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# Availability of transmission capacity in the Nordics

Q2/2018

# Report description

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This report provides aggregated information about available electricity transmission capacities between Nordic bidding zones and neighboring countries.

The figures show the average share of available capacity on the day ahead market (NTC) to the maximum capacity (max NTC) on each border and direction.

The Nordic TSOs have an extensive co-operation with regards to coordinating outages on grid elements that affects the NTC on corridors between the TSOs. The aim is to coordinate several maintenance jobs on the same grid element to minimize the degree to which the jobs affect NTC.

Calculation formula

- Average  $(NTC_H / \max NTC_H)$  for  $H=1, \dots, n$

max NTC = Maximum net transfer capacity:

- The capacity that can be given to the market when there are no outages taking into account system reliability issues, and the power flows are favorable.
- <https://www.nordpoolspot.com/globalassets/download-center/tso/max-ntc.pdf>

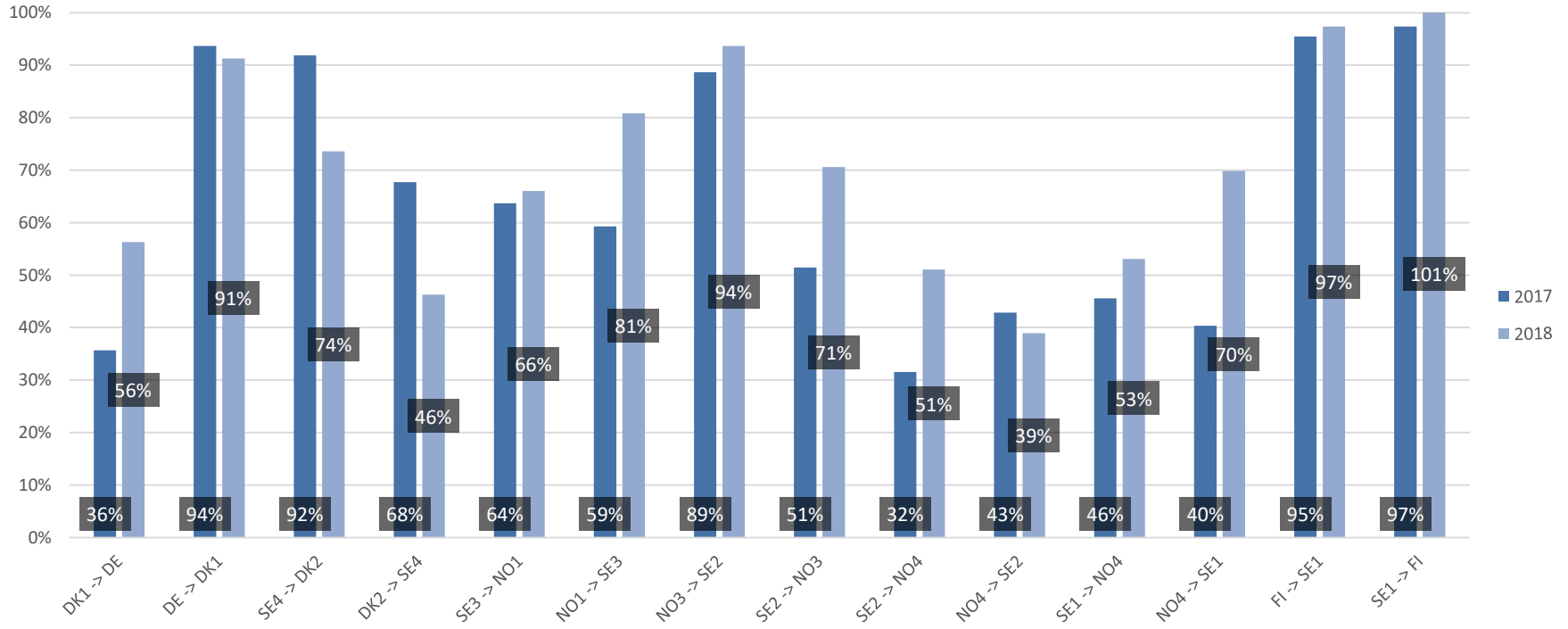
NTC = Net transfer capacity :

- The capacity given to the day-ahead market in the specific hour calculated based on the TSOs grid models and taking outages into account.

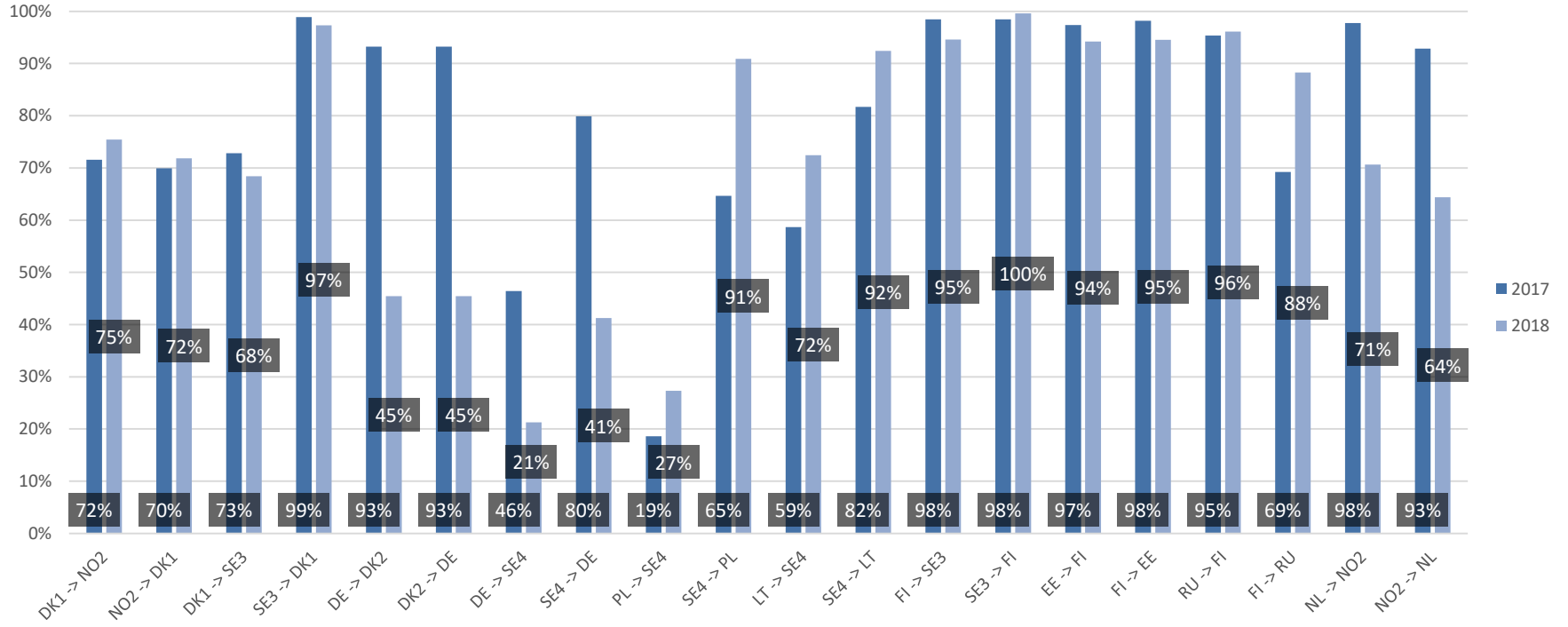
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# Q2/2017 & Q2/2018

# AC-interconnectors – quarterly



# DC-interconnectors - quarterly



# Reasons for reduced\* availabilities

\* Availability below 75 %

Q2/2018

## AC corridors

- DK1 → DE
  - Energinet: The capacity has increased substantially compared to Q2 2017. The reason is mainly the countertrade agreement. However this is to a large extent a virtual increase in capacity, since a possible use of it is later countertraded in order to avoid breaches of N-1 security in Germany. The underlying cause of the limitation is still work carried out in order to expand the grid in Northern Germany.
- SE4 → DK2
  - Svenska kraftnät: The reason for reduction of capacity from Denmark (DK2) to Sweden (SE4) maintenance on and close to the interconnector in Sweden.
  - Energinet: The reason for the limitation has mainly been the work in the Svenska kraftnät operated 400 Kv station Söderåsen. A prerequisite for this work has been the disconnection of one of the 400 kV cables connecting DK2 and SE4. During such disconnection Energinet has a tighter limitation on the connection than Svenska kraftnät has. This is the reason why ENDK has issued UMM on this piece of work. However various pieces of maintenance work were also carried out on ENDK side during the disconnection. The capacity has also been affected by a disconnection of the 132 Kv cable MRP\_TEG-2 due to the same being relocated on the Danish side.
- DK2 → SE4
  - Svenska kraftnät: The reason for reduction of capacity from Denmark (DK2) to Sweden (SE4) was congestion in the West Coast Corridor in Sweden and maintenance on and close to the interconnector in Sweden.
  - Energinet: The reason for the limitation has mainly been the work in the Svenska kraftnät operated 400 Kv station Söderåsen. A prerequisite for this work has been the disconnection of one of the 400 kV cables connecting DK2 and SE4. During such disconnection Energinet has a tighter limitation on the connection than Svenska kraftnät has. This is the reason why ENDK has issued UMM on this piece of work. However various pieces of maintenance work were also carried out on ENDK side during the disconnection. The capacity has also been affected by a disconnection of the 132 Kv cable MRP\_TEG-2 due to the same being relocated on the Danish side.
- SE3 → NO1
  - Svenska kraftnät: The reason for reduction of capacity from Sweden (SE3) to Norway (NO1) was congestion in the West Coast Corridor, maintenance and failure on and close to the interconnector.
  - Statnett: West Coast Corridor
- SE2 → NO3
  - Statnett: Several planned outages in NO3 and NO4.
  - Svenska kraftnät: The reason for reduction of capacity from Sweden (SE2) to Norway (NO3) was urgent maintenance for 15 hours.
- SE2 → NO4
  - Svenska kraftnät: The reason for reduction of capacity from Sweden (SE2) to Norway (NO4) was planned maintenance on the interconnector.
  - Statnett: Several planned outages in NO4.
- NO4 → SE2
  - Svenska kraftnät: The reason for reduction of capacity from Norway (NO4) to Sweden (SE2) was planned maintenance on the interconnector.
  - Statnett: Several planned outages in NO4.
- SE1 → NO4
  - Svenska kraftnät: The reason for reduction of capacity from Sweden (SE1) to Norway (NO4) was planned maintenance close to the interconnector.
  - Statnett: Several planned outages in NO4.
- NO4 → SE1
  - Svenska kraftnät: The reason for reduction of capacity from Norway (NO4) to Sweden (SE1) was planned maintenance close to the interconnector.
  - Statnett: Several planned outages in NO4.
- SE1 → FI
  - Reason for the ATC exceeding max NTC is the handling of transit flow from Norway via Finland to Sweden

# Reasons for reduced\* availabilities

\* Availability below 75 %

Q2/2018

## HVDC-interconnector corridors

- NO2 → DK1
  - Statnett: Failure of SK2(6/4 - 9/5), planned outages of one or more of the poles
  - Energinet: In Q2 2018 Energinet has had extensive maintenance work on the high voltage equipment in the land based part of systems SK1, 2 and 3. The work has consisted of replacing the overhead lines as well as the electricity masts carrying them. DK1→ NO2 has also been limited due to this maintenance.
- DK1 → SE3
  - Energinet: Energinet has had no limitations on Kontiskan in the day ahead market in Q2 2018.
  - Svenska kraftnät: The reason for reduction of capacity from Denmark (DK1) to Sweden (SE3) maintenance close to the interconnector in Sweden.
- DE → DK2
  - Energinet: The main reason for the limited capacity has been a leakage on the German side of the KONTEK cable. This caused the cable to be disconnected for repair (and the capacity to be reduced to 0 MW) from May 26th until July 6th. The leakage was discovered in connection with planned maintenance stretching from May 14th until May 25th during which the capacity was also reduced to 0 MW.
- DK2 → DE
  - Energinet: The main reason for the limited capacity has been a leakage on the German side of the KONTEK cable. This caused the cable to be disconnected for repair (and the capacity to be reduced to 0 MW) from May 26th until July 6th. The leakage was discovered in connection with planned maintenance stretching from May 14th until May 25th during which the capacity was also reduced to 0 MW.
- NO2 → NL
  - Statnett: Cablefault(20/3-26/4), planned outage of 300 kV Lyse-Tjørhom(Vestre korridor).
- NL → NO2
  - Statnett: Cablefault(20/3-26/4).
- SE4 → DE
  - Svenska kraftnät: Cable fault between March 22 and May 24.
- DE → SE4
  - Svenska kraftnät: Cable fault between March 22 and May 24. Other reductions because of congestion in the West Coast Corridor in Sweden and reduction set by TenneT.
- PL → SE4
  - Svenska kraftnät: The main reason for reduction of capacity from Poland (PL) to Sweden (SE4) was reduction set by PSE. Capacity has also been reduced because of congestion in the West Coast Corridor in Sweden.
- LT → SE4
  - Svenska kraftnät: The reasons for reduction of capacity from Lithuania (LT) to Sweden (SE4) was congestion in the West Coast Corridor in Sweden and maintenance near the interconnector in Sweden.