

# Connecting to the Dutch high-voltage grid

How TenneT can help you







# Introduction

The energy transition is driving new dynamics in the energy sector Europe-wide. This has prompted numerous organisations to consider entering the Dutch energy market. This document outlines how TenneT can help you. As a regulated organisation, TenneT has been assigned clearly defined statutory duties and responsibilities. Against this backdrop, we are committed to serving you to the best of our ability.



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# 1. TenneT in a nutshell

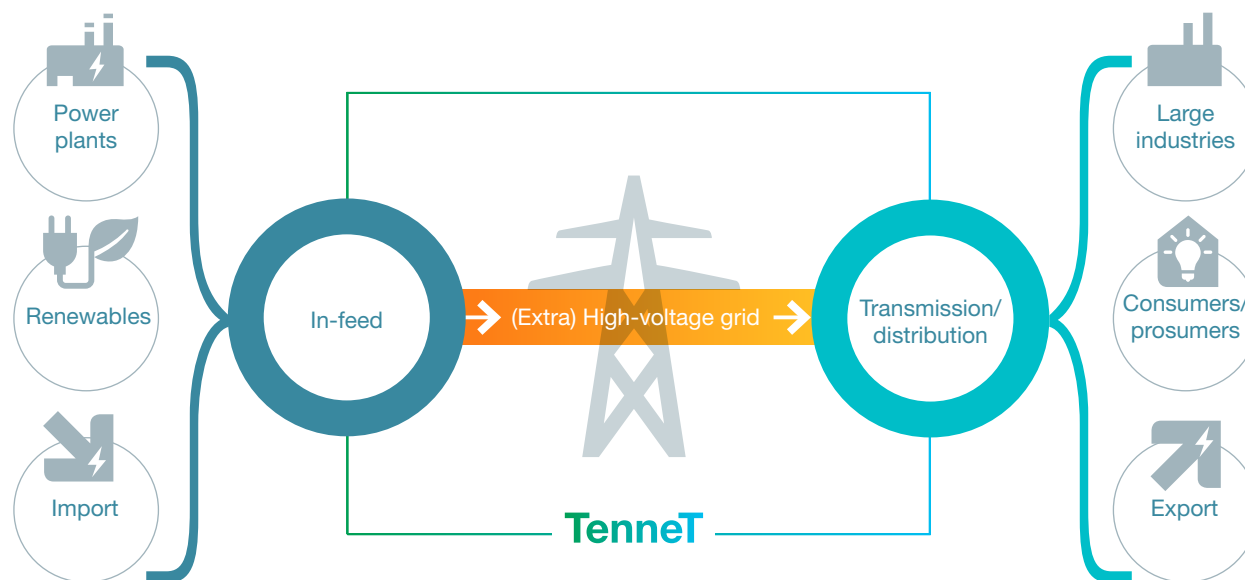
TenneT manages the high-voltage grid in the Netherlands and large parts of Germany. From the places where electricity is generated, we transmit it to end-users over more than 22,500 kilometres of high voltage lines and other electricity infrastructure. Our onshore and offshore cross-border connections form an indispensable link between electricity producers and consumers in the Netherlands and a large part of Germany.



## 99.99% availability

The Dutch government has entrusted TenneT with the task of ensuring a reliable and safe electricity supply, now and in the years ahead. With availability already at 99.99%, the TenneT high-

voltage grid is one of the most reliable of the world. In part this is thanks to our good technical infrastructure, which we constantly maintain and expand. The near-continuous availability of our grid is also the result of careful balancing, i.e. keeping the demand for and supply of electricity in balance.



## Statutory frameworks and legal status

Both in the Netherlands and in Germany, TenneT almost exclusively performs regulated tasks arising from our designation by law as a grid operator.

These tasks are to:

- provide connection and transmission services
- provide system services
- facilitate the energy market

In performing these tasks, we are bound by statutory frameworks, such as the **Electricity Act 1998** (Dutch only), the **European codes** and the **Electricity Grid Code** (Dutch only). In the Netherlands, our compliance with legislation is overseen by the **Authority for Consumers & Markets (ACM)**; in Germany, the same is done by the **Bundesnetzagentur (BNetzA)**, the Federal Network Agency. TenneT is wholly-owned by the State of the Netherlands.

# 2. Connecting to the TenneT grid

## Which grid is best for your connection?

The electricity grid in the Netherlands consists of the national high-voltage grid and several regional grids. TenneT manages the national high-voltage grid, which transmits electricity at 110, 150, 220 or 380 kV. The regional electricity grids, with voltages of 66 kV or less, are managed by seven regional grid operators.

For connection to the Dutch electricity grid, there is a similar distribution of tasks as the one that exists for managing the grids. TenneT provides connections with power greater than (approximately) 100 MW. Connections with power less than (approximately) 100 MW are usually provided by the relevant regional grid operator (refer to the overview of their coverage areas). TenneT and the regional grid operators cooperate with each other and will jointly assist you in finding the optimum solution for you in terms of grid engineering.

### Connection < 100 MW

Contact the relevant regional grid operator ([see overview](#))

### Connection > 100 MW

TenneT, [read this brochure](#) for the conditions





## Location of your connection

TenneT can advise you on the engineering feasibility (or unfeasibility) of a connection at a certain place and will provide you with a rough planning and cost estimate. The connection will generally be to the nearest high-voltage substation where capacity is available or can be created. Together with you, TenneT can examine the possibilities. Decisions about locations of wind and solar farms are the responsibility of the Ministry of Economic Affairs and Climate Policy and the regional or local authorities (i.e. the provincial or municipal authority concerned). TenneT plays no role in these decisions.



## Costs of a connection

Costs are obviously associated for a new connection. ACM issues guidelines for our pricing in the [Electricity Tariff code](#) (Dutch only). For installing a new connection, TenneT charges:

- the connection tariff (or initial investment costs). These costs vary, because every connection has to be customised. By way of indication, here is an approximate overview of the costs (2018 price levels) of bays in an outdoor configuration, for the most frequently occurring connections:
  - 110 kV and 150 kV: approx. €1.5 million
  - 220 kV and 380 kV: approx. €3 million

Once the connection is ready, you pay TenneT each month:

- the periodical connection charge. This is an annual fee for managing and replacing the connection;
- the transmission tariff, which covers TenneT's transmission of electricity. These costs consist of a fixed amount for costs unrelated to transmission (e.g. for invoicing, administrative work and similar) and a variable amount for transmission-related costs, charged as an amount per kilowatt. ACM sets the tariffs from year to year on the recommendation of TenneT. The transmission tariffs of TenneT are downloadable from the [ACM website](#).



If you wish to stop using your connection, TenneT will charge:

- a non-recurring contribution towards removing the connection. Again, these costs vary according to the type of connection. TenneT will charge you these costs in the event of the breaking or expiring of your connection and transmission agreement.

## Procedure and lead time

In the case of a new connection, TenneT will discuss the possibilities with you, and together we will explore, if necessary with the regional grid operator, what the best connection option is for your particular situation. We will then produce a technical plan for this, accompanied by an offer. After the order has been placed, TenneT will create the connection. As soon as the connection is delivered, it will be put into service. On average it takes 12 to 18 months to create a new connection to the high-voltage grid (in a situation where expansion of the grid is unnecessary).



## The connection process

### 1: Information phase

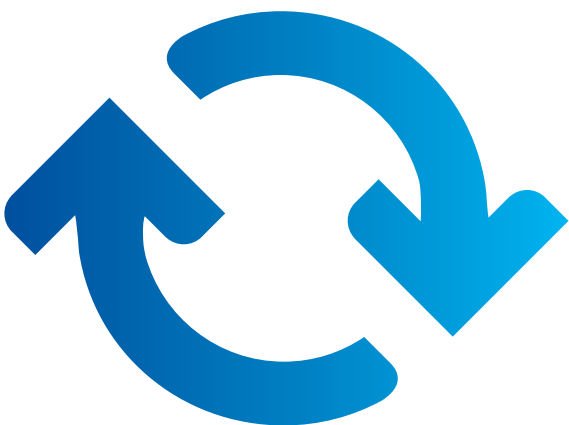
This phase is used to hold talks with the customer. Based on the outcome, TenneT will make a quick scan so as to identify the substation to which the customer can be connected, provide a rough timeline for doing this and estimate the total costs. On request TenneT will also submit an offer for a basic design. In order to arrive at a good basic design offer, the customer must fill in the [appendix](#) to this brochure.

### 2: Basic design phase

The basic design will work out the request for a connection in greater detail, including a project description, planning aspects, licences and the technical properties of the connection. Subject to approval, this phase will end with signature of the construction agreement, in which the planning and the costs will be agreed.

### 3: Construction phase

This phase formally starts at the time of signature of the construction agreement. Throughout the entire construction phase, TenneT will hold regular talks with the customer, for example to close an Connection and Transport agreement.



## Hessels

A customer who wants a connection to the grid with a connected load greater than 10 MVA can have TenneT perform the work or subject the connection work to public tender.

If the customer has the connection work performed by someone other than TenneT, no connection fee will be charged for the connection in question other than for the tasks performed by TenneT in association with the connection work, such as ensuring that the safety and reliability of the grid is maintained.

TenneT and the customer shall agree on a reasonable fee for these tasks, which will be specified according to task and based on the number of hours actually spent by TenneT on them. Labour costs for the hours spent on each task shall also be specified.

In addition to establishing the connection, the connected party may also request tenders for work involved in maintaining the connection, modifying the connection and removing the connection (removal).

## European codes

The new European connection codes are coming into effect in the course of 2019. Based on English titles, these codes are designated using the following abbreviations:

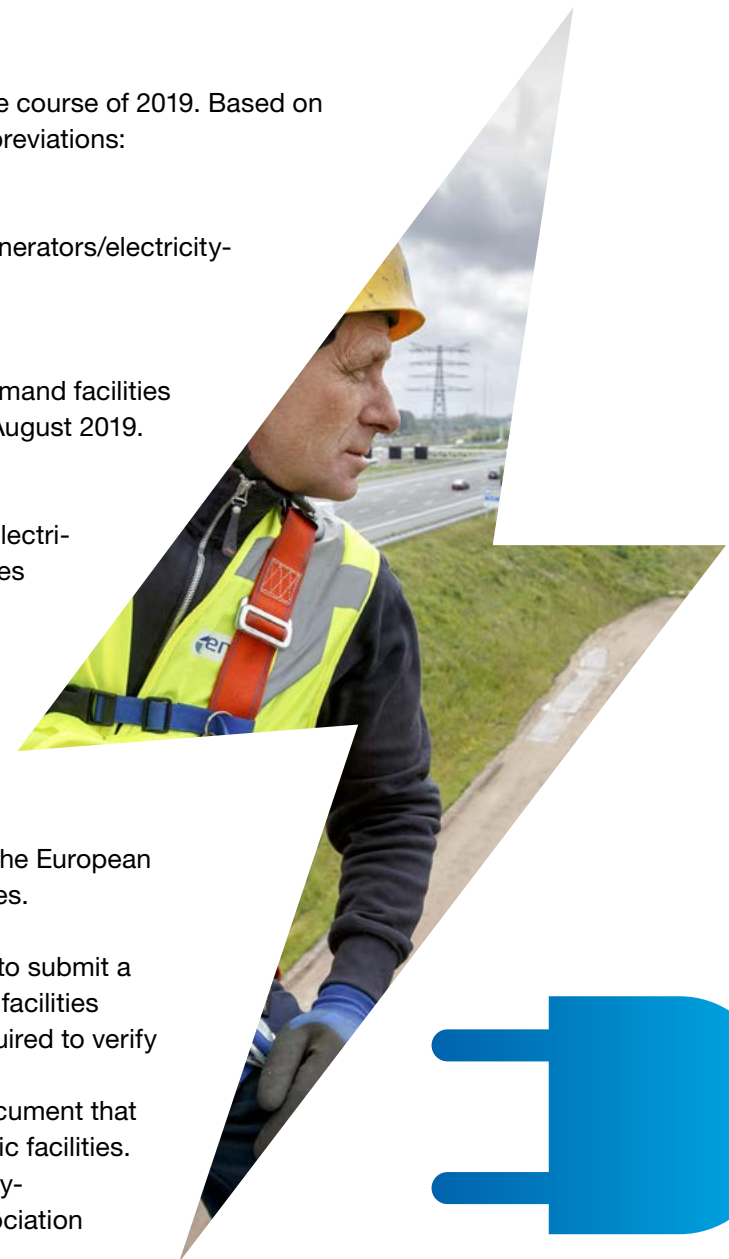
- **NC RfG**  
This code contains requirements for the grid connection of generators/electricity-generating units and comes into effect on 27 April 2019.
- **NC DCC**  
This code contains requirements for the grid connection of demand facilities and closed distribution systems and comes into effect on 18 August 2019.
- **NC HVDC**  
This code contains requirements for HVDC connections and electricity-generating units with direct current connections and comes into effect on 8 September 2019.

The [European codes](#) (Dutch only) can be found at various locations, including the TenneT website.

## Compliance verification obligations

The European codes set all kinds of requirements for demonstrating that the connected facilities actually comply with the European codes, these exceeding those incorporated in current Dutch codes. These measures constitute what we call compliance verification. For small electricity-generating units (up to 1 MW), it is sufficient to submit a certificate. For larger electricity-generation units and for demand facilities whose supply is driven by demand, more extensive testing is required to verify compliance.

Together with regional grid operators, TenneT has drawn up a document that provides detailed explanations of the tests required for the specific facilities. This document (Dutch only), which is currently limited to electricity-generating units, can be consulted on the website of branch association [Netbeheer Nederland](#).





# 3. Obligations

## for connected parties

Laws and regulations impose various obligations on affiliates, including the following:

### Transparency

Connected parties are obliged by law to inform TenneT daily about their planned and their actual electricity production, consumption and transmission needs. This is necessary to maintain the balance in the high voltage grid: TenneT keeps electricity supply and demand in equilibrium, 24 hours a day, 365 days of the year. Connected parties may contractually assign these obligations to recognised parties if they wish.



### Requesting your own BRP or MRP recognition

To keep supply and demand in balance in the Dutch grid, it is essential for TenneT to be in possession of reliable forecasts of the planned electricity production, consumption and transmission needs, and also reliable metering data of the actual production, consumption and transmission. These data are so important to the electricity grid's functioning that, under Dutch law, they may be issued only by organisations approved for that purpose ('recognised parties'). These organisations are called Balance Responsible Parties (BRPs) and Metering Responsible Parties (MRPs). If there is no such approval, the grid operator may stop managing or disable the connection concerned. As a connected party, you can ask TenneT for your own recognition as a BRP or MRP, or engage a recognised external party. The external parties are stand-alone, independent organisations: as the organisation that issues recognitions, TenneT has no financial and/or organisational ties with those parties.

### About e-programmes and imbalance settlements

If the actual production and consumption of electricity do not properly correspond with the forecast, TenneT must intervene in order to maintain the balance in the grid, for example by deploying reserve or even emergency capacity. Therefore, there are financial consequences for a Balance Responsible Party (BRP) if its 'e-programme' (i.e. the sum of the traded energy of all customers of a single BRP) fails to match the metered quantity. This is called the 'imbalance settlement'. For the Netherlands as a whole, TenneT handles the financial resolution of imbalance settlements, via the recognised Balance Responsible Parties.

### Balance Responsible Parties (BRPs)

Balance Responsible Parties must satisfy the requirements contained in documents including the Transparency laid down by regulator ACM. As an organisation that issues recognitions, TenneT will check compliance with the admission requirements. On the TenneT website you will find a [register of recognised parties with balance responsibility](#). If you want to apply for your own BRP recognition, you should contact the TenneT Customer Care Center at [tennetccc@tennet.eu](mailto:tennetccc@tennet.eu). We will assist you in completing the steps necessary to satisfy the BRP recognition criteria.

### Metering Responsible Parties (MRPs)

Metering Responsible Parties must satisfy conditions including requirements contained in the [Metering Code](#) (Dutch only) laid down by the Authority for Consumers and Markets (ACM). As an organisation that issues recognitions, TenneT will check compliance with the requirements. On the TenneT website you will find a [register of recognised parties with metering responsibility](#). If you want to apply for your own MRP recognition, you should contact the TenneT Customer Care Center at [tennetccc@tennet.eu](mailto:tennetccc@tennet.eu).



## 4. Doing business with TenneT



As a TenneT client, you can maintain contact with us in different ways: face-to-face and digital. Face-to-face

contacts will be with one of our customer relations managers. Each of these managers is responsible for a specific region of the country or area of attention. You can also contact us at any time via the TenneT Customer Care Center.

### Digital portal MyTenneT

TenneT also operates an online portal called My TenneT to enable you to take care of TenneT matters quickly and

conveniently. The digital dashboard consists of various elements for connected parties and for Balance Responsible Parties and Metering Responsible Parties. It is accessible in Dutch and English versions via the TenneT website.

Using MyTenneT, you can perform 24 hours a day, 7 days a week such activities as:

- view your invoices
- view the details and status of your connection project(s)
- view the details of your connection(s)
- find the details of your BRP or MRP recognition
- view your financial guarantee

- manage your contact information
- find the details of your TenneT contact persons

My TeneT is user-friendly. It's simply a question of 'click & go'. A particularly useful feature is your ability to set which employees in your organisation are allowed certain privileges. As the My TeneT data are privacy-sensitive, this website has the highest level of security.

### More information

TenneT helpt u graag uw plannen voor de Nederlandse energiemarkt te realiseren.

- Want to know more about possibilities for getting a connection to the TeneT grid? Contact one of our customer relations managers or the TeneT Customer Care Center at [tennetccc@tennet.eu](mailto:tennetccc@tennet.eu)
- Want more information about recognition as a Balance Responsible Party or Metering Responsible Party? Contact the TeneT Customer Care Center at [tennetccc@tennet.eu](mailto:tennetccc@tennet.eu)







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