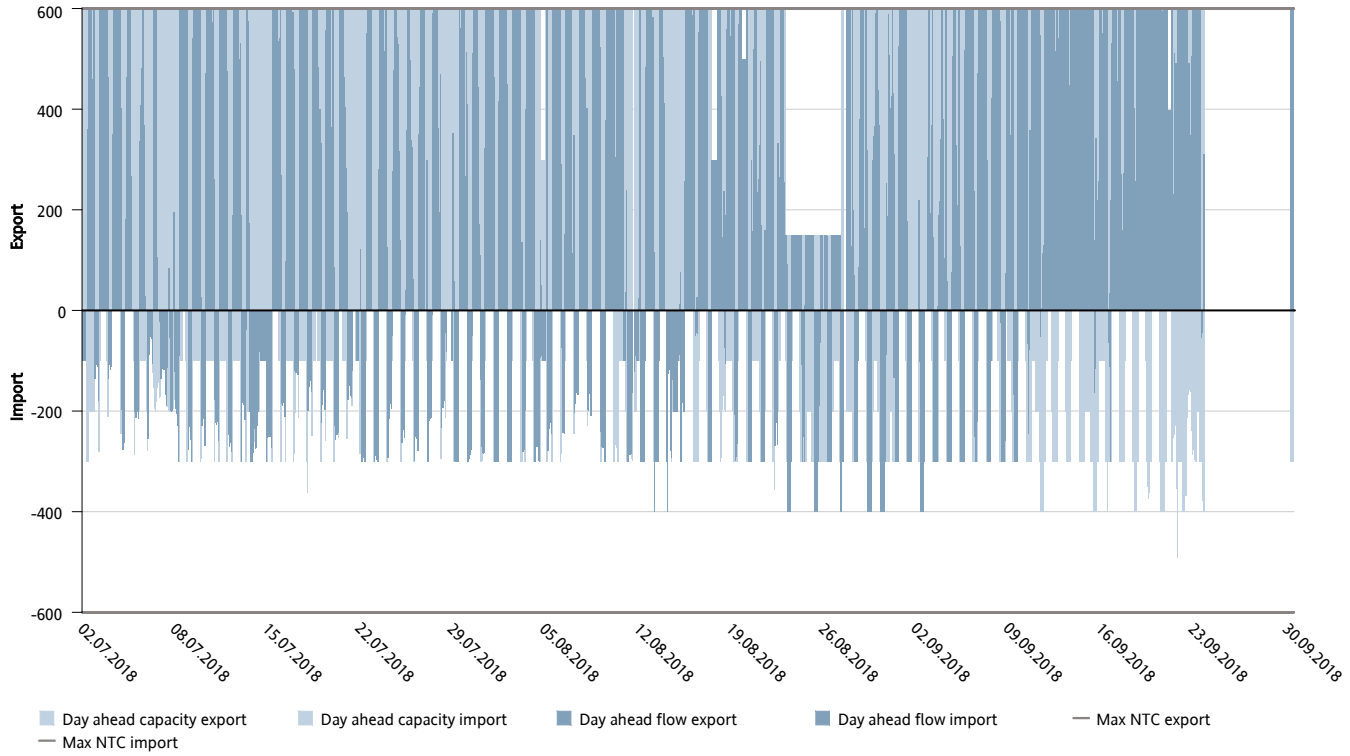

Figure 70: Shows cross-zonal day-ahead capacity result for the HVDC corridor SE4-PL, showing capacity given and flow (MW). Available capacity is given for all hours, but the average flow is only given for hours with flow in that direction. Export indicates flow from SE4 to PL, while import indicates flow from PL to SE4.

SE4-PL: price comparison in EUR

Quarter 3, 2018

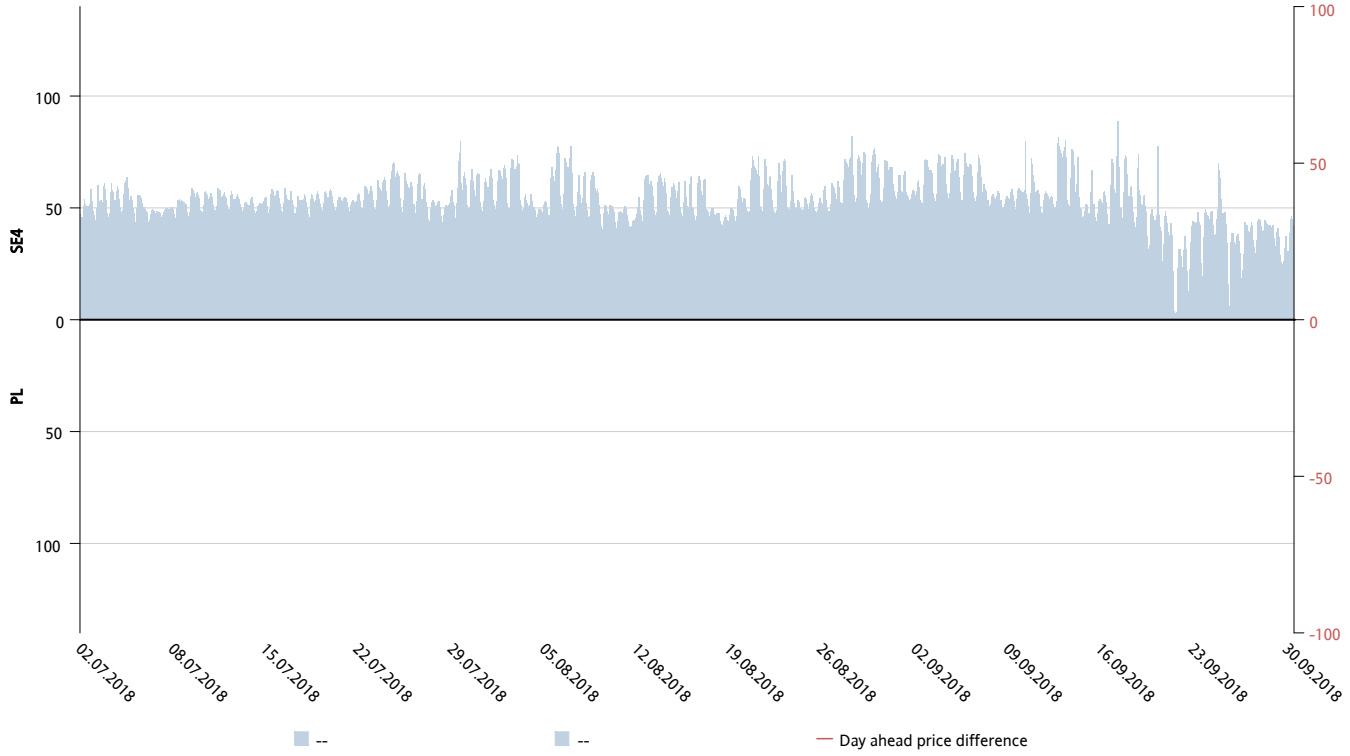

Figure 71: Shows day-ahead prices for the HVDC corridor SE4-PL, all prices are in EUR. The red line shows the price difference between the two areas.

DEFINITIONS AND CLARIFICATIONS

The table below defines the terms used in this report and provides clarifying text to assist the reader.

TERM	DEFINTION or CLARIFICATION
Net Transfer Capacity	•The Net Transfer Capacity (NTC, NTC = TTC-TRM) is the maximum exchange program between two areas compatible with security standards applicable in both areas and taking into account the technical uncertainties on future network conditions. •The Total Transfer Capacity (TTC) is the maximum exchange program between two areas compatible with operational security standards applicable at each system if future network conditions, generation and load patterns were perfectly known in advance. •The Transmission Reliability Margin (TRM) is a security margin that copes with uncertainties on the computed TTC values arising from: a) Unintended deviations of physical flow during operation due to the physical functioning of load-frequency regulation b) Emergency exchanges between TSOs to cope with unexpected unbalanced situations in real time c) Inaccuracies, e. g. in data collection and measurements

Description of capacity reductions below 75% of NTC in Q1 2019

Svenska Kraftnät

SE1-NO4, North Norway
Svenska kraftnät has reduced the import capacity on the interconnector between SE1 and NO4, because of thermal overload and planned outage near the interconnector.

SE2-NO4, North Norway
Svenska kraftnät has reduced the capacity on the interconnector between SE2 and NO4, because of thermal overload and planned outage on the interconnector.

SE3-DK1, Western Denmark
The reasons for capacity reductions on the interconnector between SE3 and DK1 set by Svenska kraftnät were congestion in the West Coast Corridor and planned outage on or near the interconnector.

SE4-DE, Germany
The reasons for capacity reductions on the interconnector between SE4 and DE set by Svenska kraftnät were congestion in the West Coast Corridor, outage on the interconnector, and thermal overload.

SE4-DK2, Eastern Denmark
The reasons for capacity reductions on the interconnector between SE4 and DK2 set by Svenska kraftnät were congestion in the West Coast Corridor, planned outage and disturbance on the interconnector and planned outage near the interconnector.

SE4-PL, Poland
The reasons for capacity reductions on the interconnector between SE4 and PL set by Svenska kraftnät were congestion in the West Coast Corridor, planned outage, and thermal overload near the interconnector.

SE4-LT, Lithuania
The reasons for capacity reductions on the interconnector between SE4 and LT set by Svenska kraftnät were congestion in the West Coast Corridor and planned outage.

Statnett

NO4 → SE1
The capacity was reduced for most of the period due to several planned outages in the 420 kV transmission grid in NO4 and NO3.

SE1 → NO4
The capacity was reduced for most of the period due to several planned outages in the 420 kV transmission grid in NO4 and NO3.

NO4 → SE2
The capacity was reduced for most of the period due to several planned outages in the 420 kV transmission grid in NO4 and NO3.

SE2 → NO4
The capacity was reduced for most of the period due to several planned outages in the 420 kV transmission grid in NO4 and NO3.

SE2 → NO3

The capacity was reduced for most of the period due to several planned outages in the 420 kV transmission grid in NO4 and NO3.

NO2 → DK1

The capacity was reduced due to reconstruction in Kristiansand sub station and planned outages in the 300 kV grid due to the voltage upgrade project "Western corridor" in NO2.

Fingrid

FI-EE, Finland-Estonia

Elering has reduced the capacity on the interconnector between FI and EE due to planned maintenance on transmission lines and planned test procedures.

FI-SE1, Finland-Sweden North

Fingrid and Svenska kraftnät have reduced the capacity on the AC interconnector between FI and SE1 due to high temperature.

FI-SE3, Finland-Sweden Middle

Fingrid and Svenska kraftnät have reduced the capacity on the Fenno-Skan interconnector between FI and SE3 due to planned outage near the interconnector, cooling system reparation and annual maintenance of both connections.

Energinet:

DK1-SE3:

In the period from September 10th until September 22nd 2018 yearly maintenance has been performed on KS 1 and 2. The maintenance was planned on pan Nordic level. In this way it has been possible to limit the impact both with regards to outage time and capacity reduced. The rest of the period KS was reduced due to a technical fault in the tap changer of the pole transformer of KS1.

DK2-SE4:

On July 2nd 2018 one of the 132 kV cables under Øresund was severely damaged by a ship anchor. This resulted in oil leakage from the cable as well as substantial risk of high voltage fault. Due to environmental considerations, as well as risk of system security, It was not possible to take the cable into operation again. Luckily the cable was planned for replacement in the early fall of 2018 anyhow and the capacity was increased when the new cable was taken into operation.

DK1-DE:

ENDK has had only one short outages on this connection in Q3 2018. The outages issued by TenneT Germany are mainly related to expansion work in the Northern part of the German grid. Any consideration in this context must be provided from TenneT.

Reoccurring capacity reductions in Q1 2019

Svenska Kraftnät

The West Coast corridor is a section in the Swedish national grid, close to Gothenburg in SE3, which might be congested in normal operation. This typically occurs during night and weekends with a large northbound transfer of power over the West Coast Corridor. The congestion leads to reduction of SE3 to NO1, DK1 to SE3, DK2 to SE4, DE to SE4, PL to SE4, and LT to SE4. For more information see: https://www.nordpoolgroup.com/message-center-container/newsroom/tso-news/2016/q4/no.-332016---updated-routine-for-congestion-management-for-the-west-coast-corridor-in-sweden/