

Program Responsibility

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1. Introduction

With the introduction in the Netherlands of the new Electricity Act on 24 August 1998 the situation for the parties connected to the power grid has changed entirely in respect to the previous period.

The grid management and electricity supply functions have been segregated and placed under separate legal entities. Parties, connected to the grid, as far as not belonging to the group of captive customers (in this context a customer is buyer of transport and system services. This could be a generator or a consumer) are free to buy their electricity from or sell to players of their choosing. To bring about these transactions, players will enter into binding supply and consumption contracts with one another. Within these contracts players will come to agreements on a day-to-day basis (supply instructions or orders on demand). However, supply and consumption will in practice not always take place in accordance with what had been agreed upon. For this purpose the system of Program responsibility has been developed, by way of a solution for possible discrepancies between such programs as had originally been agreed and the actual quantity of electricity measured. These discrepancies will be determined daily and settled with **TenneT** as Transmission System Operator (TSO).

The connected customer does not have to bear the obligations in relation to program responsibility. He may transfer these obligations to another natural or legal entity, as far as the other player has been fully acknowledged by **TenneT** as a Program Responsible Party (PRP).

Besides connected customers, suppliers and traders are also active on the market. A connected generator can therefore deliver directly to the customer, but also through a trader and/or supplier.

These market players account for their transactions by so called Energy Programs (E-programs), which have to be announced to **TenneT**. **TenneT** and the other grid companies see to it that the day after the operational day the actual production or the actual consumption is measured and is announced to **TenneT** compiled per PRP. **TenneT** settles the discrepancies between program and actual quality.

The instrument of program responsibility brings a number of information flows with it which can be defined in terms of four stages.

The long-term to medium stage is the first stage. This is where the energy supply conditions are agreed between the market players, in the context of (outline) contracts. The first stage is also the stage where the grid companies prepare plans for long-term maintenance and renovation. The

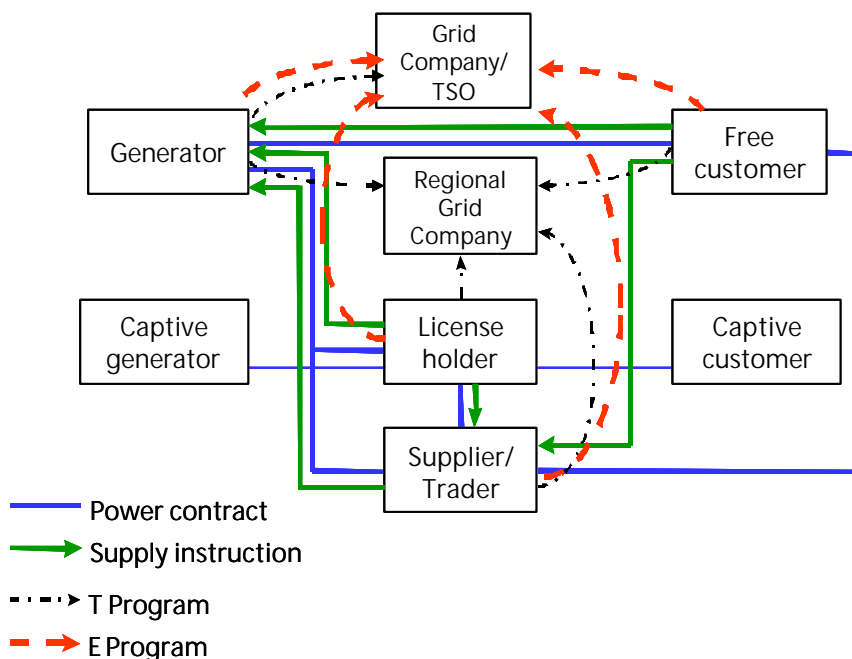
length of this stage defies standard definition, in that it can run from a number of years to a mere few days.

Second, there is the preparation stage. This is where the consumers calculate how much power they plan to use. They put in their orders for power on such conditions as have been agreed in the (long and medium term) contracts. This consumption calculation and the delivery instructions (orders) enable the PRPs of consumers and the generators to prepare their programs, which they subsequently submit to the grid company and **TenneT** (T-programs for consumption or production per connection, E programs for the balance and the specifications compiled per counter PRP).

The grid companies and **TenneT** process the programs, check them for grid restrictions and issue program approval to the Program Responsible Parties (PRPs). This represents the (daily) stage where the next day's operations are planned.

The energy transactions concluded on the APX (Amsterdam Power Exchange) are similar to the delivery instructions in terms of how they are processed in the context of the programs.

Process steps (preparation)

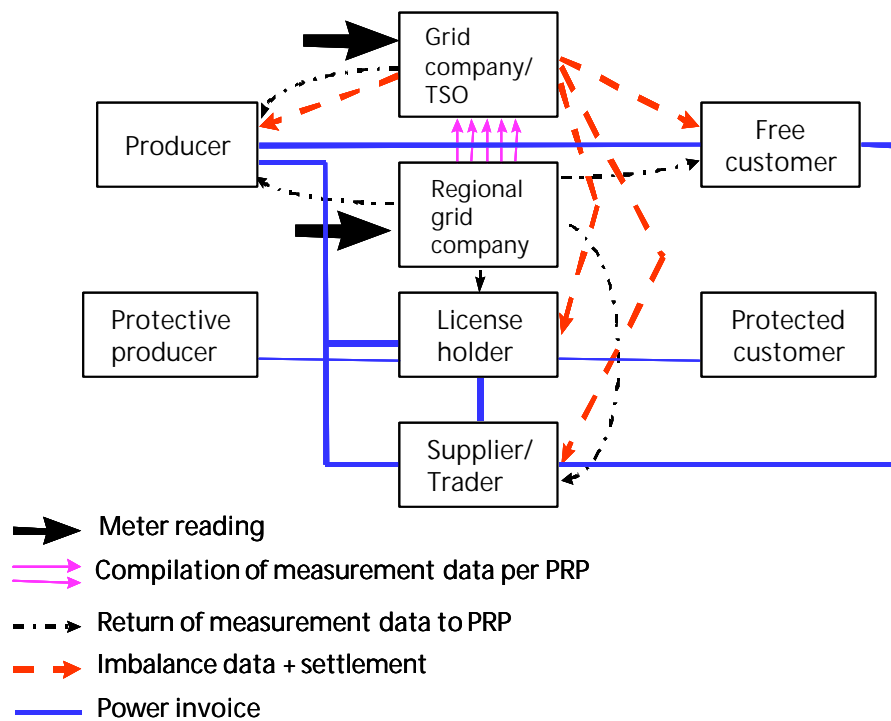


The third stage is the operational (or actual) stage). In this stage the actual power transmission takes place. The PRP may at this stage tweak its operations to bring them back into line with the

programs, or it may submit program amendments. In addition to the various "regular" business operations, at this stage it is the job of the grid companies and **TenneT** to process and approve such changes to the program as have been submitted by the PRPs.

The fourth and final stage, which takes place one day later than the actual stage, is that of settlement. This is when the grid companies collect the measurement data and compile them for each PRP. These individualized summaries are communicated to **TenneT**, which uses them to

Process steps (settlement)



determine the imbalance (if any) per PRP and raises the corresponding invoice.

2. Program responsibility

2.1 Functional explanation

Each party with one or more connections to a grid has program responsibility for that connections, and as such is required first to prepare programs outlining how much electricity it expects to supply to and withdraw from the grid and, second, to comply with these programs. Non-compliance results in power transactions being entered into with **TenneT**, and these come at a price. It is **TenneT**'s responsibility to strike the appropriate technical balance between demand and supply throughout the Dutch power system.

A party which has one or more connections to the grid may outsource its program responsibility to a third party, on assumption by the latter of all related rights and obligations and all advantages and drawbacks.

Each party which assumes Program responsibility for one or more connections or trade transactions will have to be acknowledged by **TenneT**. A PRP can choose between trade acknowledgement or full acknowledgement. To become acknowledged the PRP has to meet certain conditions. These conditions are incorporated in chapter 3 of the System Code.

Examples are:

- the PRPs will be required to have technical resources at their disposal enabling the preparation of programs and the submission thereof to the grid companies and **TenneT**
- the programs will be required to be submitted in accordance with tight schedules which do not allow for delays. This implies that steep demands will be imposed on the availability of auxiliary resources and expert staff (probably 365 days a year)
- once they have handed in their programs, the PRPs will have to wait for approval. In the event that a program contains errors, the PRP in question will be instructed to run a check and where appropriate revise the program. A grid company may furthermore request a shift in generation in order to resolve transmission restrictions, so that the PRP in question would then have to hand in a revised program
- payment of the invoices raised by way of settlement in relation to imbalance. Deviations from the program (i.e. causing an imbalance) will result in a power transactions being entered into with **TenneT**, to be settled by the latter
- provision of financial security to **TenneT** showing that the PRP is effectively capable of bearing the possible financial consequences
- conclusion of a Program responsibility contract with **TenneT** in which the above issues and other matters are provided for.

TenneT will publish the names of the licensed PRPs on her website, so called PR-register.

It is important that on transfer of program responsibility, the party in question should be aware that it is thereby providing its PRP with information on its power transactions, as the E-Program requires the PRP to divulge the names of all other PRPs with which power transactions have been agreed as well as the volume per transaction, per period of time. Imports and exports are also required to be explicitly included in the E-Program. Of course the price is confidential; this is therefore not required to be disclosed.

2.2 Which organizations can be expected to obtain PRP status?

As offering program responsibility as a service is not compatible with the restrictions which the Electricity Act imposes on grid companies, the latter will not be in a position to offer this service.

The program responsibility resting with captive customers will be deemed to be outsourced to the license-holder¹ in question. All other customers have the option of outsourcing their program responsibility to officially licensed PRPs. There are several categories of parties which may consider marketing program responsibility as a service to free customers and generating companies provided **TenneT** has officially licensed them as PRP. It should be pointed out in this context that any market player whatsoever - be it a generating company, a customer, a trader or a supplier - is essentially permitted to offer program responsibility services as long as that market player is not a grid company. In fact the service could be offered by complete outsiders such as insurance companies or financial service providers.

In the new situation free customers and generating companies will have to make arrangements regarding their program responsibility. This means that they will first have to choose between outsourcing or providing for Program responsibility on a proprietary basis. If a party decides to outsource its program responsibility, it will then have to find a licensed PRP of this service and enter into an agreement with it, following which it will need to communicate the identity of its program responsibility service supplier to the grid company.

In the event that a market player has made available balancing and/or reserve power to **TenneT** and the latter has actually dipped into this pool during a specific program time unit (PTO), the program of that market player's PRP will need to be increased or decreased in line with the volume of upward/downward regulating capacity requested, thus enabling the correct calculation of the imbalance of a PRP which has made available one or more (generating) resources to **TenneT** by way of balancing and/or reserve power. **TenneT** settles the requested volume of balancing and/or reserve power with the supplier in a separate transaction.

¹ Suppliers with a license to supply captives

2.3 The PRP's objective

The PRP's objective consists in the provision of services to parties wishing to outsource their own program responsibility, comprising at least the submission of the related programs to the grid companies and **TenneT** and the assumption of the accompanying rights and obligations.

The PRP will be expecting to benefit financially from offering this service. First, it will receive direct payment for the services it has rendered. Second, it will benefit financially owing to the fact that the service is to allow the offsetting of deviations for large numbers of connections. The concept of offering a comprehensive power supply service range may also inspire a party to start marketing program responsibility as a service; in this context the provision of these services could be seen as a way of establishing customer loyalty.

2.4 The PRP's service range

A PRP may offer each of the following services or any combination thereof.

- Administrative mediation: this is where the PRP assumes responsibility for the full complement of administrative and procedural dealings with the grid companies, in return for an administrative fee. The PRP itself is a neutral player in this set-up.
- Assessment and provision of advice on programs, in order to enable the preparation of higher-quality programs. Again, the PRP charges for its services and remains a neutral player in this set-up.
- Preparation of the TT and Eprograms on behalf of the customer: the PRP takes on full responsibility and thereby assumes a position. It will expect to be properly compensated for the service it provides and the related risk to which it is exposed.
- Monitoring, advice and control during implementation, thus enabling program deviations to be spotted and corrected, in exchange for a fee.
- Assumption of the risk: the interested party has opted in favor of a low-risk stance and is keen to protect itself from major discrepancies. The PRP assumes the position in its place, in exchange for an appropriate fee.
- Control, on behalf of customers with a connection, of consumption and/or supply in such a manner as to ensure that the aggregate deviation always makes a passive contribution to the system balance.

Interested parties may purchase one or more of the above services from a PRP.

The grid companies and **TenneT** are not interested in the detailed implementation of program responsibility. Every PRP will be treated in exactly the same way as all others.

2.5 The price of imbalance

The result of imbalance is a energy transaction with **TenneT**. There is a price tag attached to power transactions. The way in which the price of imbalance is determined is explained in chapter 3.9 of the System Code.

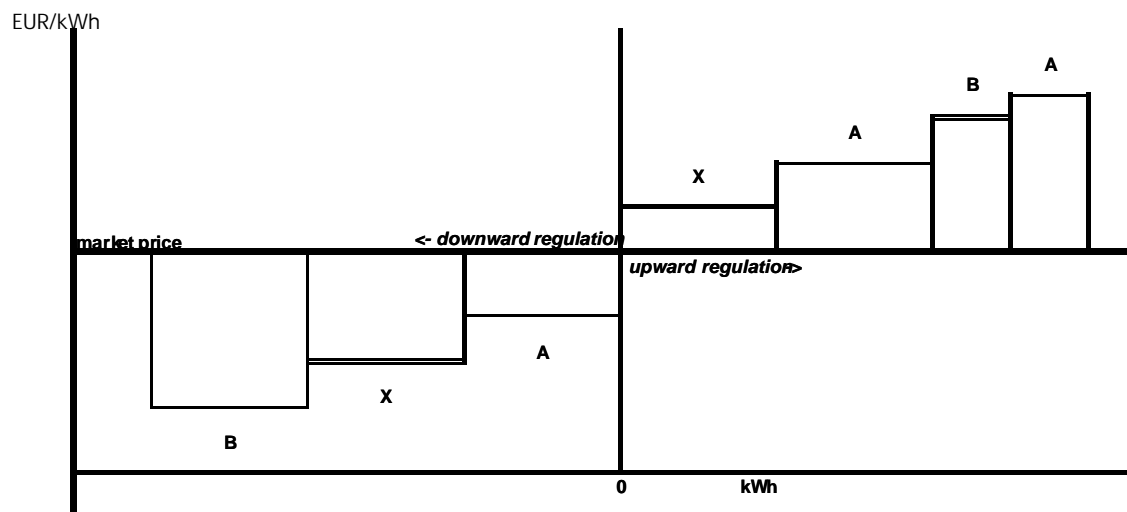
A short summary:

TenneT receives bids for regulating and reserves power. **TenneT** places these bids in a merit order (bid prices ladder).

All regulating and reserve power sets the dispatching price.

There are four situations. In all situations the imbalance price has been based on the dispatching price. There is also a incentive.

All parties causing imbalance will pay for it; PRP's helping **TenneT** to solve the problem of imbalance will be paid by **TenneT** (passive contribution).



Bid price ladder

Situation 1:

De price of imbalance per PTU in case **TenneT** has only regulated downwards is:

- for a PRP who withdraws electricity from the system: the downward dispatch price augmented by the incentive. In this case the PRP pays **TenneT**.
- for a PRP who has supplied electricity into the system: the downward dispatching price less the incentive. In this case **TenneT** pays the PRP.

Situation 2:

De price of imbalance per PTU in case **TenneT** has only regulated upwards is:

- c) for a PRP who has supplied electricity into the system: the upward regulation price less the incentive. In this case **TenneT** pays the PRP.
- d) for a PRP who withdraws electricity from the system: the upward regulation price less the incentive. In this case the PRP pays **TenneT**.

Situation 3:

The price of imbalance per PTU in case **TenneT** regulated both upwards and downwards is:

- e) for a PRP who supplies electricity into the system: the downward regulation price less the incentive. In this case **TenneT** pays the PRP.
- f) for a PRP who withdraws electricity from **TenneT**: the upward regulation price augmented by the incentive. In this case the PR pays **TenneT**.

Situation 4:

The price of imbalance in a PTU in case **TenneT** neither regulates downwards or upwards is: the average of the lowest bid to **TenneT** for regulation upwards and the highest bid for regulation downwards

- g) less the incentive for a PRP who supplies electricity into the system. In this case **TenneT** pays the PRP.
- h) augmented by the incentive for a PRP who withdraws electricity from the system. In this case the PRP pays **TenneT**.

The incentive has been set at 0.01 EUR/kWh. Changes in the incentive component are required to be made on the basis of objective factors reflecting the operation of the system. This is the actual imbalance per PTU in height and frequency. The present incentive value is displayed on the website of **TenneT**.

3. Technical realisation

3.1 Program amendments

In view of the fact that program deviations are mostly "penalized" in the form of an invoice, the PRP will do everything it can to minimize them. It can do this by tweaking its programs and/or by submitting program amendments.

Program amendments only affect future transactions. They cannot be handed in retroactively.

If a generator's plant breaks down, for example, that generator has a choice between sourcing power from a third party for rerouting to its own customers, or asking its customers to cut back on their power consumption. It is obviously up to the generator to decide what to do; this will depend on what type of contract he has concluded with his customers as well as on its reserve power contracts. Once the generator has made detailed agreements with the parties, all parties involved will submit new E-Programs to **TenneT** and the imbalance will have ceased.

TenneT will accept the program amendments provided they are consistent and it has received the correct changes from all PRPs involved.

3.2 Data exchange with Grid Companies (GC) and **TenneT**

For the sake of optimum customer friendliness, a single electronic post office should be made available where all PRPs can hand in their E and T-Programs. This post office will be located at **TenneT** (as this is where all PRPs are already required to submit their E-Programs).

It is up to the PRP which of the following two ways to access the post office best meets its requirements. Each method comes with its own functional characteristics and related costs. Both ways come with adequate safeguards as the same software-related security measures are required to be implemented. The two methods are as follows:

1. The PRP logs into the network of the central counter system and uploads its messages to **TenneT** while downloading its new mail (dial-in option).
2. The PRP's network forms a logical whole with that of the central counter system, so that messages are automatically exchanged as soon as they have been mailed (network option).

3.3 Availability of measurement data for tweaking purposes

In view of the fact that program deviations are "penalised" in the form of an invoice, the PRPs can be expected to try and minimise such deviations wherever they can. This means that they will want to be able to control them.

Control, or the ability to tweak, requires up-to-date measurement data - but where should these originate?

The grid company is under no obligation to provide measurement data. If it is to provide such information, it should do so on uniform conditions.

Of course the measurement data required for tweaking purposes are also used by the grid companies and **TenneT** in calculating the imbalance. There is one difference, however, in that tweaking requires real-time information while calculating the imbalance can also be done after the event.

Rendering measurement data available on-line is the responsibility of the individual PRPs.

If the grid company provides additional services for a fee, the grid company will ensure that only the appropriate parties have access to the relevant measurement data. These data are intended solely for the eyes of the grid company, the party having the connection to the grid and the PRP in charge of the connection in question.