

Subject Securely available cross-border electrical power transmission capacity for 2010 in the Netherlands

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- 1 Standard options for expected securely available cross-border electrical power transmission capacity

The for 2010 for the Dutch market expected to be securely available cross-border transmission capacity for power transmission, for imports as well as for exports, has in principle been fixed for the borders with Belgium and Germany for all hours of the day at 3,850 MW and for the DC-link with Norway at 700 MW. These values were set in consultation with the involved TSOs.

The expected securely available cross-border capacity for the borders with Belgium and Germany may, in consultation with the partner-TSOs in the joint auction, be reduced at some days and some hours, to safeguard the security of the grid (see item (4) below). The DC-connection with Norway is not involved in possible reductions of capacity on the Belgian or German border.

This is net of the 300MW Transmission Reliability Margin (TRM) that TenneT TSO B.V. is obliged to maintain for lending mutual international aid and assistance at ENTSO-E (European Network of Transmission System Operators for Electricity).

Like all other interconnected and within ENTSO-E associated European TSOs, TenneT TSO B.V. is responsible for complying with the ENTSO-E-agreed guidelines concerning the transition from one hour to the next. It has been agreed at ENTSO-E level that cross-border programmes will for the time being be based on hourly values, and that the implementation of any changes to these programmes must be evenly distributed over an interval of precisely ten minutes, i.e. five minutes ahead of the changeover to five minutes afterwards. This rule has been introduced in order to ensure that all changes to programmes in Europe are synchronised, so that frequency upsets in the synchronously interconnected European grid are kept to a minimum. Should TenneT TSO B.V. have problems realizing these ENTSO-E guidelines, this may lead to less cross-border transmission capacity being made available to the market, after consultation with the other TSOs involved in the joint auction.

The following factors affect the securely available cross-border electrical power transmission capacity:

- planned maintenance work and failures of the Dutch 380/220kV grid inclusive of the cross-border interconnections;
- (unforeseen) parallel power flows caused by market transactions in other countries or as a consequence of high wind-generation in Germany, causing the load of the Dutch 380/220kV grid inclusive of the cross-border interconnections to increase;
- planned maintenance work and failures of the high voltage grids of TSOs in neighbouring countries.

2 Expected securely available cross-border electrical power transmission capacity during planned maintenance of the Dutch 380/220kV grid inclusive of cross-border interconnections

During the calendar year 2010 the market will have to reckon with a reduced level of available cross-border electrical power transmission capacity in periods that certain planned maintenance work is carried out on the cross-border interconnections. As the planning is currently being prepared, no further details are as yet available concerning the maintenance work. A draft of this planning will be available and published on the TenneT-website mid-December 2009.

3 Expected securely available cross-border electrical power transmission capacity during foreign and Dutch public holidays

It may be necessary to reduce the expected securely available cross-border electrical power transmission capacity for the Netherlands on bank holidays, since significantly deviating transmission flows have proved to occur sometimes in the Western European high voltage grid on days like these, causing the expected securely available cross-border electrical power transmission capacity for the Netherlands to be affected. Information concerning the possible reduction of securely available cross-border transmission capacity on such bank holidays will be made available no later than by the day preceding that of actual transmission.

Below please find an overview of next year's bank holidays.

- 1 January: New Year's Day
- 6 January: Epiphany in Germany
- 2 April: Good Friday in Germany and Switzerland
- 4 and 5 April: Easter Sunday-Monday
- 1 May: Labour Day in Germany, France and Belgium
- 8 May: Fête de la Victoire 1945 (WW II Victory Day) in France)
- 13 May: Ascension Day in France, Belgium and Germany
- 24 and 25 May: Whitsun

- 3 June: Corpus Christi in Germany
- 14 July: National Holiday in France
- 15 August: Assumption Day in France and Belgium
- 3 October: Unification Day in Germany
- 1 November: All Saints Day in France, Belgium and Germany
- 11 November: WW I Armistice Day 1918 in France and Belgium
- 25-26 December: Christmas-Boxing Day

4 Co-ordination with foreign TSOs

The transmission capacity on the Dutch-German border is put up in an explicit joint auction daily. The daily auction for the Dutch-Belgian border is implicit.

Some occurrences may result in a reduction of the import capacity for the Netherlands from Germany and Belgium:

- strong fluctuations in the quantity of wind power being injected into the high voltage grid, especially in northern Germany;
- strong fluctuations in the deployment by market players of generating assets in several sub-areas in the neighbouring countries;
- strong fluctuations in transmission across the direct current interconnection between France and the United Kingdom and their impact on the cross-border interconnections between France and Belgium.

These influences can cause transit flows through the Dutch network thus resulting in a reduction of the securely available cross-border electrical power transmission capacity.

In order to manage transit flows in a more structural way, a methodology has been developed to tune the import capacity on an hourly basis dependent on expected wind generation in Germany and maintenance programs of cross-border lines. Therefore, on the basis of an assessment of the expected wind generation in Germany and in the case of planned maintenance of a cross-border line, will be decided whether or not to reduce the transmission capacity departing from a value of 3850 MW, which is normally available for the market.

In case of reduction of the import capacity dependent of wind generation in Germany, it is common practice to reduce the transmission capacity on the German border only. The DC- cable link with Norway is not implicated in these eventual reductions of the Belgian and German border capacity.

TenneT TSO B.V. is of the opinion that the further expansion of securely available import capacity is not feasible without the necessary investments in the Belgian and German high voltage grids. Both Germany and Belgium have indicated that they will invest in grid expansion now and in the years to come with the aim of removing certain bottlenecks. Please refer to the relevant TSOs for further information on this issue.

The next projects with important impact on the cross-border capacity are already realized or will soon be completed:

- In the Netherlands the 380 kV-substation Borssele was built in 2009. As a consequence the line Borssele-Kreekrak-Zandvliet is not any longer connected directly to a 380 kV-transformer in Borssele and therefore its capacity is not any longer reduced by this transformer. To which degree this could result in an increase of the import/export capacity of the Netherlands is still not known, for the fact that the capacity of the Belgian grid up from Zandvliet is limited and it also depends on specific operational conditions in Belgium.
- In Belgium were put into operation in the course of 2008 three phase-shifters nearby the border with the Netherlands. These phase shifters enable to manage transports over the cross-border lines, e.g. transitflows originated by wind-generation in Northern Germany in a more effective way and could contribute to the import-capacity of the Netherlands. Anyhow should be considered that lines in the Belgian grid stay limited to their actual physical transport capacity.
- In the 380 kV-station Diele in Germany two phase shifters were put into operation in 2008. Restrictions of the import-capacity in case of high wind generation in Germany are reduced by them. Operational experience shall show to which degree this is possible.
- Since May 2008 TenneT TSO B.V. took into operation the DC-cable link with Norway. Since a DC-cable's conduct differs from that of an AC-line - it can be tuned at an exactly nominated value - this cable will not be involved in the determination of the total securely available import- and export-capacity. This means that an additional amount of maximum 700 MW can be imported from, or exported to Norway by this cable link.
- TenneT TSO, together with the TSOs of France, Luxembourg Belgium and the German TSOs Amprion, Transpower and ENBW, have founded the Capacity Allocation Service Centre for Central Western Europe (CASC-CWE). Based on local auction rules, CASC auctions since november 2008 the yearly and monthly capacity between these countries by an explicit method. Since November 1st 2009 CASC also auctions via an explicit method the daily capacity between these countries. From that date onwards, the harmonized rules apply for all different kind of explicit auctions.