



# TenneT's investments in the Dutch high-voltage network

*Government supervision aimed at safeguarding the public interest*

2015





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**Original title**

Investerings TenneT in Nederlands hoogspanningsnet; Toezicht van het Rijk op het publieke belang. Den Haag: Algemene Rekenkamer.

The original report was adopted on 19 February 2015 and presented to the Dutch House of Representatives on 25 February 2015.



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## Executive summary

TenneT TSO B.V.<sup>1</sup> (henceforth referred to as TenneT) has managed the Dutch high-voltage network since 1998. TenneT is responsible for the transmission of electricity in the Netherlands to large companies and regional operators, who in turn pass it on to households, other businesses and non-commercial organisations. The transmission network managed by TenneT consists of a system of electricity 'highways' and 'trunk roads' with a voltage of at least 110,000 volts (110 kV). The government has decided that TenneT should be the only operator that is entitled to transmit high-voltage electricity. In other words, TenneT, which is a wholly State-owned corporation, holds a monopoly in the power transmission market. TenneT claims that the transmission network is virtually 100% reliable.

TenneT is required to make regular investments in the high-voltage network, to enable it to transmit sufficient electricity without the supply being disrupted. The government is responsible for ensuring that these investments serve the public interest, i.e. that they are intended to secure a reliable, affordable and sustainable power supply. The Minister of Economic Affairs is responsible for policy and the regulation of the power supply system, in which capacity he or she is required to authorise major investments by TenneT. The Netherlands Authority for Consumers & Markets (ACM) supervises TenneT on behalf of the Minister of Economic Affairs. Its task is to ensure that TenneT does not make any unnecessary or needlessly expensive investments in the maintenance and expansion of the electricity network, and also that TenneT does not overcharge its customers for the transmission of electricity. The ACM is also responsible for setting standards for the network's quality and capacity. The Minister of Finance manages TenneT as a State-owned corporation, acting as the shareholder on the State's behalf.

In our audit, we sought to establish whether the government's supervision of TenneT is adequate, such that it can give an assurance that TenneT's investments in the high-voltage network are indeed efficient, i.e. necessary for reasons of quality and capacity, and not too expensive.

<sup>1</sup> TSO stands for 'Transmission System Operator', i.e. the operator of a high-voltage network.

Figure 1 Key data for TenneT in the Netherlands

**What does TenneT do?**

TenneT performs two statutory tasks in relation to the electricity supply: it is responsible for transmission services (under section 16 (1) of the Electricity Act) and it is also responsible for the system as a whole (under section 16 (2) of the same Act). Its responsibility for transmission means that TenneT transmits the electricity and to this end maintains a network of adequate quality and capacity. Its responsibility for the system as a whole means that TenneT is required to balance electricity supply with demand. In addition to these statutory tasks, TenneT also performs a number of non-statutory duties such as managing the APX electricity trading exchange.

Map: TenneT



- 1995 • Publication of 3rd Policy Document on Energy: introduction of market forces
- 1996 • EU Directive on liberalisation of energy market
- 1997 • Electricity Bill submitted to Dutch House of Representatives: proposal for separate network operators
- 1998 • TenneT founded by SEP
  - Government plans to transfer majority of shares to non-stakeholders
  - Electricity Act 1998 comes into force
- 2000 • Government and SEP sign agreement on purchase of TenneT shares
  - Enactment of law requiring all TenneT shares to remain fully state-owned for three years
- 2001 • TenneT shares sold to government on 1 January
  - Amendment of TenneT's articles of association
- 2002 • Dutch House of Representatives asks for shares to remain permanently state-owned (under motion tabled by Representative Crone)
- 2003 • Enactment of law requiring all TenneT shares to remain permanently State-owned
- 2004 • TenneT permitted to create group structure
- 2005 • Amendment of TenneT's articles of association: TenneT becomes group company
  - Minister of Finance: no longer any point in government being TenneT shareholder
- 2008 • 2008 Energy Report published in June: review of status as TenneT shareholder
  - TenneT given responsibility for operating all 110 kV+ networks
- 2009 • Assessment of plans for acquiring German Transpower electricity network
- 2010 • TenneT takes over as manager of 40% of German high-voltage network
- 2011 • 2011 Energy Report: paving the way for part privatisation of TenneT
  - Launch of legislative agenda for the national power supply
- 2013 • Minister of Finance decides not to proceed with minority privatisation of TenneT
- 2014 • Minister of Finance plans to introduce possibility of share exchanges between TenneT and foreign TSOs

## Conclusions

Our audit shows that the supervision of TenneT as exercised by the Minister of Economic Affairs and the ACM does not provide an adequate basis for ensuring that its investments in the Dutch high-voltage network are efficient. This means that there is no way of knowing whether the tariffs charged by TenneT for the transmission of electricity are too high or too low. In other words, it is not clear whether customers are paying the right price for the transmission of electricity.

In assessing TenneT's plans for major investments in the high-voltage network, the Minister of Economic Affairs' sole source of information is a Quality and Capacity Document (QCD) drawn up by TenneT itself. This document, which lists all TenneT's investment plans, describes the improvements and changes that TenneT claims need to be made in the electricity network. Although the ACM is supposed to undertake a comprehensive review of the QCD once every two years, it does not do this. To date, the Minister of Economic Affairs has not taken any action to ensure that this review is indeed undertaken.

In assessing TenneT's routine investments, the ACM follows a complex procedure based on the actual costs. The ACM does not examine the need for such investments. As far as TenneT's major investments are concerned, the ACM does not assess whether TenneT has selected the cheapest option. This means that the ACM's supervision does not provide an adequate basis for guaranteeing the efficiency of the investments.

In his capacity as TenneT's sole shareholder, the Minister of Finance is required to approve all investment plans costing over €100 million. In assessing such plans, the Minister is interested mainly in the way in which they are funded. His opinion on the efficiency of such investments is based on the judgements of the Minister of Economic Affairs and/or TenneT itself. The Minister of Finance does not record his activities as the manager of a State-owned corporation in the form of an orderly, verifiable set of archives.

All in all, the three government bodies involved do not sufficiently ensure that TenneT's investments are efficient.

## Recommendations

We recommend that the ACM express an opinion once every two years on the extent to which TenneT's investments as set out in the QCD help to ensure, in an efficient manner, that the capacity of the electricity transmission network is of sufficient quality. As the shareholder acting on the State's behalf, the Minister of Finance has to be able to rely on the Authority's opinion. It is up to the Minister of Economic Affairs to ensure that the Authority expresses this opinion. The Minister should draw up a supervision plan to this end.

We also recommend that the Minister of Economic Affairs consult with the ACM on how best to assess the efficiency of TenneT's investments, so as to ascertain whether TenneT has opted for the cheapest solution. The Minister should then ensure that such an assessment is indeed performed.



We urge the Minister of Finance, in the annual reports on the management of State shareholdings, both to state the dividend as a percentage of the profit and to explain what agreement in principle has been made with TenneT regarding the payment of dividend.

Finally, we recommend that the Minister of Finance set up a systematic, verifiable system of records to ensure that the State shareholdings are properly managed.

### **Ministers' responses and Court of Audit afterword**

The Minister of Economic Affairs and the Minister of Finance responded to our report on 23 January 2015, claiming that they did perform a serious, critical review of TenneT's investment plans. The ministers said that the legislative agenda for the national power supply would resolve a number of problems. It would improve the way in which the need for investments is reviewed; the ministers felt that the mechanism for reviewing the efficiency of such investments was already adequate.

The Authority for Consumers & Markets (ACM) responded to our report on 22 January 2015. The Authority did not share our criticism, saying that it disagreed with us about the interpretation of the statutory regulations on its supervisory responsibilities, and adding that it operated in accordance with its own interpretation. The ACM also drew our attention to the legislative agenda for the national power supply.

In our afterword, we point out that the problems we identified in the supervision of TenneT's investments do not stem from inadequate legislation. We believe that it is crucial to tackle the problems at an *operational level*. In our opinion, there is a need for a comprehensive review performed by an independent party, in this case the ACM. In arriving at a judgment, the ACM should review all of TenneT's investments in conjunction with each other, and critically weigh up their benefits against the total cost. A comprehensive review is also needed in the light of the responsibilities of the Minister of Economic Affairs and the Minister of Finance in their separate roles vis-à-vis the House of Representatives. Finally, it is also important for electricity consumers, who pay the price at the end of the day.

# I Introduction

## About TenneT

TenneT TSO B.V.<sup>2</sup> (henceforth referred to as TenneT) has managed the Dutch high-voltage network since 1998. The network consists of a system of electricity ‘highways’ and ‘trunk roads’ with a voltage of at least 110,000 volts (110 kV).

TenneT is responsible for the transmission of electricity in the Netherlands to large companies and regional operators, who in turn pass it on to households, other businesses and non-commercial organisations. The government has decided that TenneT should be the only operator that is entitled to transmit high-voltage electricity. In other words, TenneT, which is a wholly State-owned corporation, holds a monopoly in the power transmission market.

Chapter 2 contains more information on TenneT’s history and its statutory responsibilities.

## Audit question

In our audit, we sought to establish whether the government’s supervision of TenneT is sufficient to ensure that TenneT’s investments in the high-voltage network are efficient, i.e. necessary and not too expensive.

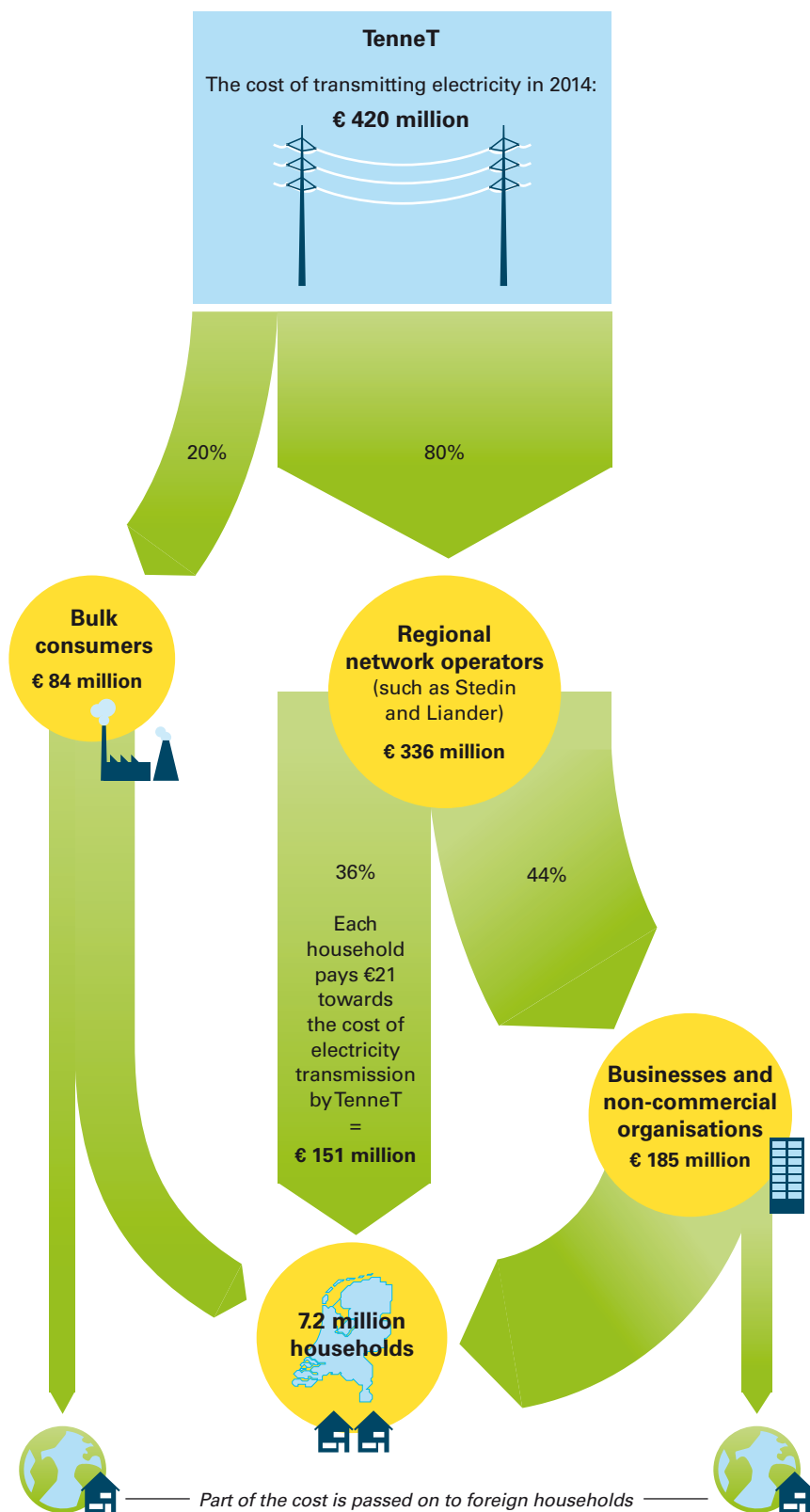
The need for investments is a factor of the quality and capacity required in order to guarantee the reliability and sustainability of the electricity supply. In order to determine whether a given investment is or is not too expensive, the government must find out whether TenneT has chosen the cheapest option and also whether it has implemented the chosen option at the lowest possible cost.

Inefficient investments in the transmission network are bad, not just for private and business consumers (whose electricity bills go up), but also for the State, which has to pay more to fund the investments.

Efficiency also affects the affordability of the electricity supply, one of the three pillars of the energy policy pursued by the Minister of Economic Affairs. As well as being affordable, the electricity supply also needs to be reliable, i.e. offering security of supply in both the short and the long term, and sustainable, i.e. of the highest possible environmental quality - clean, in other words.<sup>3</sup>

<sup>2</sup> TSO stands for ‘Transmission System Operator’, i.e. the operator of a high-voltage network.

<sup>3</sup> There is a link between the two, as the need for sustainability affects the investments made by TenneT in guaranteeing the reliability of the supply. For example, if wind turbines and solar panels are used to generate electricity, changing weather conditions will result in fluctuations in the electricity supply. The production of ‘clean power’ will consequently place higher demands on the electricity network.

Figure 2 **TenneT's transmission costs: who foots the bill?**

Joris Fisseler Infographics

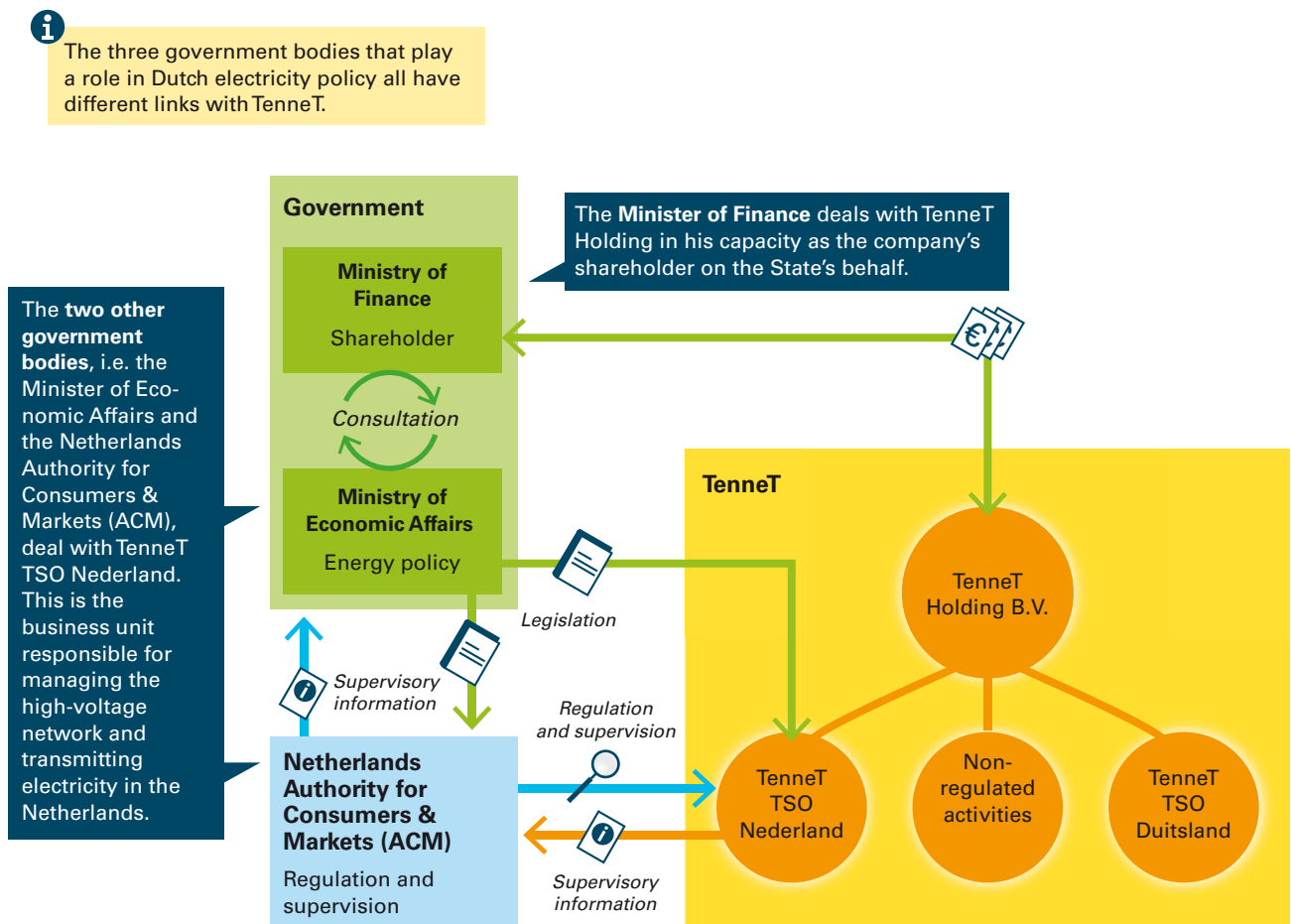
Source: ACM estimate, 2014

### Government bodies involved in electricity transmission

Three government bodies play a role in assessing TenneT's plans for investments in the high-voltage network in the Netherlands (see Figure 3):

1. The Minister of Economic Affairs is responsible for electricity policy and the regulation of the power supply system. The Minister is also directly involved in authorising major investments by TenneT.
2. The Netherlands Authority for Consumers & Markets (ACM), a government agency operating under the aegis of the Ministry of Economic Affairs, is responsible for safeguarding the interests of electricity consumers.<sup>4</sup> The ACM is required to (a) set standards for the quality and capacity of the high-voltage network,<sup>5</sup> (b) fix the transmission tariffs that TenneT is allowed to charge its customers, and (c) supervise TenneT's operations and the way in which it discharges its responsibilities. One of its supervisory tasks involves expressing an overall opinion on TenneT's investments.

Figure 3 Links between the three government bodies and TenneT



Joris Fiselier Infographics

<sup>4</sup> This task was previously performed by the Netherlands Competition Authority, which was taken over by the ACM on 1 April 2013. This reports refers consistently to the ACM, also in relation to events prior to 1 April 2013.

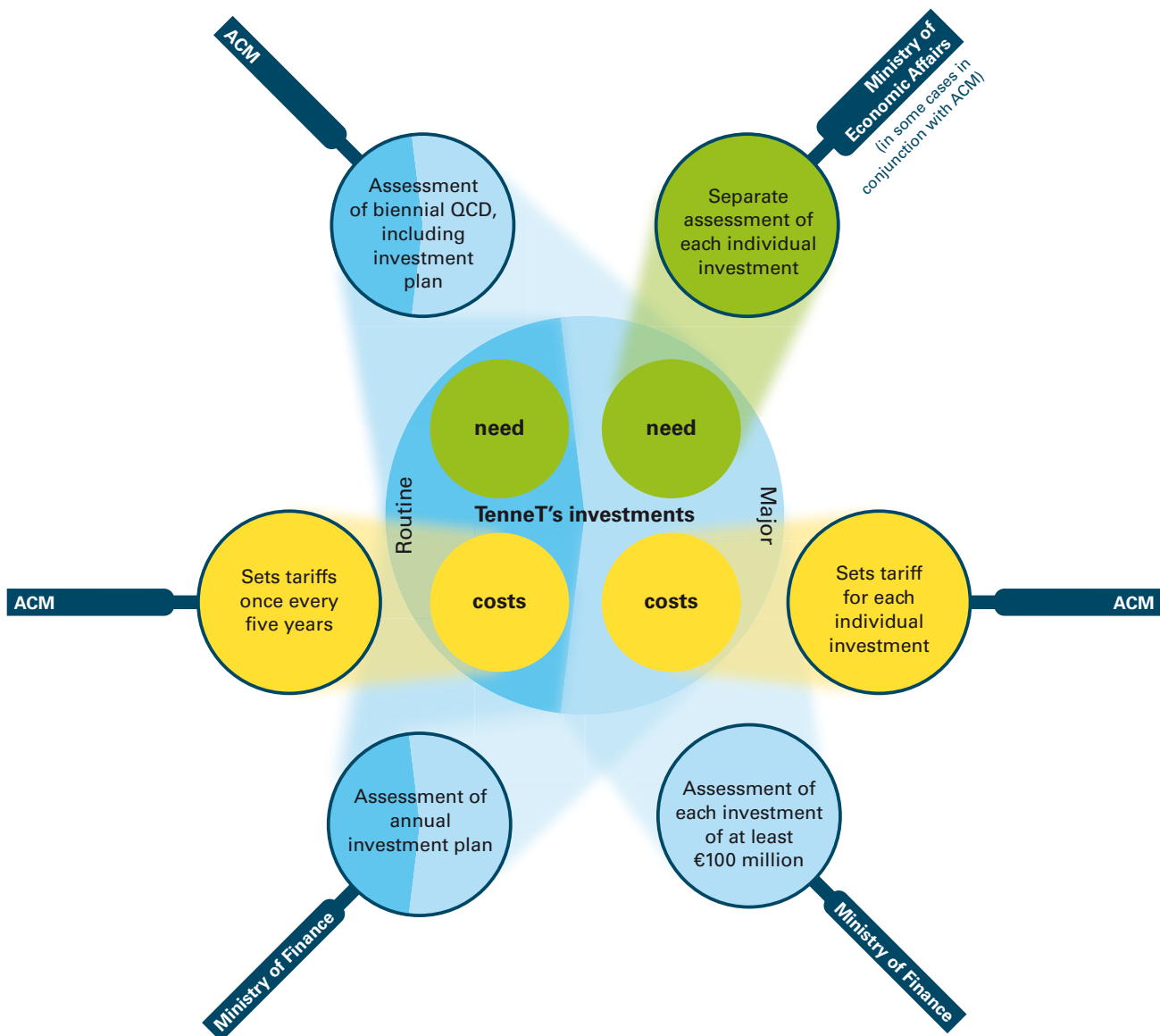
<sup>5</sup> The ACM bases these standards on proposals submitted by electricity producers, operators and consumers, setting out how they intend to operationalise the statutory standards.

3. The Minister of Finance manages TenneT as a State-owned corporation, acting as the shareholder on the State's behalf. He takes a particular interest in the funding of TenneT's investments and the return they are expected to generate, partly in the light of their effect on public finances. During the period between 2008 and 2012, the State provided the company with an additional sum of around €665 million and received €160 million in dividend. The role played by the Minister of Finance as the company's shareholder is secondary to that played by the Minister of Economic Affairs, who has prime responsibility for policy.

#### Government procedures for assessing TenneT's investments

The government follows a variety of procedures in assessing TenneT's investments. The roles played by the Minister of Economic Affairs and the Minister of Finance (or the ACM, as the case may be) also vary. Figure 4 shows the assessment procedures in diagrammatic form.

Figure 4 Procedures for assessing the efficiency of investments; and the respective roles played by the Ministry of Economic Affairs, the Ministry of Finance and the ACM





The figure shows the procedures used by the government in assessing the efficiency of TenneT's investments. Two main criteria are applied: the need for the investment in question and the cost (or price). The assessments apply both to routine investments (dark blue in the figure) and to major investments (light blue).

The government has devised six different procedures for assessing TenneT's investments. Some centre on the efficiency aspects of the overall programme of investments (represented by the blue magnifying glasses in the figure), while others are concerned solely with the need (the green magnifying glass) or the cost (yellow magnifying glasses) of certain investments. The assessment procedures followed by the ACM, which focus exclusively on the cost aspect, generate the information needed by the ACM in order to set the tariffs TenneT is permitted to charge for the transmission of electricity.

### Format

Chapter 2 of this report outlines the history of TenneT, in part in the context of the policy pursued by the European Union (EU). The chapter also explains why TenneT is a wholly State-owned corporation, its role in the Dutch electricity supply market and the nature of the investments that TenneT needs to make to perform this role.

Chapter 3 is concerned with the efficiency of TenneT's *routine* investments in the high-voltage network. We explain the method used by the ACM to ensure that the revenue earned by TenneT from transmission tariffs is high enough to cover a reasonable level of expenditure, but is no higher than that. As TenneT must have an ongoing incentive to maximise its operational efficiency, it is not permitted to earn an excessive level of revenue.

In chapter 4, we discuss the efficiency of TenneT's *major* investments in the high-voltage network. With a view to the efficiency of the electricity supply, each of these major investments needs to be subjected to a critical review in order to ascertain whether it is really necessary and whether it is indeed being implemented at the lowest possible level of cost. If this is not the case, it means that the level of cost factored into the tariffs that TenneT charges its customers is too high. So how is the efficiency of major investments assessed in the Netherlands? Does the assessment procedure provide sufficient safeguards that the way in which electricity is supplied to households, businesses and non-commercial organisations is indeed efficient? These are the questions addressed in this chapter.

The key question in chapter 5 is how the Minister of Finance, acting in his capacity as TenneT's shareholder, ensures that TenneT's investments are efficient. The supervision exercised by the Minister of Finance is also important in the light of the impact of TenneT's investments on Dutch public finances.

The comprehensive efficiency review prescribed by the Electricity Act forms the subject of chapter 6. The Electricity Act stipulates that a critical, impartial assessment be made of the costs incurred by TenneT in performing both routine and major investments, as compared with their effects in terms of quality and capacity. Under the Electricity Act, the ACM is required to perform this assessment. We sought to ascertain whether the ACM does indeed do so.

The audit findings are summarised in chapter 7, which also contains a number of recommendations for the Minister of Economic Affairs, the Minister of Finance and the ACM.

The report on our audit of TenneT's investments in the Dutch high-voltage network (*TenneT's acquisition of the German high-voltage network; government supervision aimed at safeguarding the public interest*, Netherlands Court of Audit, 2015) is being published concurrently with this report. As there are a number of links between the two reports, this report contains regular references to the other report on TenneT (which concentrates on the German electricity market).

## 2 The history of TenneT

This chapter tells the story behind TenneT's incorporation in 1998 and discusses the impact on TenneT's development of EU policy on the liberalisation and integration of the European electricity market.

We also look at the expansion that TenneT has undergone in recent years. The company has gradually been given more and more new tasks (such as the distribution of government grants), taking it beyond its original remit of transmitting electricity and managing the high-voltage network. In addition, TenneT has also started to perform a range of non-statutory activities.

We also examine the investments that TenneT is required to make in the high-voltage network in order to discharge its statutory responsibility for electricity transmission. TenneT expects to need up to €5.5 billion for this purpose during the period up to the end of 2022.<sup>6</sup> The bulk of this sum will be spent on major investments that are required for expanding production capacity and 'greening' electricity production.

### 2.1 The liberalisation of the electricity supply and the foundation of TenneT

#### *Circa 1900: municipal power supply*

Like the road system in the Netherlands, the Dutch electricity network is not the result of a master plan. Rather, it came into being and grew in a gradual process. In the beginning, i.e. around the turn of the previous century, the local authorities were the only parties involved in the supply of electricity. Twenty years later, there were some 550 electricity companies in the Netherlands, all of which were owned by either municipal or provincial councils.

#### *Foundation of the SEP*

In 1949, the biggest electricity companies merged to form a company called SEP ('Combined Electricity Producers'). The SEP's object was to foster cooperation among regional electricity companies and to build a national transmission network, i.e. electricity 'highways' and 'trunk roads'. For many decades, the SEP played an important coordinating role in the government's energy policy.

#### *Change of policy: liberalisation and market forces*

The 1980s brought a change in government policy on the regulation of the country's electricity supply, with the government embracing a philosophy of liberalisation and commercialisation. The idea was that market forces would encourage competition and boost efficiency, leading to lower electricity bills for consumers. Moreover, it was assumed that competition would spur producers and suppliers to improve their services and would lead to a measure of choice for customers. In other words, customers would be free to choose the nearest, cheapest or cleanest supplier, or the supplier offering the highest standard of service. The governments of the day believed in the principle of public services being supplied by the private sector where possible and by the public sector where necessary.

<sup>6</sup> This audit report is based on TenneT's investment plan for the Netherlands for the years 2013-2022 (published on 23 November 2012).

*EU: free access to electricity network for all players*

The electricity market was also affected in the 1980s by the open-market philosophy espoused by the EU. The thinking at the EU was that competition would work in practice only if all electricity producers and consumers had free access to the electricity networks transmitting and distributing the power they were selling and buying, as the case may be. Given the impossibility of having a number of networks operating alongside each other from which producers and consumers could choose, it was crucial for all parties to enjoy free access to the electricity networks.

It was this philosophy that underlay the EU's adoption of a policy aimed at creating a single market for electricity (among other things). The assumption was that an open market would be good for competition and hence for consumers, and would also offer better opportunities for coping with fluctuations in the supply of and demand for electricity.

*Concentration of previously fragmented transmission and distribution*

The first step in the liberalisation process involved reducing the fragmentation of the electricity market and ending the monopolies. With this in mind, the government initially decided to concentrate the production and nationwide transmission of electricity (through the electricity highways) in a single organisation. When this proved unworkable, the government decided that a more practicable option would be to make four companies responsible for production and transmission. The combination of these four companies was known as the SEP, and the combined body was also given a more important role in the regulation of the electricity supply. The changes were laid down in the 1989 Electricity Act.

The government was also keen to concentrate the distribution of electricity, i.e. the transmission of electricity through provincial and local 'roads' right up to the doorsteps of households, businesses and non-commercial organisations. This was enshrined in the Energy Distribution Act of 1996.

*Production separated from transmission*

The EU policy was adopted in 1996 in the form of a formal Internal Market in Electricity Directive, which was later amended, first in 2003 and again in 2009.<sup>7</sup> One of the elements of the 1996 Directive was the separation of electricity transmission from other aspects of electricity supply, i.e. production, delivery and trade. EU member states were able to choose between having their national transmission network managed by a separate organisation and a purely administrative form of separation in which network operator's autonomy was guaranteed. A large number of member states, including the Netherlands, opted for the former alternative. The Netherlands also decided to ensure that the national network operator remained fully publicly owned, i.e. by making it a wholly State-owned corporation.<sup>8</sup> The vast majority of the other EU member states also decided that their network operators should be either fully or largely publicly owned.

*Incorporation of TenneT*

The 1996 EU Directive was transposed into Dutch law in the form of the 1998 Electricity Act, which provided for an organisational separation between electricity production and the transmission network. A new organisation, called TenneT

<sup>7</sup> Directives 96/92/EC, 2003/54/EC and 2009/72/EC respectively.

<sup>8</sup> Germany, on the other hand, opted for an administrative separation, with a privately-owned network operator.

Transmission System Operator B.V., or TenneT TSO B.V. for short, was made responsible for the transmission network. TenneT was given a statutory responsibility for transmitting electricity through the high-voltage network.

*TenneT to remain wholly State-owned*

The liberalisation of the electricity supply market meant that a decision needed to be taken on the ownership of the market players.<sup>9</sup> The government's initial plan for the transmission network was to make the State a temporary majority shareholder in TenneT. The thinking was that the new structure – including a new regulator – was still in the process of development and needed time to mature, after which would be a good time for selling off the shares. However, a majority in the House of Representatives felt that the electricity supply formed such a vital public interest that TenneT should remain wholly State-owned in perpetuity. The House was afraid that otherwise other parties with strategic interests in the trade in or production of electricity would buy up shares in TenneT.

For this reason, it was decided in the end that TenneT should be a State-owned corporation. In order to guarantee independent access to the transmission network, TenneT became a wholly State-owned corporation in 2001. This decision was enshrined in the Electricity Production Sector Transition Act, which was enacted as an amendment to the 1998 Electricity Act. TenneT's articles of association were amended to take account of its status.

The Minister of Finance has managed the shares on the State's behalf since then, and in 2003 a clause was added to the Electricity Act allotting the Minister a permanent role in this respect.<sup>10</sup> The House of Representatives wanted this to be formally regulated by law, in order to give TenneT an opportunity to develop its business 'as a transmission company and network operator operating in the public interest' (House of Representatives, 2002).<sup>11</sup>

Despite the 2003 decision, the government nonetheless suggested part-privatising TenneT a few years later. Although the government said it was preparing a proper plan for submission to the House of Representatives, the Minister of Finance wrote to the House in October 2013 stating that the government had decided to drop the plan, due to the combined factors of a natural monopoly and the importance of the transmission network to the Dutch economy. For these two reasons, the government wanted to use its status as TenneT's owner to remain closely involved in the company's strategic plans (Ministry of Finance, 2013a; 2014).

9 During the debate on the Energy Distribution Act, the House of Representatives asked the government to include a clause in the act stating that the distribution networks represented a public interest. The Electricity Act was subsequently amended to include a ban on privatisation. A number of regional network operators made formal objections to this ban, leading to legal proceedings at the European Court of Justice. The debate on this issue has yet to be settled.

10 Article 93a was inserted when the 1998 Electricity Act was amended 'in order to enhance the environmental quality of electricity production' (Bulletin of Acts and Decrees 2003, 235).

11 "The House of Representatives (...), taking into consideration that there would appear to be confusion about the policy on the ownership of TenneT, the national high-voltage network operator; taking into consideration that TenneT must be allowed to develop its business as a transmission company and network operator operating in the public interest; expresses the view that TenneT must remain wholly State-owned (...)" (House of Representatives, 2002a).



### *Separation of distribution from production and supply*

The government held extensive talks with the House of Representatives, not just about the separation and ownership of the transmission network, but also about the separation and ownership of the distribution networks, i.e. the regional electricity networks. The Dutch government again decided to implement the relevant European law by making separate companies responsible for the distribution of electricity. This meant that the current regional electricity suppliers needed to be demerged. The resultant operation, involving both a legal demerger and an organisational separation, led to Liander and Enexis being hived off from Nuon and Essent respectively as regional network operators. The government decided that, like TenneT as the national network operator, these two regional network operators should also remain publicly owned. It was also decided that it should be possible to sell off the companies responsible for production and supply (such as Nuon and Essent) after the demerger. The separation of the distribution networks was laid down in the 2006 Independent Grid Management Act, also known as the 'Separation Act'. The latter Act also stipulated that, as from 2008, TenneT would assume responsibility for the 'main roads', i.e. all the 110 kV power lines.

### *EU regulations on transmission tariffs*

In order to prevent the monopolies held by the network operators from enabling them to earn an excessive level of profit, the EU decided that the regulatory authorities in the EU member states would set the tariffs charged for the transmission of electricity (or, as the case may be, decide how these tariffs should be set). There were three requirements: the tariffs should not be discriminatory, they should form an accurate reflection of the costs, and they should be transparent.<sup>12</sup> Furthermore, the network operators were to be regulated by national regulators,<sup>13</sup> given that they held 'virtually perfect monopolies' (European Commission, 1999).

The Netherlands implemented these EU regulations in 1998 by setting up an Office of Energy Regulation operating under the aegis of the Netherlands Competition Authority. This became part of the ACM on 1 April 2013. One of the ACM's responsibilities is to set the tariffs that TenneT is allowed to charge its customers and on which its revenue is based. In other words, the ACM safeguards the interests of TenneT's customers, who do not have any other choice in terms of energy transmitters.<sup>14</sup>

*Division of responsibilities among Minister of Finance, Minister of Economic Affairs and the ACM*  
Operating alongside the Minister of Finance as TenneT's shareholder and the ACM as the industry regulator, the Minister of Economic Affairs is required to ensure that TenneT serves the public interest of guaranteeing a reliable, affordable and sustainable power supply in the Netherlands. The government believes that a system that accords responsibilities to both the Minister of Finance and the Minister of Economic Affairs as well as the ACM is needed to safeguard the public interest as described above. This is not because TenneT would be inclined to ignore the public interest, but simply because, as a business, it is concerned primarily with its own interests. Continuity and profit are the key aspects here, implying that the company's interests may not always

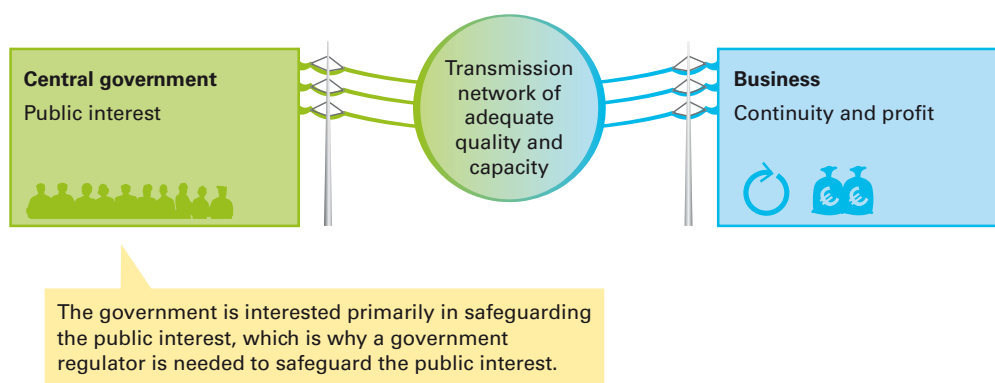
<sup>12</sup> Regulation (EC) No. 714/2009, repealing Regulation (EC) No. 1228/2003.

<sup>13</sup> Directive 2003/54/EC.

<sup>14</sup> Freedom of choice in terms of electricity suppliers was given first to bulk consumers in 1998, then to 'green power' consumers in 2001, with large businesses and non-commercial organisations following in 2002, and private consumers finally in 2004.

be consistent with the public interest, thus possibly posing certain risks to the electricity supply (see Figure 3).<sup>15</sup>

Figure 5 **Government and business motivators**



Joris Fisseler Infographics

## 2.2 Growth of TenneT

TenneT has two interconnected statutory responsibilities in relation to the electricity supply: it is responsible for transmission services (under section 16 (1) of the Electricity Act) and it is also responsible for the system as a whole (under section 16 (2) of the same Act). Its responsibility for transmission means that TenneT transmits the electricity and to this end maintains a network of adequate quality and capacity. Its responsibility for the system as a whole means that TenneT is required to balance electricity supply with demand.

Although Parliament has given TenneT a great deal of freedom to decide for itself how to discharge its statutory responsibilities, it is obliged to connect to the high-voltage network any operator that requests it to do so. It is also obliged to guarantee the transmission of electricity, even in the event of disruptions in the supply. This latter requirement still applies even when maintenance work is being performed on the network. Finally, TenneT is also required to satisfy a number of statutory obligations in relation to its financial management: it must keep a careful record of its assets, for example, and must comply with certain requirements relating to its creditworthiness as a business.

TenneT has gradually expanded its original remit to encompass other responsibilities, such as the distribution of grants under the government's Environmental Quality of Electricity Production Scheme. TenneT has also started to perform various non-statutory activities, such as setting up an exchange, at the request of the Dutch government, on which electricity is traded by players from the Netherlands, Belgium and the United Kingdom. This is known as the APX exchange.

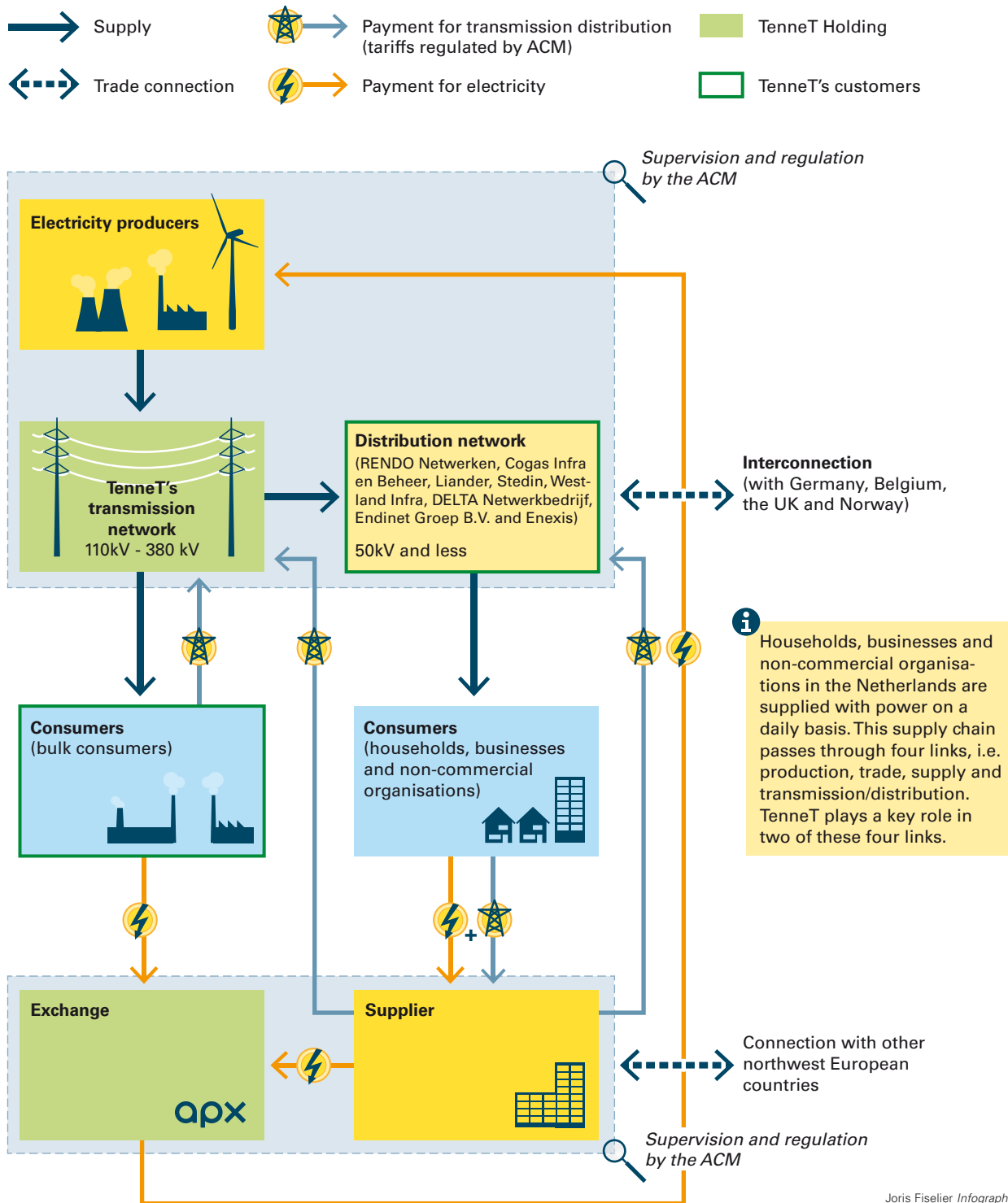
In order to ensure that TenneT's statutory activities are not adversely affected by its non-statutory activities, the law was amended in 2004 to enable TenneT to adopt a group structure. TenneT adjusted its articles of association in 2005: TenneT TSO B.V. became a subsidiary operating under TenneT's holding company, which was made

<sup>15</sup> Although, in his capacity as a shareholder, the Minister of Finance is also concerned with TenneT's interests as a business, this concern springs from a desire to safeguard the public interest.

responsible for its statutory management activities. This had the effect of protecting grid management from the business risks associated with the company's other activities, which were now performed by other group companies.

Figure 6 is a diagrammatic representation of the role currently performed by TenneT in the electricity supply market.

Figure 6 Role played by TenneT in the Dutch electricity supply market

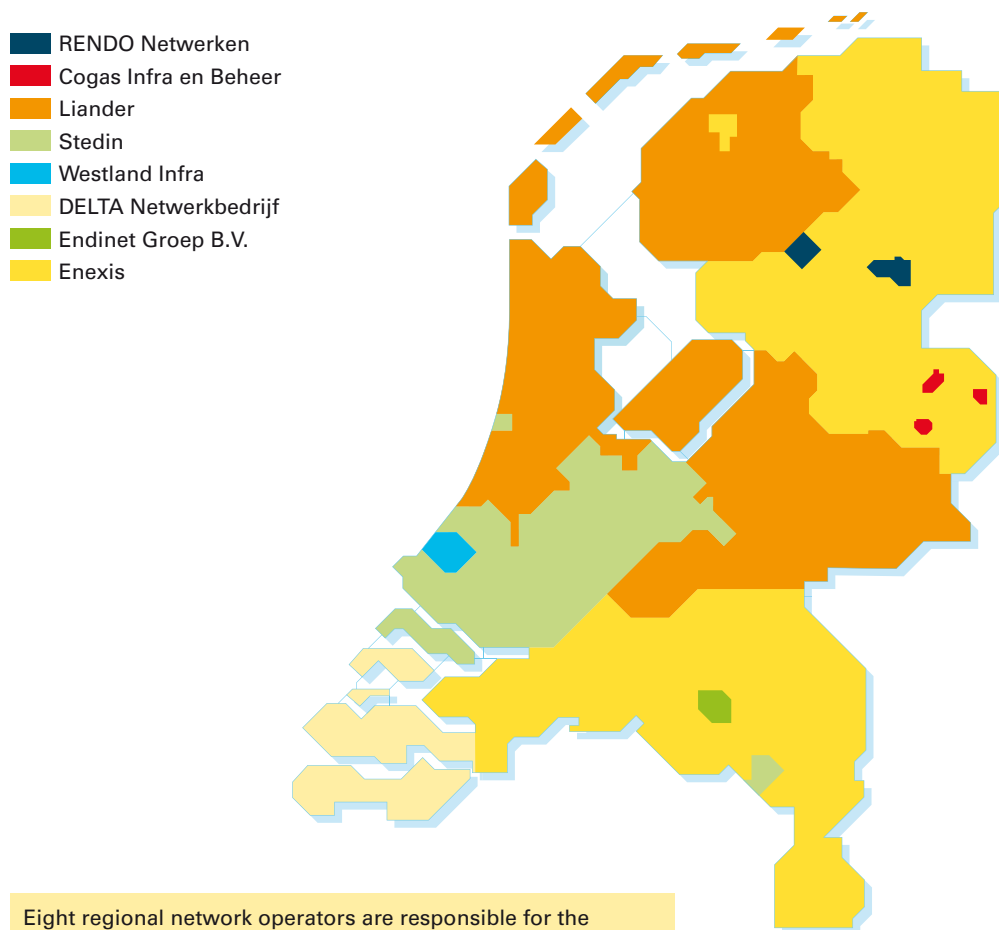


TenneT claims that the transmission network is virtually 100% reliable. The Ministry of Economic Affairs has described TenneT's transmission network as being the most reliable in Europe.

The most recent major change in TenneT's structure took place when TenneT bought Transpower,<sup>16</sup> a German electricity network, from E.ON in 2010 (see Appendix 1 for a description of TenneT's organisational structure).<sup>17</sup>

The takeover of Transpower was the last in a series of takeovers by TenneT, which was initially interested mainly in domestic networks. Its first plan for acquiring a domestic network was laid in 2002.<sup>18</sup> The first actual acquisition took place in 2003, when TenneT bought the 150kV network in the province of Zuid-Holland from its former owner and operator, Transportnet Zuid-Holland. Purchases of transmission networks belonging to Enexis (previously known as Essent), Delta and Liander followed in 2009. TenneT had already been made legally responsible for operating all 110 kV+ power lines back in 2008.<sup>19</sup> The eight regional network operators currently operating in the Netherlands (see Figure 7) are responsible for operating the lower voltage power lines, i.e. 50 kV or less.

Figure 7 Territorial coverage of regional network operators



Eight regional network operators are responsible for the distribution of electricity in the Netherlands. Each of them has its own territory, in which it transmits power from TenneT's high-voltage network (see Figure 1) right up to the doorsteps of households, businesses and non-commercial organisations.

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<sup>16</sup> Because Transpower is a proper name, it is written in this report with an initial capital (as it is spelled in the relevant Parliamentary papers).

<sup>17</sup> This transaction is described in detail in our audit report on the acquisition of the German high-voltage network (Netherlands Court of Audit, 2015).

<sup>18</sup> TenneT dropped this plan at the request of the Minister of Finance.

<sup>19</sup> This transfer of managerial responsibility was laid down in November 2006 in the Independent Grid Management Act, also known as the 'Separation Act'. The act came into force in 2008.

However, TenneT was not interested solely in domestic acquisitions. In 2002, TenneT wrote in its business plan that it was hoping to acquire a foreign operator in the future. In 2007, it made clear in an internal memorandum that its preferred target was the owner of a neighbouring network. This wish was then fulfilled with the takeover of Transpower in 2010. Strengthening its leading position as an international TSO is now one of the two spearheads of TenneT's strategy. See in this connection our audit report on TenneT's acquisition of the German high-voltage network (Netherlands Court of Audit, 2015).

TenneT also expanded by building high-voltage connections with foreign countries, known as 'interconnectors'. TenneT has built interconnectors in all directions: through cables laid on the seabed to Norway (2008) and the UK (2011)<sup>20</sup> and through overland cables to Belgium and Germany. TenneT is currently seeking to extend these connections, one of which is the interconnector between the towns of Doetinchem in the Netherlands and Wesel in Germany, which is due to become operational in 2016.

The shareholder knew about TenneT's growth plans, as the Minister of Finance made clear in 2005: "We are aware of TenneT's intention of strengthening its position as [...] a TSO by means of a combination of takeovers and organic growth. In addition to domestic transmission and distribution networks, we understand that there is growth potential in building connections with foreign countries and in furthering trade through the formation of exchanges."<sup>21</sup>

The developments outlined above are consistent with TenneT's articles of association. When TenneT was founded in 1998, a clause was inserted in its articles of association authorising it not just to perform its statutory duties, such as managing the electricity grid and transmitting electricity, but also to 'take shareholdings in, acquire other types of interests in and manage other businesses with similar or related objects, and also to provide finance to third parties and to provide guarantees of any form or to stand surety on behalf of third parties, and to do anything that is in keeping with the above provisions of this article, has a bearing on them in the broadest sense of the word or may be conducive to them' (article 2.3 of the articles of association, 21 October 1998).

## 2.3 Investments

TenneT has to make regular investments in the high-voltage network so that it can transmit electricity in sufficient quantities without encountering any disruptions in the supply. Investments may be required, for example, to replace obsolescent substations or to increase cable capacity. However, the largest investments are needed in order to expand production capacity so as to meet the growing demand for transmission capacity, i.e. additional 'highways'. The need to 'green' the production capacity by adding more solar and wind energy is another reason for making extra investments. Major investments are subject to special appraisal procedures, the aim of which is to assess the efficiency of each individual investment.

TenneT expects to have to invest up to € 5.5 billion in the Netherlands between 2013 and 2022 (see Table 1).

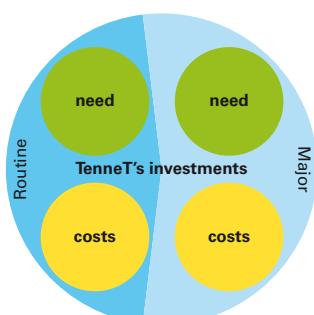
<sup>20</sup> These are known as the NorNed and BritNed cables respectively.

<sup>21</sup> Letter of 4 April 2005 from the Minister of Finance to TenneT.



Table 1 Investments planned for 2013-2022<sup>22</sup>

Type of investment	Number of projects	As %	Estimated cost (€ m)	As %
Routine investments	278	94	2,243	41
- in expansions	237	80	2,070	38
- in replacements	41	14	173	3
Major investments	19	6	3,214	59
Total	297	100	5,457	100



The bulk of TenneT's investment portfolio for 2013-2022 is made up of 'major investments', the value of which is likely to be almost one and a half times as much that of its routine investments.

The vast majority of TenneT's routine investments (which are discussed in detail in chapter 3) are 'expansion investments', i.e. investments in the expansion of the network's capacity. The distinction between the latter and replacement investments is not always easy to make: many replacements also include a simultaneous expansion in capacity, for example when an old cable is replaced by a new one with a higher capacity. Where an investment involves a combination of replacement and expansion, the ACM regards only that part of the investment that results in an increase in the length, capacity and/or functionality of the network as being an expansion investment. TenneT is required to provide evidence of the need for expansion and to explain how the investment in question breaks down, in terms of replacement and expansion costs. In other words, the ACM's role is to safeguard the interests of consumers, as the ultimate funders of the investment through the electricity charges for which they are invoiced.

All TenneT's major investments (discussed in detail in chapter 4) are expansion investments, all of them involving the construction of new 380 kV power lines, i.e. electricity 'highways' with a maximum voltage of 380 kV. These projects are coordinated by the government (see section 4.1).

Other investments by TenneT in the national transmission network are special for political reasons or are both technically unusual and relatively large in scale. These investments (also discussed in chapter 4) are referred to as 'special expansion investments' (see section 4.2). To a certain extent, other procedures are used to assess the efficiency of this latter category of investments as compared with TenneT's government-coordinated investments.

TenneT's investments involve a certain level of cost, which TenneT can then recoup in the form of electricity tariffs. The costs are made up of two components: firstly, payments to consultant engineers, building contractors and suppliers, i.e. depreciation charges, and secondly, the cost of funding, i.e. the cost of prefinancing the investments. The funding is needed as TenneT needs to pay consultant engineers and other firms involved in the project before it has been completed and cannot recoup the cost until after the project is up and running. This is the normal procedure with corporate investments, as is the funding of an investment partly with loans and partly with equity capital.

<sup>22</sup> The figures do not include the cost of building connections between the Dutch mainland and offshore wind farms.

TenneT can recoup the cost of its investments (including the funding costs) through the transmission tariffs it charges its customers only if the ACM classifies the costs in question as being 'efficient'. This means that it takes TenneT a number of years to recoup its expenditure on its investments.<sup>23</sup> The length of the pay-back period depends on the economic life of the assets involved, as determined by the ACM.

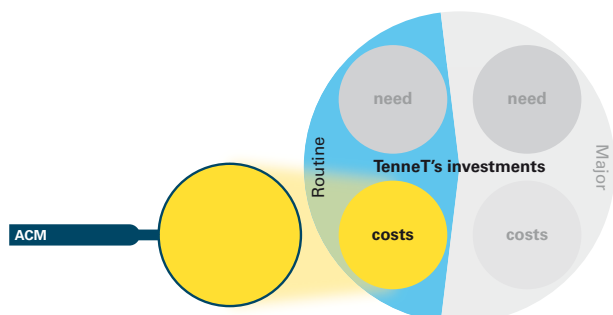
#### Pay-back period for an electricity substation

The ACM has fixed the economic life of an electricity substation at 35 years, which means that the expenditure incurred by TenneT on a substation is attributed to a period of 35 years. In other words, the substation is depreciated over a 35-year period, leading to certain depreciation charges. TenneT has 35 years in which to recoup the expenses it has incurred on the substation.

TenneT uses the revenue it receives for paying the funding costs (i.e. in the form of tariffs) to pay the annual interest charges. It uses the revenue it receives for paying the depreciation charges to repay the loans it has raised.

<sup>23</sup> The terms 'expenditure' and 'costs' are both used in relation to investments in this audit report. Payments made by TenneT for the purpose of building an asset are regarded as constituting expenditure. 'Costs' are expenses attributed to a specific period and arise only once the asset (such as a power line or substation) is actually operational.

### 3 The efficiency of TenneT's routine investments



The ACM carries retrospective reviews of the efficiency of all TenneT's routine investments in the high-voltage network.<sup>24</sup> The ACM uses the findings to decide what proportion of the investment costs may be factored into TenneT's transmission charges. The ACM does not assess each individual investment; rather, it performs overarching reviews of a whole series of investments, once every three to five years.

The ACM's efficiency reviews take account not just of the depreciation charges, but also of the operating and funding costs, i.e. interest charges and the return on equity. On condition that the investment in question is classified as 'efficient', TenneT is also entitled to factor the latter costs into its tariffs.

The aim of the ACM's tariff regulation is to ensure that the revenue earned by TenneT is just enough to cover a reasonable level of cost, including efficiency incentives. Under EU regulations on access to national electricity networks, the transmission tariffs must be transparent, must form an accurate reflection of the actual level of cost, and must take account of the security of supply that the network is required to offer.<sup>25</sup>

This chapter examines the methods used by the ACM to set the transmission tariffs charged by TenneT. We will show that the method the ACM is planning to use in order to set the tariffs for 2014-2016 is complex and open to criticism and debate, both within and beyond the ranks of government. The objective of the current method is to ensure that the tariffs are based as closely as possible on the actual level of cost.

#### 3.1 The methods used by the ACM for assessing efficiency and setting tariffs

The method of tariff calculation forms a key element in the ACM's system of tariff regulation. The ACM reviews the method it uses to calculate tariffs once every three to five years. For the purpose of this audit, we examined the method of calculation for the current regulation period, i.e. 2014-2016.<sup>26</sup> It is a complex calculation performed in a series of stages (see Appendix 2).

<sup>24</sup> The ACM has devised two separate procedures for assessing major expansion investments; see chapter 4.

<sup>25</sup> Article 14 of Regulation (EC) No. 714/2009.

<sup>26</sup> As we already conducted an in-depth audit of tariff regulation in 2009 (Netherlands Court of Audit, 2009), we only examined the broad thrust of the calculation method on this occasion.

The most recent costs actually incurred by TenneT immediately before the new regulation period form the point of departure for calculating the tariffs.<sup>27</sup> The ACM has gradually refined the calculation method as this is applied to the actual costs. The aim of the method is to ensure that TenneT's routine investments in the high-voltage networks are efficient, which in this case means that they should not be unnecessarily expensive.

The next important stage in the calculation process is benchmarking. This involves looking at the level of cost incurred by foreign network operators in making investments on a scale similar to TenneT's. The benchmark gives the ACM an idea of how much money TenneT could have saved by being just as efficient as other network operators.<sup>28</sup>

The method of calculation incorporates various adjustment mechanisms to take account of changing circumstances. For example, the ACM may wish to set the tariffs so that customers benefit from an additional efficiency improvement that TenneT has achieved, for example by making use of economies of scale in purchasing materials.

Until recently, no special arrangement had been made for routine *expansion* investments. In 2014, however, the ACM adopted a procedure for these investments as part of the method of tariff calculation for 2014-2016. Under this procedure, TenneT is entitled to factor its costs into the tariffs immediately after the completion of the project in question.

One cannot assess the efficiency of an investment without also taking account of the *need* for the investment in question. This is not something that is done as part of the system of tariff regulation. This is because all investments, including replacement and 'routine' expansion investments, are included in a document produced by TenneT that is known as a Quality and Capacity Document (QCD; see box). As we shall see in chapter 6, the idea is that the QCD should contain an assessment of the need for investments.

#### **TenneT's Quality and Capacity Document (QCD)**

The QCD is a document that TenneT is required to publish once every two years. It lists the problems and quality risks pertaining to the transmission network and describes the improvements and changes that are required.

The QCD also explains how TenneT is planning to resolve the problems and mitigate the risks identified in the document. This generally means making investments, which is why the QCD is accompanied by a list of planned investments. This list is not included in the QCD itself, however. They are set out in an investment plan with a ten-year horizon. The QCD does not contain any financial information. Although the investment plan does, it is not a publicly available appendix to the QCD.

<sup>27</sup> The ACM distinguishes between two types of cost: the cost of capital and operating costs. The cost of capital consists of (a) the depreciation of past investments and (b) a payment for the provision of capital. Capital is required because the investments need to be pre-funded but do not generate revenue until later, i.e. the years in which TenneT depreciates the investment. The payment for the provision of capital consists of the interest charged on loans and a fee for the equity supplied by TenneT itself and its shareholder, the Dutch state. The latter is paid in the form of dividend.

<sup>28</sup> We inserted this paragraph (which is also reproduced in Appendix 2) in response to comments from the two ministers involved and the ACM.

### 3.2 ACM's method of calculation open to debate

The method used by the ACM for assessing the efficiency of TenneT's routine investments (which is broadly comparable with the method used in neighbouring countries) is the subject of heated debate. We already noted in 2009 that the ACM's tariffs decisions were invariably contested (Netherlands Court of Audit, 2009) and that a firm decision often followed only after a court ruling had been sought. The ACM claims that this has resulted in a complex and opaque system of tariff regulation (Netherlands Competition Authority, 2012).

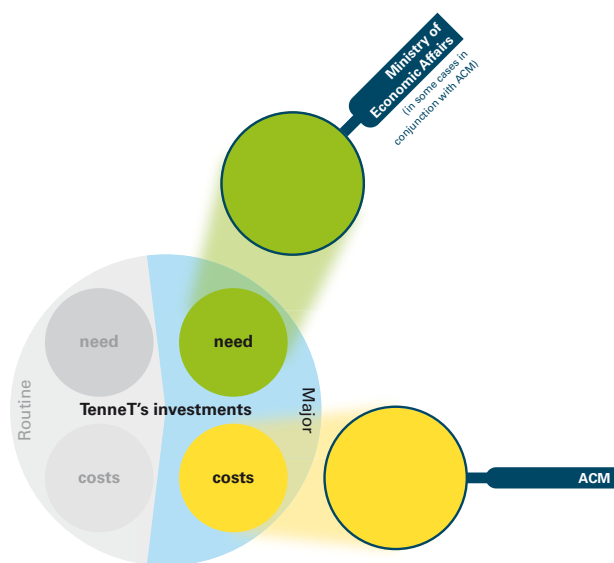
TenneT has told us that it regards the absence of financial incentives for safeguarding the quality of the electricity network as an important omission in the method of calculation used by the ACM.

The Minister of Economic Affairs also feels that the system of tariff regulation based on the current statutory regulations is geared strongly towards the containment of costs. This is underlined by the amendment made by the Minister to the Electricity Act, which states that the ACM must also take explicit account of other public interests, such as the security of supply and sustainability, and should also work on the assumption that the network operators must be able to earn a reasonable return. "These are interests that cannot always be readily expressed in monetary terms" are the words used in the explanatory memorandum that the Minister of Economic Affairs presented to the House of Representatives in the same month (Ministry of Economic Affairs, 2012).

During the debate on the amendment to the act, the Minister again stressed that the system of tariff regulation should take account of aspects such as the security of supply and sustainability: "...This is something that the ACM was already doing in practice – we are fortunate to have sensible regulators here in the Netherlands. Although the ACM already took account of certain factors that need to be considered in setting the maximum tariffs, this was not regulated by law. We believe that, if we are in the process of updating the law anyway, it would be very wise to include these aspects" (House of Representatives, 2013).



## 4 The efficiency of TenneT's major investments



Alongside the routine investments discussed in the previous chapter, TenneT also undertakes a large number of major investments involving vast sums of money. Given that TenneT's work is of great public interest, Parliament believes it is important for these investments to be subjected to a critical, independent review with the aim of determining whether they are necessary and whether they have been undertaken at the lowest possible cost. But how is this actually done in practice?

We shall demonstrate in this chapter that the procedure for reviewing TenneT's major investments remains highly flawed. The government's main source of information in assessing the need for such investments is TenneT itself. Moreover, as far as the majority of the company's major investments are concerned, no attempt is made to ascertain whether TenneT has opted for the cheapest solution. Again, the cost aspect is not taken into consideration when the House of Representatives debates the company's investment plans.

In other words, the way in which TenneT's major investments are assessed does not in practice provide a firm guarantee of the efficiency of the country's electricity supply. This means that TenneT may be paying too much for these investments – costs that it can then pass on to its customers in the form of the tariffs it charges them. This applies both to major projects coordinated by the government and to special expansion projects.

### 4.1 Assessing the efficiency of TenneT's government-coordinated projects

As Table 1 makes clear, the bulk (i.e. 59%) of the €5.5 billion that TenneT thinks it will need to invest in the Dutch high-voltage network during 2013-2022 will be spent on a number of major investments. The amount concerned is approximately €3.2 billion, which is to be spent on projects whose value is so high that they are coordinated by the government (see Figure 8).

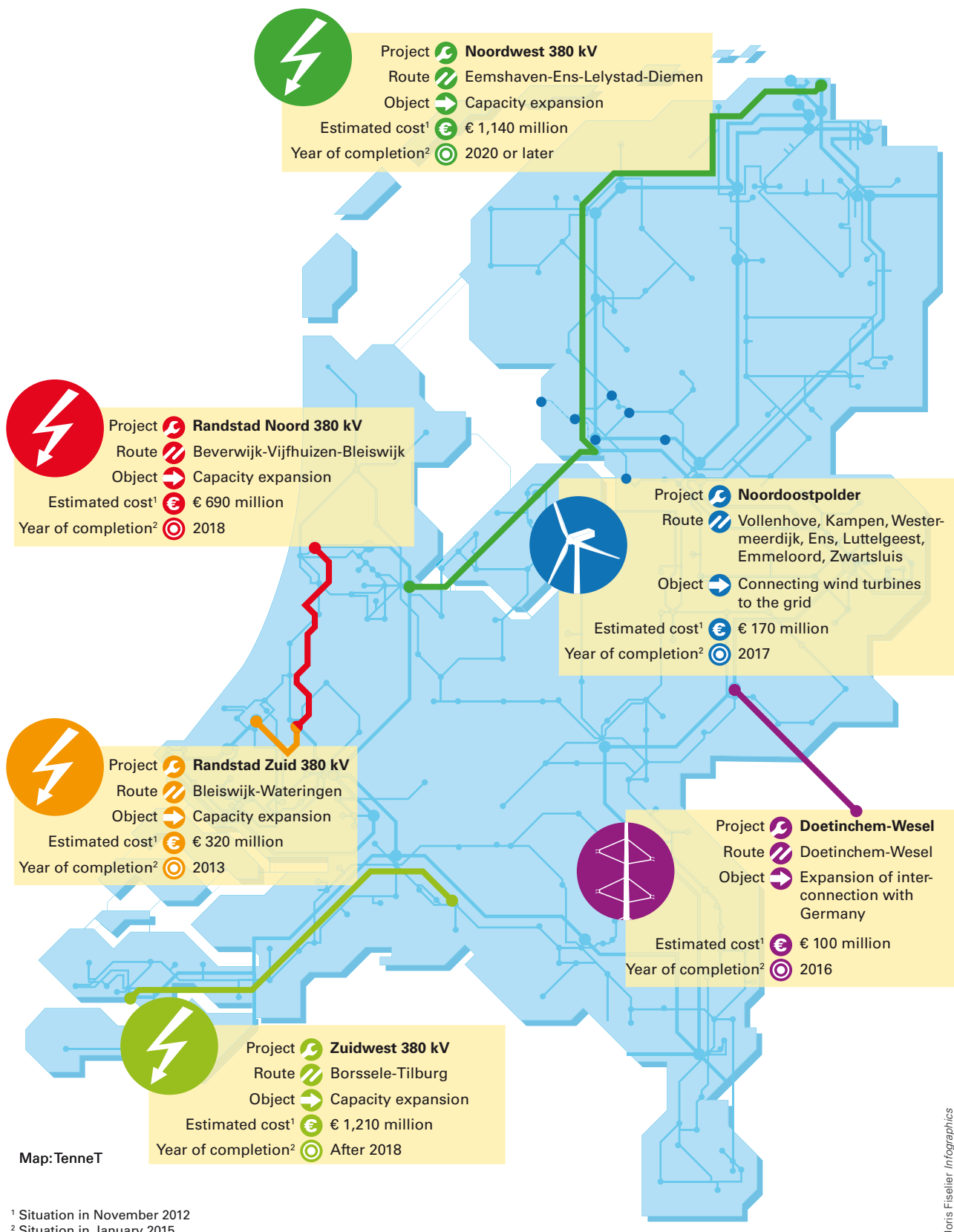
Since July 2011, two-stage efficiency reviews have been performed of TenneT's government-coordinated projects:

1. before the investment is made, the Minister of Economic Affairs assesses whether it is necessary;
2. once the investment has been completed, the ACM assesses the costs.

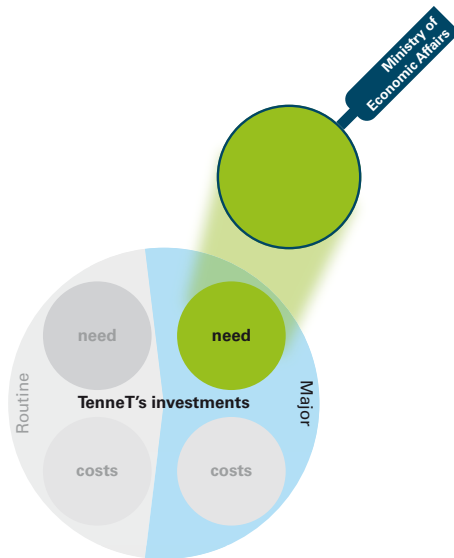
The ACM's assessment enables TenneT to factor into the tariffs those costs that the ACM classifies as being efficient and to do so immediately after the investment has been completed.

The following sections discuss how the two-stage efficiency review is actually conducted in practice and which parties are involved in it.

Figure 8 Major capital-intensive TenneT projects coordinated by the government



#### 4.1.1 Before the investment: is it necessary?



Those investments by TenneT in the national transmission network that are coordinated by the government not only represent a massive financial value, absorbing as they do a large part of the overall investment budget, they are also massive projects in physical terms. They often involve the construction of power lines passing through a number of municipalities (which means that a variety of local authorities are necessarily involved in their execution) and which are not easily compatible with the existing infrastructure of roads, railways, waterways, airports, gas pipelines, residential areas and nature conservation areas. It is for this reason that such projects are coordinated by the government. This means that the government coordinates all decisions taken by the government bodies affected by the project and that a spatial planning framework is created for the project. The idea is to ensure that the power line is allotted an appropriate route through the existing infrastructure.<sup>29</sup>

When the spatial planning aspects of high-voltage lines are assessed, the need for the investment in question is also taken into consideration. There are two alternatives here:

1. If the route of the new high-voltage line has already been fixed because previous planning decisions were based on an assumption that the capacity might have to be expanded, the government position is that central government has already taken a decision on the spatial planning aspect of the need for the project. No separate assessment is made of the need for the investment in such cases. The documents in which the route of the power line is set out contain only a brief reference to TenneT's QCD.
2. If the route of the new line has not already been fixed, the relevant decision-making procedure starts as soon as TenneT announces that an expansion is needed. TenneT is required to break down the investment into constituent parts and indicate what the operation is going to cost, what improvement it is designed to achieve, why the current situation is not satisfactory and which alternatives it has taken into consideration. Once the Minister of Economic Affairs is satisfied that TenneT has provided adequate answers to these questions, the Ministry then assumes that the need for the investment in question has been demonstrated. The Minister of Economic Affairs is no longer entitled to reject the investment plan. At this point, a decision has not yet been taken on the spatial planning aspects of the investment; this is something that is done in consultation with the House of Representatives.

In other words, while the Minister of Economic Affairs is involved in assessing the efficiency of TenneT's major investments that are subject to government coordination, the actual assessment procedure is based on information supplied by TenneT in order to corroborate the need for the investment in question. Once the need for the investment has been demonstrated, the Minister is then no longer able to reject TenneT's investment plan.

<sup>29</sup> Since 2012, the spatial planning aspects of the projects have been included in the government's long-term planning strategy for infrastructure and public space, in which the electricity supply is classified as one of 13 'national interests'. In 2012, the routes for high-voltage lines were recorded in the form of 'electricity supply structure plans'.

However, the need for routine, major investments may form a topic of debate in the House of Representatives. This is what happened, for example, in relation to one of TenneT's major investment projects, i.e. the construction of the Randstad 380 kV high-voltage line that we audited as a case study.

#### The Randstad 380 kV project

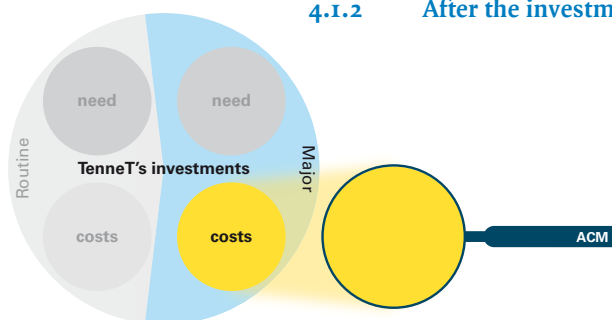
TenneT's Randstad 380 kV project involves the construction of a new high-voltage power line in the densely populated urban conurbation in the west of the Netherlands. Its object is to guarantee the electricity supply in the region. The new line consists of two rings: a southern ring between the towns of Wateringen and Bleiswijk and a northern ring between Bleiswijk and Beverwijk. A quarter of the line (around 20 km in length) will be underground. It is highly unusual for a big, high-voltage power line to be laid underground over such a long distance. The project represents a massive investment of around €1 billion.

The House of Representatives was consulted on the spatial planning aspects of the new high-voltage line in 2007-2008, at which point the House also discussed the need for the investment. The relevant parliamentary papers stated that TenneT's QCD had demonstrated the need for the investment. The QCD stated that the line was needed in order to prevent bottlenecks from arising in the transmission network and hence to guarantee the power supply in the Randstad region. For the rest, the House regarded the need for the project as a given. The fact that a decision has been taken on the need for a project does not mean that TenneT is then entitled to factor the entire cost of the project into the tariffs it charges its customers. This it is entitled to do only once the ACM has classified the cost as being efficient, which is an aspect that is not assessed until after the investment has been made (see section 4.1.2).

Because the Randstad 380 kV project was such an expensive project, TenneT wanted to be given an assurance in advance that the ACM would confirm the need for the investment. For this reason, TenneT asked the ACM (which prior to 2008 did not assess the need for government-coordinated investment projects until after the investment in question had been made and since 2008 has no longer played any formal role in the assessment of such projects) on two separate occasions, i.e. in 2002 and 2007, to assess the need for the investment in the Randstad 380 kV project at an early stage. The ACM agreed to these requests and assessed the project in both 2004 and 2008, reaching a positive conclusion on both occasions. The ACM engaged the same external consultancy on both occasions, and the consultants based their assessments on information provided by TenneT itself.

As a result of this non-standard procedure, a prior review was carried out of the investments needed for the Randstad 380 kV project. If the current standard procedure had been followed, this would not have happened and the Minister of Economic Affairs would have been the only person to review the investment. Moreover, the Minister's conclusion would not have had any added value over and above TenneT's own standpoint.

#### 4.1.2 After the investment: assessing the costs



As we have already explained, TenneT is allowed to factor the costs of government-coordinated investment projects into the transmission tariffs only if the ACM classifies these costs as 'efficient'. TenneT can ask for the cost of a project to be reviewed once the project has been completed. It can then immediately factor into its transmission charges those costs classified by the ACM as 'efficient'. The latter include both the cost of the investment itself and the operating costs.

The ACM's rule for major investments is that an investment is efficient if the aim of the investment has been achieved and if the expenditure helps to achieve the objective recorded in the construction drawing.<sup>30</sup> In other words, although the ACM assesses the cost of the investment, it does not seek to ascertain whether TenneT has opted for the cheapest solution. It only checks whether the costs are consistent with the construction drawing. The ACM is also entitled to examine the tendering procedure as part of its assessment.

The ACM does not seek to ascertain whether TenneT has opted for the cheapest solution as it regards the solution chosen for a major project as a given. This is because, due to the role played by the House of Representatives, the solution is the result of a political decision.

We investigated whether the House of Representatives, in reaching political decisions on major investment projects, does indeed seek to ascertain whether the solution chosen is the cheapest option. We took as our study object a case from our audit, viz. the Randstad 380 kV project. We found that the cost aspects were not all taken into consideration, even during this democratic decision-making process

#### Were the cost aspects taken into account when the House of Representatives debated the Randstad 380 kV project?

The massive environmental impact assessment report that was presented to the Dutch House of Representatives by the ministers involved in the Randstad 380 kV project contains only a summary table at the back of the report with cost estimates for various alternatives. This information played only a very limited role during the debate in the House, even though alternative options were in fact available. For example, although TenneT wanted to use a new type of mast, one that was more expensive, the only issue debated was the difference in cost between the construction of overhead and underground high-voltage cables. The debate on this issue culminated in a decision to engage an external consultancy to carry out an additional study. One of the findings of this study was that, if TenneT had included the cost of constructing an underground cable in its calculations right from the outset, it would probably have decided on a different route and hence would have opted for a different solution, given that the connection was now likely to prove considerably more expensive than previously estimated. It is not clear whether the House of Representatives took account of the study findings in reaching further decisions on the matter.

<sup>30</sup> ACM policy rule on the assessment of the efficient cost of exceptional investments. Government Gazette 2011, 24039.

The Minister of Economic Affairs says that it is possible only to produce a rough pre-estimate of the cost of a government-coordinated investment project. A clearer picture of the cost does not generally emerge until the project is well underway, i.e. by the time that a firm decision has been taken on the precise route. In practice, this means that major investments generally turn out to be more costly than the estimated value of the cheapest solution at the start of the project. This applies equally to the Randstad 380 kV project, the cost of which TenneT initially estimated at between €180 and €340 million (in 2004 prices), but which in the end cost more than €1 billion (in 2012 prices).

## 4.2 Assessing the efficiency of special expansion investments

Where TenneT carries out investment projects that are not government-coordinated but which still represent a high monetary value (i.e. over €20 million) or which are of special political interest or are technically unusual, the assessment procedure is slightly different from the procedure for government-coordinated investment projects described in the previous section.<sup>31</sup> Special expansion investments are also included in the QCD, where they are subject to a two-stage efficiency check (i.e. before and after). However, the ACM is formally involved in the pre-assessment of special expansion investments, the aim of which is to identify the need for the investment in question. Table 2 shows the differences between the way in which both types of major investment are assessed.

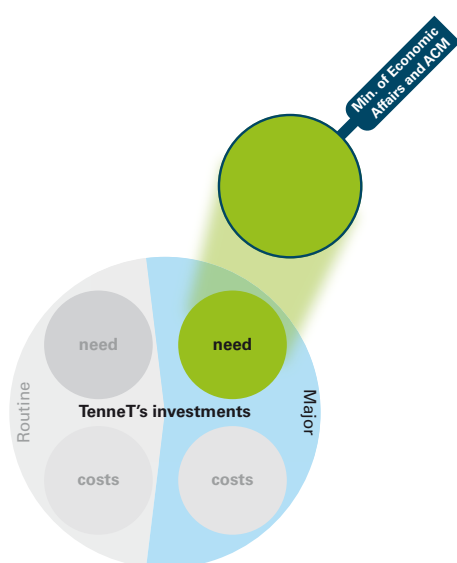
Table 2 **Comparison of methods of assessing government-coordinated investment projects and special expansion projects**

	Government-coordinated investment project	Special expansion investment
<b>Need</b>	Assessed beforehand by Ministry of Economic Affairs (situation since 2008)	Assessed beforehand by ACM and Ministry of Economic Affairs (situation since July 2011)
<b>Cost</b>	Assessed afterwards by ACM (situation since July 2011)	Assessed both beforehand and afterwards by ACM (situation since July 2011)

### 4.2.1

#### Assessing the need and chosen solution beforehand

In assessing the need for special expansion investments, the ACM examines the data provided by TenneT to ensure that full information has been provided. The aim is to find out whether TenneT has provided the necessary specifications for all the relevant parts of the project, i.e. the current situation, the desired improvement, the expected cost and possible alternatives. The ACM does not check the accuracy of the data. This was our finding when we analysed one of TenneT's special expansion investments, viz. the Marconistraat-Ommoord-Krimpen (MOK) project. This was the first special expansion investment undertaken by TenneT during the course of our audit, and indeed the only one it had undertaken to date (estimated cost: €35 million).



#### The MOK project

The division of the 150 kV network in the province of Zuid-Holland following the construction of the Randstad Zuid 380 kV ring and a major expansion in production capacity in the region meant that a connection was needed between Rotterdam Marconistraat, Ommoord and Krimpen aan de IJssel. The problem was that splitting up the network could lead to the network around Rotterdam no longer being safe in the event of a power failure or maintenance work. The MOK project is designed to eliminate this risk. The project costs €35 million.

Although the ACM had not examined the accuracy of the data supplied by TenneT about the MOK project, it nonetheless decided that the investment was needed in order to guarantee a reliable, affordable and sustainable power supply. The ACM was critical about the fact that TenneT had not, in the ACM's opinion, suggested any realistic alternative means of resolving the problems. The ACM has made clear that the presence of alternative options is a crucial part of the assessment of the efficiency of investments: if there are no alternatives, the ACM cannot effectively assess whether TenneT has chosen the cheapest solution. Although the ACM had already drawn TenneT's attention to the absence of alternatives during an informal pre-assessment, this did not prompt TenneT to take any action. For this reason, the ACM qualified its advice to the Minister of Economic Affairs, offering to examine and report on any alternatives subsequently proposed by TenneT. In the event, however, the ACM was not presented with any alternatives, nor did it have enough time to establish in any other way whether or not TenneT had chosen the cheapest solution.

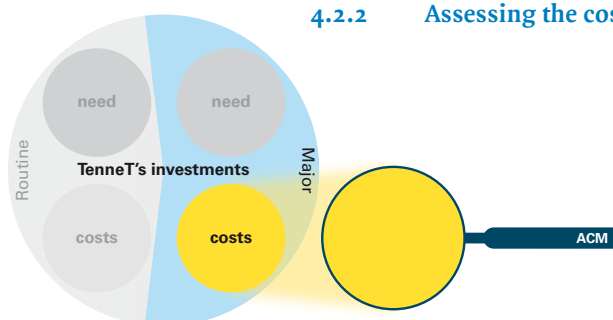
Although the Minister of Economic Affairs did not take up the ACM's offer, he did ask TenneT for further information. TenneT subsequently informed the Minister about alternative options for the MOK project. The Minister was satisfied by this, regarding the ACM's report and the supplementary information provided by TenneT as together constituting a positive recommendation. He subsequently presented the draft decree to Parliament on 27 March 2013 (Ministry of Economic Affairs, 2013).

The ACM has four weeks, starting from the date on which TenneT formally announces its intention of undertaking a special expansion investment, in which to produce an advisory report. It was clear from our interviews with ACM staff about the MOK project that the ACM regards this as an extremely short period. In assessing TenneT's investment plans, ACM staff wondered just how detailed and thorough an assessment they could perform if they had just four weeks in which to produce their report.

This is a point that recurred in the ACM's internal review after the project had been completed. The assessment needs to be thorough, the internal review claimed, because, in assessing the level of cost after the investment has been completed, the ACM can no longer change its opinion about the need for the investment.

This case study shows that, even though there is a set procedure for conducting an independent assessment of the need for special expansion investments, this procedure is not followed in practice, i.e. in the only situation that arose during the course of our audit. Due to time constraints, the ACM does assess the completeness of the information provided, but does not go into the alternatives. The Minister of Economic Affairs relies on information provided both by the ACM and by TenneT.

#### 4.2.2 Assessing the cost afterwards



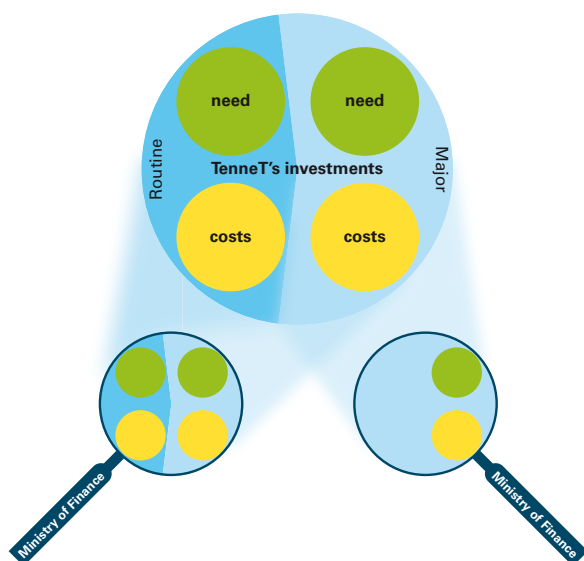
As is the case with major government-coordinated investment projects, TenneT is also entitled to ask the ACM to examine the cost of a special expansion investment after the project in question has been completed, and then factor those costs classified as 'efficient' by the ACM into its tariffs. If TenneT does not do this, the cost of the project is not assessed until the next regulation period.



We found that the way in which the ACM assesses the cost of a special expansion investment after the project has been completed is the same as the method used for assessing government-coordinated investment projects. The problem we raised in the previous section in relation to the assessment of government-coordinated investment projects, i.e. that the ACM does not seek to ascertain whether TenneT has chosen the cheapest solution, does not affect (at least not on paper) the procedure for assessing special expansion investments because the ACM is required to perform a prior assessment of the efficiency of the chosen solution.

In the case of the MOK project (which was the only special expansion investment undertaken by TenneT during the course of our audit), there were no alternatives and the ACM did not have enough time to make an issue of this. As a result, the efficiency of the chosen solution was not assessed beforehand.

## 5 The impact of TenneT's investments on public finances



We explained in the previous two chapters that the ACM and the Minister of Economic Affairs are expected to make sure that TenneT's investments in the national high-voltage network are efficient. Assuming that they do indeed do this, this is good news not just for households and business users, but also for the public coffers and hence for Dutch taxpayers. The problem is that TenneT needs to find funding for its investments, i.e. additional funding on top of the revenue it receives from electricity transmission tariffs. The customary source of finance for businesses is a combination of loan capital and (additional) equity capital.<sup>32</sup>

Because TenneT is a wholly State-owned corporation, the only party who is capable of raising additional equity on the State's behalf is the Minister of Finance in his capacity as TenneT's shareholder. This additional equity is needed to enable TenneT to borrow on the capital market at a relatively low level of cost.

The shareholder has raised equity for TenneT in two different ways in recent years: firstly, in the form of a capital injection and, secondly, by forgoing part of the dividend to which he was entitled.

In other words, TenneT has a total of four sources of finance to fund its investments in the high-voltage network: (1) capital injections by the shareholder; (2) non-payment of dividend to the shareholder; (3) money-market loans facilitated by the Minister of Finance; (4) revenue from electricity transmission tariffs. TenneT uses the first three sources of finance as a means of pre-funding its investments. The fourth source of finance it uses to recoup the cost of its investments after the event, as discussed in chapters 3 and 4.

This chapter discusses the first three sources of finance. The State has a role to play in all three of these as TenneT's shareholder. For this reason, the Minister of Finance is required to ensure that the available funds are used as efficiently as possible. But how does the Minister do this?

This chapter shows that the Minister assumes that TenneT's investments in the high-voltage network are efficient and that the Minister's prime interest lies in the way in which these investments are financed. He does not always have a clear picture of TenneT's investment programme. Moreover, he does not keep a record of his own activities as the manager of a State-owned corporation in the form of a systematic, verifiable set of archives. We will also make clear in this chapter that the State will probably find itself obliged to supply TenneT with additional capital in the coming years, over and above the €665 million it has supplied in recent years.

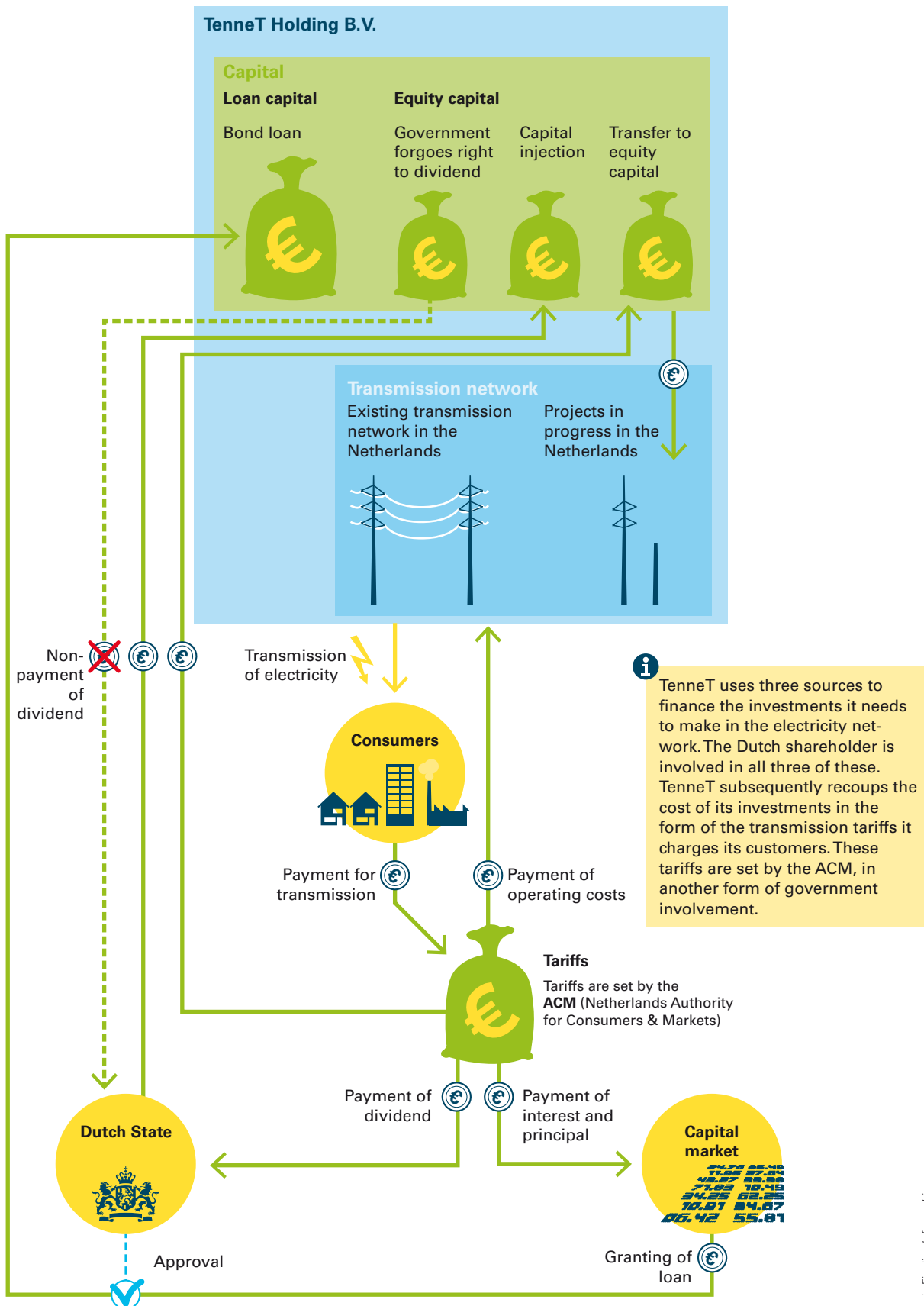
### 5.1 TenneT's sources of finance

Figure 9 shows the four sources of finance for TenneT's investments in the high-voltage network. This section discusses the three sources in which the Dutch treasury

<sup>32</sup> Business and tax considerations are also taken into account in decisions of this nature.

is directly involved, i.e. capital injections, the non-payment of dividend, and loans facilitated by the Minister of Finance.

Figure 9 Sources of finance for TenneT's investments



### 5.1.1 Capital injections

In April 2009, TenneT asked the Minister of Finance for €500 million. TenneT needed this extra capital in order to finance its investments in the Netherlands and would be able to use the €500 million to pay for part of the cost of these investments. TenneT was planning to raise a loan to pay for the remainder and to recover the relevant costs later on through the transmission tariffs. In order to be able to raise loans at a low rate of interest, TenneT needed to ensure that its credit rating remained stable. The €500 million capital injection was needed for this purpose.

The Minister of Finance asked the Minister of Economic Affairs whether TenneT's investments (for which the capital injection was required) were necessary. The latter confirmed their necessity: they were compulsory investments, as the Minister of Economic Affairs wrote to the Minister of Finance: "There is a good reason why the State is TenneT's shareholder." The Minister of Finance subsequently agreed to set the procedure in motion for assessing the company's request for a capital injection.

The Minister of Finance needed to know what the political response would be to the capital injection, given that TenneT's proposed acquisition of the German Transpower network was also a topical issue.<sup>33</sup> The Minister decided first to complete the formalities surrounding the purchase of Transpower and to recommence the procedure for requesting a capital injection once the takeover had been finalised. This meant waiting until March 2011. The Minister asked an external agency, an international firm of consultants, to assess whether a capital injection was indeed necessary in order to maintain TenneT's credit rating. The consultants were also asked to estimate the amount of revenue that the new investments would generate.

The agency concluded that, without a capital injection, TenneT's credit rating would decline, thus jeopardising its operating surplus as borrowing would become more expensive. At the same time, the agency projected increasing revenues from the capital injection as from the year 2014.<sup>34</sup>

The study findings persuaded the Minister of Finance that TenneT needed a capital injection. In the meantime, however, the proposed size of the injection had risen from €500 to €600 million, which the Ministry of Finance claimed was the result of a new, less favourable, regulation decision taken by the ACM (for 2011-2013). The amount in question was transferred to TenneT Holding's bank account in two instalments, viz. €300 million in 2011 and €300 million in 2012. TenneT subsequently transferred the two payments to the Dutch TSO (transmission system operator).

### 5.1.2 Non-payment of dividend

As TenneT's sole shareholder, the State is entitled to the payment of dividend in return for the capital it provides. The State initially supplied TenneT with €100 million worth of capital, but this figure subsequently rose to €700 million in 2011-2012 in the wake of the above capital injection. In theory, TenneT is supposed to pay dividend to its shareholder, the value of which depends on the amount of profit earned by the entire group and is hence the result of a combination of factors.

<sup>33</sup> See our report on TenneT's acquisition of the German high-voltage network (Netherlands Court of Audit, 2015).

<sup>34</sup> The researchers wrote in their report that their findings were based on information provided by TenneT, and that they had not verified the accuracy of this information.

As the shareholder on the State's behalf, the Minister of Finance has, during the period since 2008, regularly consented to the payment of a lower dividend than the 50% of profit agreed in principle in 2005 (see table). The advantage for the Minister of Finance of forgoing the payment of a full dividend was that TenneT did not need as many capital injections.

Table 3 **Dividend distributed by TenneT (in millions of euros)**

Year	Net profit <sup>35</sup>	Transferred to TenneT's reserves	Dividend paid to third parties	Dividend paid to Minister of Finance	Difference compared with 2005 agreement	Difference compared with 2013 agreement
2005	96.4	50.4	-	46	-2.2	-2.2
2006	46.7	21.7	-	25	+1.7	+1.7
2007	53.1	26.1	-	27	+0.5	+0.5
2008	50.7	40.7	-	10	-15.4	-15.4
2009	72.1	61.1	-	11	-25.1	-25.1
2010	76.2	12.5	43.6	20	-18.1	+3.7
2011	198.4	105.4	33	60	-39.2	-22.7
2012	177	71	47	59	-29.5	-6.0
<b>Total</b>	<b>770.6</b>	<b>388.9</b>	<b>123.6</b>	<b>258</b>	<b>-127.3</b>	<b>-65.5</b>

The shareholder decided to forgo over €125 million worth of dividend during the period between 2005 and 2012. This, at any rate, is the amount to which the shareholder was formally entitled under the agreement reached in 2005. In 2013, TenneT made a new agreement with the Minister about dividend payments. This was necessary as TenneT's investments in Germany meant that it now had new suppliers of capital and hence new dividend claimants. Under the new agreement, the 50% dividend is based on the amount remaining after the other suppliers of capital have first been paid.<sup>36</sup> Based on this new agreement, the Minister of Finance, in his capacity as the shareholder on the State's behalf, renounced his right to around €65 million worth of dividend during the period from 2005 to 2012.

Unlike the €600 million worth of capital injections discussed above (and which the Minister of Finance asked an external firm of consultants to assess), the size of the dividend each year is the outcome of negotiations between TenneT and the shareholder. These are initiated by TenneT's presentation of a proposal. It is not clear whether TenneT's proposal is designed to comply with the profitability requirements that the shareholder expects TenneT to meet and which are refined each time the shareholder gives its approval to TenneT's project and finance plans. For example, in 2008 the shareholder gave TenneT the go-ahead for an investment in a sub-project that formed part of the larger Randstad 380 kV project, on condition that the investment would not adversely affect TenneT's profitability.

<sup>35</sup> The net profit shown in the table is lower than the amounts quoted by the Minister of Finance in the annual reports on state shareholdings. This is because, in calculating the value of the dividend, we took account of the contribution to the company's profit made by subsidiaries that are not wholly-owned by the Dutch state.

<sup>36</sup> TenneT's acquisition of the German Transpower high-voltage network in 2010 brought with it a number of new suppliers of capital. See our audit report on TenneT's purchase of the German high-voltage network (Netherlands Court of Audit, 2015).

The Minister states, in his annual reports on the management of the state shareholdings, what percentage of profit has been distributed in the form of dividend. It would be advisable to state in this connection the nature of the agreement reached in principle with TenneT on the size of the dividend.

### 5.1.3 Loans facilitated by the shareholder

As we have explained, the financial resources that the State provides to TenneT are also intended to serve a secondary aim, i.e. they must ensure that TenneT remains creditworthy. This is necessary in order for TenneT to be able to raise low-interest loans on the capital market. For this reason, maintaining the creditworthiness of the entities in question is one of the objectives of the Minister of Finance's policy on state shareholdings. A company's creditworthiness is expressed in the form of a rating. The Minister expects non-financial organisations such as TenneT to be awarded an A rating, which means that the organisation in question is classified as 'creditworthy' or 'investment-worthy'.

Credit ratings are issued by rating agencies, which undertake a single comprehensive review covering various aspects of an organisation's operations, after which they perform regular interim reviews. TenneT holds two comparable ratings in the category stipulated by the Minister, viz. A- en A3.<sup>37</sup> These ratings were issued by two respected international credit rating agencies, i.e. Standard & Poor's and Moody's respectively. The ratings provide clarity to the international investors from whom TenneT borrows money, often in the form of bond loans, and are for this reason of vital importance for TenneT. The outstanding value of the long-term loans raised by the group was approximately €3.5 billion as at the end of 2012, compared with €2.8 billion worth of equity capital<sup>38</sup> and €3.1 billion worth of short-term debt. As the shareholder of TenneT's holding company, the Minister of Finance gives its prior approval to the loans raised by TenneT on the capital market.

Thanks to its status as a State-owned corporation, TenneT is able to borrow more cheaply than it would were it to be privately owned. This is because the fact that the State is its shareholder guarantees its ability to acquire additional capital from the State should this be needed. As a result, TenneT's credit rating is higher than it would be if it were not State-owned. This is an advantage from a business viewpoint. At the same time, the fact that TenneT is State-owned has the drawback that any losses incurred by TenneT may have a direct impact on public finances, and hence may directly affect taxpayers.

## 5.2 Does the Minister of Finance have a clear picture of TenneT's investment plans?

Because TenneT's investments in the national high-voltage network may affect Dutch public finances, the Minister of Finance needs to have a clear picture of TenneT's major investment programme and also of whether or not the State will be required to make additional injections of capital.

<sup>37</sup> Despite their different appearances, these two credit ratings have more or less the same meaning.

<sup>38</sup> In addition to capital injections from the government and profit transferred to the reserves, the equity capital consists largely of capital supplied by investors for the acquisition of Transpower and the company's investments in Germany.

However, TenneT's need for equity capital to finance its investments in the Netherlands is liable to change. For example, TenneT asked for a capital injection of €500 million halfway through 2009. By 2011, however, it was clear that the amount required was actually €600 million. TenneT reckoned at the time that it would need a further €200 million in 2014, but it later proved that this had been an overly cautious estimate. In March 2013, the Minister told the Dutch House of Representatives that TenneT needed between €500 million and €1 billion in additional equity (Ministry of Finance, 2013b). In September of the same year, an internal Ministry of Finance memorandum suggested that the capital requirement now stood at between €1.7 and €1.9 billion.<sup>39</sup>

Both TenneT and the Ministry of Finance claim that one of the reasons for TenneT's changing need for capital is the succession of regulation methods employed by the ACM, which may produce fluctuations in the company's capital requirements.<sup>40</sup> Another reason is the lack of stability in TenneT's investment plans, which prevents the shareholder from obtaining a clear picture of them.

The situation is further complicated by the fact that the Minister of Finance is not always informed about major changes in good time, whether by TenneT or by the Minister of Economic Affairs. These changes may lead to figures linked to TenneT's investment plans having to be raised by millions of euros at a time. The Minister of Economic Affairs and the Minister of Finance reached an agreement at the end of 2012 to keep each other better informed about the state of TenneT's investments.

There are various reasons for the instability of TenneT's investment plans. The first of these lies in the effect of extraneous factors, such as licensing procedures or the nature of certain wishes expressed by the House of Representatives.

**Part of the explanation: many government requirements do not emerge until well into the process**

While projects are still in progress, TenneT is regularly confronted with changes resulting from licensing procedures or wishes expressed by the House of Representatives. Major investment projects in particular, such as the Randstad 380 kV project, involve many different government bodies who impose their own specific requirements as part of licensing procedures. In many cases, these do not crystallise until well into the course of the process, and this can have a huge financial impact on a project in progress. In order to better manage the complex situations resulting from such procedures, major TenneT projects are now coordinated by the government. Despite this, TenneT still finds it difficult to produce accurate projections of its future investments.

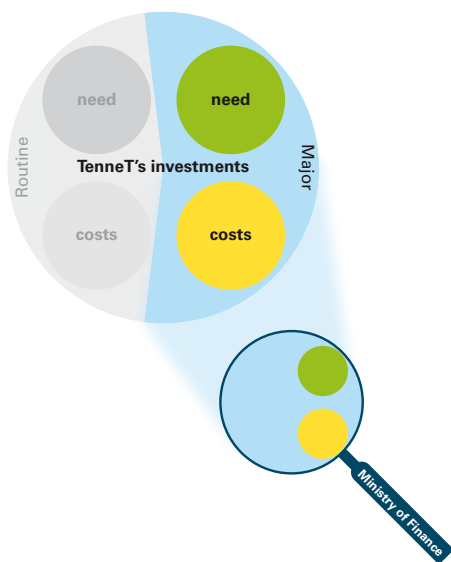
A second reason is that TenneT itself does not always have a clear picture of the necessary investments, as is borne out by the ACM's supervisory activities. Critical databases are not always complete and up to date. Similarly, calculations, assessments and other procedures that are required in order to ascertain the requisite level of investment and, with it, the level of cost, are not entirely satisfactory. Not only the ACM, but also TenneT claim there is room for improvement in the latter's operational management (TenneT, 2012). TenneT has identified discrepancies in a number of areas

<sup>39</sup> Ministry of Finance (2013). *Tweede concernrapportage. Stand 09/2013*. ('Second group report. Situation as at September 2013').

<sup>40</sup> Our audit of the gas hub showed that changes in methods of regulation are capable of having a massive impact (Netherlands Court of Audit, 2012a and 2012b).



between its aims and what it is capable of achieving in practice. It also admits that it does not do enough to anticipate future problems and that it needs to improve its records. For example, TenneT says it is now doing its best to produce better evidence of the long-term cost of replacement programmes. TenneT also says that it has done a great deal to improve the way in which it records its assets, which it needs in order to perform its primary process. TenneT expects to have collected the majority of the data on its own assets by 2016.



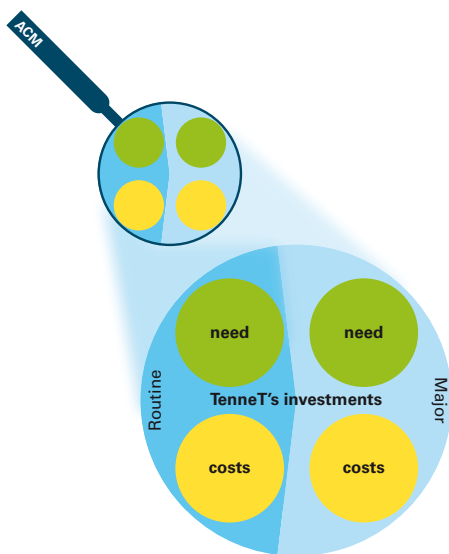
Because TenneT's investments affect government finances, each of the company's investments beyond a threshold of €100 million requires the prior approval of the Ministry of Finance. As long as the investment falls within the scope of TenneT's statutory activities in the Netherlands, the Minister of Finance assumes that the Minister of Economic Affairs has assessed the need for the project in question. The Minister of Finance claims to carry out no more than a formal screening, partly because he does not possess the necessary technical expertise and partly because, as the company's shareholder, he does not wish to place himself in the shoes of its management: "If the management of the State-owned corporation is able to show that the project in question falls under the corporation's statutory duties, we fully accept this as a given." Where the project is a government-coordinated investment project, there is simply no question of the Ministry of Finance withholding its consent, given that the House of Representatives is involved in the decision-making process.<sup>41</sup>

We were not able to ascertain with any degree of certainty the precise nature of the role played by the Minister of Finance in his capacity as the shareholder on the State's behalf. The Ministry does not have a set of archives allowing it to keep track of past developments in relation to each of the State-owned corporations. Our analysis is based on an incomplete set of documents that we were presented by the Ministry. Due to the absence of a systematic, verifiable set of records, we were unable to ascertain whether any documents were missing from those given to us for our inspection. What did become clear was that the Treasury has paid TenneT a sum of €665 million in the past few years, and that TenneT may need further injections of capital in the coming years. As a further complicating factor, TenneT will need additional capital not just for the electricity grid in the Netherlands, but also for investing in the German electricity grid, which it has owned since 2010. There is a genuine risk that the Dutch state will be obliged to provide capital to fund investments in the German network.<sup>42</sup>

<sup>41</sup> The acquisition of Transpower was not one of TenneT's statutory duties. Our audit of TenneT's purchase of the German high-voltage network (Netherlands Court of Audit, 2015) found that the Minister of Finance had indeed conducted a thorough review of the investment.

<sup>42</sup> See our audit report on TenneT's purchase of the German high-voltage network (Netherlands Court of Audit, 2015).

## 6 Overall opinion on the efficiency of investments



The preceding chapters looked at whether the government ensures that TenneT's investments are efficient. The Electricity Act describes another form of supervision, which applies to TenneT's entire investment portfolio as set out in its Quality and Capacity Document (QCD), which we discussed in section 3.1. This requires the ACM to assess whether the activities that TenneT is proposing to undertake, as these are described in the QCD, are sufficient: to ensure that TenneT's transmission services meet the standards of quality set by TenneT itself, and do so in an efficient manner; and to meet the overall demand for transmission capacity, again in an efficient manner.<sup>43</sup>

The decision to either approve or reject the QCD requires the ACM to perform a comprehensive assessment that involves comparing the quality and capacity of the electricity network with its cost. But does the ACM perform such an assessment? This is the key question in this chapter.

Our finding is that, in practice, the ACM does not issue an overall opinion. The ACM does not investigate whether the investments are necessary.

Although the ACM's supervisory activities do result in the formulation of opinions on individual aspects of TenneT's QCD, they do not culminate in an overall opinion. The Minister of Economic Affairs has not taken any action to ensure that this opinion is forthcoming. This chapter explains the importance of an overall opinion and describes the risks resulting from its absence.

### 6.1 Assessment of Quality and Capacity Document (QCD)

#### 6.1.1 Government quality and capacity requirements

It is up to TenneT to set certain targets in terms of the quality of the high-voltage network. It is also up to TenneT to decide what investments are required in order to discharge its statutory responsibility to connect all households, businesses and non-commercial organisations in the Netherlands to the transmission network. This ties in with the philosophy embraced by the Minister of Economic Affairs, i.e. that network operators should be given as much latitude as possible to decide for themselves how they should perform their duties, subject to the preconditions outlined in section 2.2. Against this background, the government has laid down various procedural requirements, which have been enshrined in a ministerial order.<sup>44</sup> This order states, for example, that TenneT is obliged to keep a record of its quality targets. TenneT is required to define the standard of quality it seeks to achieve in terms of the annual duration and frequency of power failures. The order also contains definitions of the above terms, lays down certain requirements that TenneT's quality assurance system has to meet, and compels TenneT to keep a register of its assets and to explain how it keeps the register up to date. The order also requires TenneT to report every two years on all these issues and on the investments it is planning to undertake. As we have already explained, this information is provided in the QCD. The QCD is intended to show that the network operator has adopted an effective system of quality control and

<sup>43</sup> Section 21 (8) of the Electricity Act.

<sup>44</sup> Ministerial order on the quality aspects of the management of the electricity and gas networks (20 December 2004).

has taken the right steps to guarantee sufficient transmission capacity. This means that the important items TenneT is required to include in the QCD include capacity needs, capacity problems, risks to the quality of transmission and potential means of mitigating these risks. The latter aspect forms the basis for a maintenance and investment plan, which is part of the QCD. The investment plan has a ten-year horizon.

#### 6.1.2 The ACM's opinion on the QCD

In analysing the QCD, the ACM seeks to ascertain whether TenneT has designed the operating processes described in the ministerial order (see above) such that it can produce accurate capacity estimates, perform accurate risk analyses and undertake effective risk management. The ACM checks all items listed in the ministerial order and sets out its findings in a report that it first presents to TenneT for comment. It then draws its conclusions and informs TenneT in writing accordingly. The ACM also specifies any problems it has encountered.

When the ACM wrote to TenneT in October 2011 to comment on the QCD for 2009, it reported certain shortcomings in the way in which assets were registered, quality was controlled and network capacity was calculated. The ACM also pointed out that TenneT had wrongly failed to report the findings of certain quality assessments. The ACM made the same comment in October 2013, this time following its analysis of the QCD for 2011. It also reported at the same time that it was not clear how TenneT performed the mandatory reviews it was required to perform under the terms of the ministerial order, nor how TenneT took its investment decisions.

We found that, although the ACM systematically compares the QCD with the requirements in the ministerial order, it does not issue the opinion it is legally required to issue. The fact is that the Electricity Act requires the ACM to approve the QCD, including the investment plan, unless it is clear that TenneT “is or will be unable to ensure, to a sufficient degree and in an efficient manner, that its transmission services meet the standards of quality it has set, or is or will be unable to meet the overall demand for capacity for the transmission of electricity through the networks operated by it” (article 22 (1) of the ministerial order).

In other words, the decision to approve (or reject, as the case may be) the QCD requires the ACM to formulate an opinion on the relationship between the quality and capacity of the network on the one hand and the cost of operating it on the other. This is indeed the intention of the law, as is borne out by the fact that it contains a clause stipulating that, if the ACM takes the view that the network's quality or capacity is not up to standard, it must notify the Minister of Economic Affairs accordingly. The Minister is then entitled to order TenneT to invest in the network (see article 22 (1 and 2)).

The ACM regards the analysis of the QCD as being one of its supervisory activities under the Electricity Act. Although the ACM refers to these activities as a form of ‘comprehensive supervision’, it does not issue a comprehensive or overall opinion. Its various activities culminate in the formulation of a series of opinions, for example on certain aspects of the QCD or on TenneT's revenue and solvency.

## 6.2 The importance of expressing an overall opinion

### 6.2.1 The ACM's view of its own role

We asked the ACM to explain why its analysis of the QCD does not result in the formulation of an opinion in which the quality and capacity of the high-voltage network are compared with the level of cost incurred by TenneT.

The ACM claimed that it did not have the resources to enable it to issue an opinion of this nature on the QCD. The ACM sees its primary roles as those of market supervision and tariff regulation and says that it is not an inspectorate that is capable of issuing (and indeed required to issue) opinions based on strict standards. The ACM also claimed that it was not Parliament's intention to subject the QCD to a comprehensive review, as was borne out by the fact that the requirements in the Electricity Act were 'open standards', i.e. not strict rules to which TenneT was required to adhere, and that the Act does not define what exactly is meant by an 'adequate risk analysis' or an 'adequate investment plan', or how the ACM should assess the various component parts of the network. The ACM takes the view that Parliament deliberately decided not to include any procedure in the Act for enforcing the standards set out in it. The ACM feels, moreover, that the quality and capacity of the network are the responsibility of the network operator itself.

#### 'Open standards'

The standards in the law are no more than general requirements that do not go into any level of detail. This is the result of a deliberate decision by Parliament to vest maximum responsibility in the industry itself. In other words, electricity producers, network operators and consumers are expected, where necessary and by a process of mutual consultation, to flesh out the standards in detail. This applies, for example, to the definition of terms such as 'reliable', 'efficient', 'environmentally healthy', 'network safety', 'quality', 'capacity' and 'need'. There is considerable confusion as to what exactly these terms mean, and how they interrelate with each other. The ACM regards the standards as inadequate, describing them as 'open standards' (Netherlands Competition Authority, 2012).

The fact that TenneT (in accordance with the Minister of Economic Affairs' philosophy) is required to set its own targets, does not relieve the ACM from the duty of ensuring that TenneT actually meets these targets in practice. The ACM is entitled to ask TenneT to supply all such data and information as it needs for its work, and is entitled to decide for itself which legal instruments to deploy for this purpose and when to use them. The House of Representatives has already made clear that a 'robust enforcement plan' has a vital role to play in guaranteeing the effective operation of the liberalised electricity market (House of Representatives, 2002b).

The fact that, as we have already said, the Minister has been given statutory powers to order TenneT to take action if the latter does not do enough to guarantee the quality or capacity of the network shows that the ACM is indeed expected to issue an overall opinion on its supervisory activities.

### 6.2.2 Why is it important to express an overall opinion?

We believe that the expression of an opinion is a crucial aspect of the supervisory process (Netherlands Court of Audit, 2008). This section explains why the formulation of an overall opinion is so important.

*Independent assessment*

One of the reasons why the ACM needs to express an overall opinion is because TenneT (whether or not in consultation with other network operators and electricity producers) sets many of its own targets itself and also decides for itself what investments to undertake. The QCD, including the accompanying investment plan, forms a key part of TenneT's plans for the high-voltage network. In practice, the document is one of the cornerstones underpinning decisions on major investments. Where routine investments are concerned, it is the sole source of information validating the need for TenneT's investments. If the ACM does not assess the QCD, no other party will examine the arguments underlying TenneT's investment plans.

*Reaching a judgement on the overall package of investments*

Those opinions that are expressed relate only to individual aspects of the network. No judgement is formed on the overall package of investments as a whole. The history of the MOK project (see section 4.2) clearly illustrates the need for performing a comprehensive assessment of the investments as a whole. The project was needed because of the construction of the Randstad 380 kV network, which TenneT had previously overlooked. It was for this reason that the ACM expressed doubts, in assessing the MOK project, as to whether such projects could be assessed in isolation, as had happened in this case.

*A critical examination of the overall costs and benefits*

A comprehensive also needs to be made in order to explain why the Dutch transmission network is relatively trouble-free compared with those in other countries. Is it because the quality of the network is so good, or because it is underused? Are households and business users paying for the right investments? Is it reasonable to expect the shareholder to make additional injections of capital?

TenneT is legally obliged to connect any party who wishes to be connected to the electricity grid. A large number of energy producers have been given 380 kV connections to the grid in recent years, requiring massive investments. A number of these producers have ceased operations in the meantime because it is cheaper to obtain electricity generated abroad. However, consumers are still being charged for the cost of constructing the additional capacity. How do these costs compare with the benefits? If the ACM were required to express an overall opinion, this would be a good opportunity for undertaking a critical examination of these types of factors.

*House of Representatives kept fully informed by the Minister*

The ACM's overall opinion on the electricity network also has a bearing on the Minister of Economic Affairs' responsibility vis-à-vis the Dutch House of Representatives.

The fact that the ACM, in the current set-up, does not express an overall opinion means that neither the Minister of Economic Affairs nor the Minister of Finance is fully informed. The Minister of Economic Affairs has not taken any action to date to compel the ACM to undertake a comprehensive assessment. The relationship with the ACM as the supervisory authority is not regulated in detail in the form of a 'supervisory arrangement'. No agreements have been made with the ACM on the nature of the information that is to be supplied to the Minister, thus enabling the Minister to ascertain whether TenneT is acting in compliance with the Electricity Act. The Ministry says that the Act itself already contains adequate arrangements. Unfortunately, this has not enabled the Minister to reach a well-founded, overall judgement as to whether

TenneT's investments have helped to raise the quality and capacity of the network in an efficient way, and whether efficient guarantees have been given for the quality and capacity of the network.

None of the three public authorities concerned undertakes an overall comparison of the costs incurred by TenneT in undertaking its investments with the quality and capacity of the network. In other words, none of them examines the need for TenneT's investments. This is not in keeping with the spirit of the law.

## 7 Conclusions and recommendations

### Main conclusion

The supervision of TenneT as exercised by the Minister of Economic Affairs and the Netherlands Authority for Consumers & Markets (ACM) does not provide an adequate basis for ensuring that its investments in the Dutch high-voltage network are efficient. This means that there is no way of knowing whether the tariffs charged by TenneT are too high or too low. In other words, it is not clear whether households, businesses and non-commercial organisations are paying the right price for the transmission of electricity.

In assessing TenneT's plans for major investments, the *Minister of Economic Affairs*' sole source of information is a Quality and Capacity Document (QCD) drawn up by TenneT itself. This document, which lists all TenneT's investment plans, describes the improvements and changes that TenneT believes need to be made in the electricity network. Although the ACM is supposed to undertake a comprehensive review of the QCD once every two years, it does not do this. To date, the Minister of Economic Affairs has not taken any action to ensure that this review is indeed undertaken.

In assessing TenneT's routine investments, the ACM follows a complex procedure based on the actual costs. The ACM does not examine the need for such investments. As far as TenneT's major investments are concerned, the ACM does not assess whether TenneT has selected the cheapest option. This means that the ACM's supervision does not provide an adequate basis for guaranteeing the efficiency of the investments.

In his capacity as TenneT's shareholder, the *Minister of Finance* is required to approve all investment plans costing over €100 million. In assessing such plans, the Minister is interested mainly in the way in which they are funded. His opinion on the efficiency of such investments is based on the judgements of the Minister of Economic Affairs and/or TenneT itself. The Minister of Finance does not record his activities as the manager of a State-owned corporation in a systematic, verifiable set of archives.

All in all, the three government bodies involved do not sufficiently ensure that the investments undertaken by TenneT as a monopolist are efficient. In practice, the mandatory assessments add hardly any value to the claims made by TenneT itself, even though it is precisely Parliament's intention that the government bodies should act as a counterweight to the monopolist operator, and in doing so protect the interests of consumers.

### Notes on the main conclusion

#### *Assessing the efficiency of routine investments*

The method used by the ACM to set the tariffs for 2014-2016 is complex and open to criticism and debate, both within and beyond the ranks of government. The method takes the actual costs as the basis for the calculation of the tariffs. Although it is essential for efficiency reasons to ascertain whether the investments are necessary, this is not done in practice. Although the investments form part of the QCD, the ACM's



analysis of the QCD does not culminate in the expression of an opinion on the need for the investments.

#### *Assessing the efficiency of major investments*

The procedure for reviewing TenneT's major investments (i.e. investments that Parliament regards as being necessary) is still highly flawed. The government's main source of information in assessing the need for such investments is TenneT itself. Moreover, as far as the majority of the company's major investments are concerned, the Minister of Economic Affairs does not make any attempt to ascertain whether TenneT has opted for the cheapest solution. The same applies to the ACM. The cost aspect is not given proper consideration when the House of Representatives debates TenneT's investment plans. In practice, the way in which the Minister of Economic Affairs and the ACM assess the investments does not provide an adequate basis for deciding whether TenneT's investments in the high-voltage network are efficient.

#### *The impact of TenneT's investments on public finances*

The Minister of Finance assumes that the investments undertaken by TenneT in discharging its statutory duties are both necessary and efficient; his prime interest lies in the way in which they are financed. Despite this, he does not have a clear picture of TenneT's investment plans, nor does he keep a clear record of his own activities as the manager of a State-owned corporation in the form of a systematic, verifiable set of archives. The State will probably find itself obliged to supply TenneT with additional capital in the coming years, over and above the €665 million it has provided in recent years.

#### *The reliability of TenneT's investments: quality and capacity*

In practice, the ACM does not issue an overall opinion on whether the investments help to enhance the quality and capacity of the high-voltage network in an efficient manner. The ACM does not investigate whether TenneT's investments are necessary. Although the ACM's supervisory activities do culminate in the expression of opinions on individual aspects of TenneT's QCD, they do not result in an overall opinion. The Minister of Economic Affairs has not taken any action to ensure that this opinion is forthcoming.

### **Recommendations**

In analysing the QCD, the ACM should express an opinion on the extent to which TenneT's investments help to ensure, in an efficient manner, that the capacity of the electricity transmission network is sufficient quality. The expression of such an opinion is required in order to comply with the terms of the Electricity Act. The shareholder has to be able to rely on the Authority's opinion.

We urge the Minister of Economic Affairs to ensure that the ACM expresses this opinion. The Minister should draw up a supervision plan to this end. By doing so, the Minister will also make clear to the House of Representatives how he is planning to discharge his responsibility for electricity transmission services.

We also recommend that the Minister of Economic Affairs consult with the ACM on how best to assess the efficiency of TenneT's investments, in such a way that it also becomes clear whether TenneT has opted for the cheapest solution. The Minister should then ensure that such an assessment is indeed performed.

We urge the Minister of Finance, when preparing the annual reports on the management of State shareholdings, not only to state the dividend as a percentage of the profit, but also to explain what agreement in principle has been made with TenneT regarding the payment of dividend.

Finally, we recommend that the Minister of Finance set up a systematic, verifiable system of records to ensure that the State shareholdings are properly managed and that Parliament is kept adequately informed about them.

## 8 Official responses and Court of Audit afterword

The Minister of Economic Affairs responded to our report on 23 January 2015, also on behalf of the Minister of Finance. The ACM also responded to our audit report, on 22 January 2015. An abridged version of their responses follows below. The full (Dutch) text of their response is available on our website ([www.rekenkamer.nl](http://www.rekenkamer.nl)). This chapter concludes with our own afterword.

### 8.1 Official responses

#### 8.1.1 Responses of the Minister of Finance and the Minister of Economic Affairs

Although the two ministers endorsed our recommendation to improve the way in which the government bodies concerned assess TenneT's investment plans, they did not agree with all aspects of our underlying analysis.

The two ministers wrote that they had already noted that the division of responsibility for assessing the need for TenneT's investments was not clearly defined. They said that the legislative agenda for the national power supply, about which they had informed the House of Representatives on 18 June 2014, should help to improve this situation. The bill provides for a new system of formulating and assessing plans for investing in the expansion of the grid. The ministers expect to submit the bill to the House of Representatives in the spring of 2015.

The ministers outlined the main thrust of the bill in their letter. As far as assessing the need for investments is concerned, the bill was in line with our recommendations. As regards assessing the efficiency of investments, such changes were not necessary. Incidentally, the two ministers pointed out that efficiency is not simply a question of finding the 'cheapest solution'. Factors such as spatial planning and public support should also be taken into consideration, they felt.

The ministers said that they did not consider it necessary at this juncture to devise a supervisory strategy specifically for the energy market, as we had recommended. They felt that the strategy for market supervision served this purpose quite adequately. At the same time, the Minister of Economic Affairs was planning to devote a special section of his annual report on the ACM to the ACM's supervision of the energy market.

The ministers did not share our conclusion that the assessments of TenneT's investment plans by the relevant government bodies added hardly any value to the information provided by TenneT itself. The ministers claimed that they performed a serious, critical review of TenneT's investment plans, but definitely had no intention of putting themselves in the network operator's shoes. TenneT was responsible for the management, maintenance and expansion of the high-voltage network and proposed whatever investments it felt were necessary. The ministers and the ACM assessed these proposals, from their own individual perspectives.

The ministers wrote that, alongside the assessment of TenneT's investment plans, the ACM's role in setting the tariffs that TenneT is allowed to charge its customers was another key aspect of the regulatory framework. This regulatory system contained a number of powerful efficiency incentives for TenneT. The system as a whole was one of the factors that explained why the Dutch high-voltage network was the most reliable network in Europe, with among the lowest transmission tariffs.

In their response to the report, the two ministers also discussed the role played by the Minister of Finance in relation to investments made by State shareholdings such as TenneT. In assessing these investments, the Minister followed the guidelines in the government's policy document on State-owned corporations published in October 2013. The assessment guidelines were not restricted to examining the way in which the investment in question was financed, but also extended to other aspects. At the same time, in assessing whether TenneT's investments served the public interest, the Minister of Finance relied predominantly on the findings of analyses performed by the Minister of Economic Affairs and the Minister of Infrastructure and the Environment.

The ministers also stressed that the decision on the size of the dividend that TenneT was required to pay the State was indeed taken by the Minister of Finance alone.

Finally, the Minister of Finance said that he did not agree with the picture we painted of the records kept by the Ministry of Finance. The Minister was nonetheless receptive to our suggestions for improvements.

#### 8.1.2 The ACM's response

The ACM wrote in its own response that our conclusions and recommendations were capable of making a valuable contribution to its supervisory activities. The ACM acknowledged the need for keeping a close eye on the efficiency of TenneT's investments in quality and capacity. The ACM felt, however, that our report did not form an adequate basis for our conclusions and recommendations. Moreover, implementing our recommendations would make supervision more expensive without necessarily making it more effective. The ACM said that the current system was based on maximising the effectiveness of output controls, in the knowledge that resources were limited and that there was a problem of information asymmetry. The ACM felt that a system based on output controls and high trust (a principle we had failed to acknowledge) was logical in a climate of spending cuts and in the light of the political trend towards small government. A more direct form of interference in TenneT's operational management would not be consistent with this approach.

The ACM explained that its supervision of TenneT was efficient and in compliance with statutory requirements. It said that our conclusion, viz. that the ACM should conduct a comprehensive review of the QCD every two years, went beyond its own interpretation of its statutory responsibility. In addition, the ACM felt that we did not take sufficient account of the cyclical nature of the assessments.

The same applied to the assessment of major investments, the ACM claimed, where it also acted in accordance with the relevant statutory regulations. The fact was that the ACM was not required by law to assess in advance whether TenneT had chosen the cheapest option. The rule on special expansion investments was that TenneT had to notify the Minister of Economic Affairs that it was planning to undertake such an

investment, upon which the Minister then assessed the need for the investment in question.

The ACM shared our conclusion that it did not assess the need for TenneT's routine investments. However, it added that this form of assessment was not very relevant given that most of TenneT's routine investments were replacement investments. The ACM claimed that we had gone too far in concluding that the supervision of routine investments was inadequate simply because no assessment was made of their necessity. Our report did not paint a full picture of the situation as regards supervision, the ACM said. For example, we did not make any international comparison of TenneT's costs, nor did we make any concrete suggestions for improving the way in which tariffs were regulated. This was despite the fact that simplifying electricity transmission tariffs was one of the objects of the legislative agenda for the national power supply.

Finally, like the Minister of Economic Affairs and the Minister of Finance, the ACM also referred in more detail to the legislative agenda for the national power supply, pointing *inter alia* to the requirement in the agenda for network operators to compile an investment plan. The ACM said that it would examine whether the investment plans compiled by the network operators were reasonable. In comparison with the current method of assessment, the emphasis in the future would be placed more on assessing in advance whether TenneT had done enough to find an efficient solution.

## 8.2 Court afterword

Although the Minister of Economic Affairs, the Minister of Finance and the ACM do not agree with every single point in our analysis, their responses make clear that they believe that the way in which TenneT's investments are supervised is in need of improvement. Indeed, they have drawn up a legislative agenda to this end. We hope that Parliament will make use of our report in this connection.

The fact is that our auditors identified certain shortcomings in the government's supervision of the efficiency of TenneT's investments. This applies particularly to the company's major investments. No opinion is expressed on the need for these investments, nor is any attempt made to ascertain whether TenneT has chosen the cheapest option, subject to the relevant planning and environmental prerequisites. TenneT holds a monopoly and consumers have an interest in ensuring that it does not charge an unnecessarily high price for its services.

TenneT's investment plan (which is part of the QCD) plays a vital role in the assessment of TenneT's investments. The ACM does not express an opinion on this plan, despite being required to do so. In its response, the ACM writes that it is the task of the Minister of Economic Affairs to assess TenneT's major investments. However, the Minister's sole source of information is TenneT's own investment plan. He does not check whether the ACM has also assessed the plan, as the law requires.

It is clear from the responses of the ACM and the two ministers that the ACM will continue to assess TenneT's investment plan once every two years, but that its assessment will henceforth be different in nature. Under the current legal requirements, the ACM's is obliged to form an opinion on the quality, capacity and

efficiency of the transmission network for the maintenance of which TenneT is responsible and in which TenneT is required to invest. This situation will change if the ministers have their way: the ACM will in future be obliged only to assess the way in which the investment plan was compiled.

We would like to stress that, apart from having to perform certain specific tasks such as assessing the investment plan, the ACM also has a general duty to enforce the Electricity Act. The latter states that TenneT is responsible for ensuring that the high-voltage network meets a sufficient standard of quality and capacity at the lowest possible cost. The plan containing the requisite investments in order to bring this about falls under the ACM's general supervisory remit. If we understand the ministers and the ACM correctly, this situation will not change in the future.

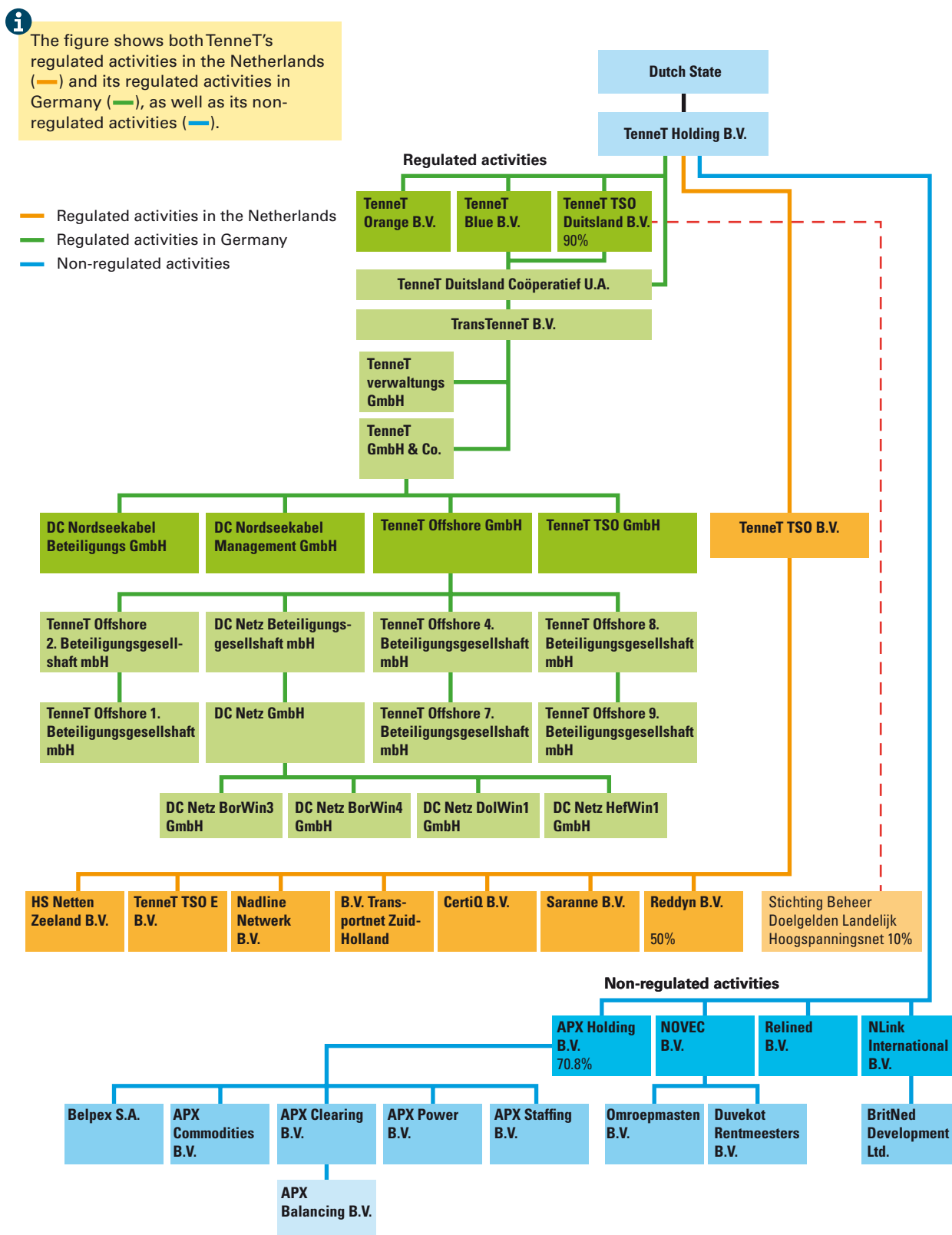
The Minister of Economic Affairs is planning to make certain improvements by enacting new laws on the national power supply. We wish to emphasise that the primary cause of the problems we have identified in the supervision of TenneT's investments is not inadequate legislation. Rather, we believe that the main need is to tackle practical problems in the enforcement of the law.

In other words, we are not asking for the supervisory structure to be strengthened or intensified. Rather, our plea is for action. Make sure that statutory procedures are properly followed in practice. Take steps to ensure that opinions that are supposed to be expressed, are indeed expressed. Precisely in the light of the forthcoming changes in the law, a comprehensive review of TenneT's investments needs to be performed by an independent party, i.e. the ACM. In arriving at a judgment, the ACM should review all of TenneT's investments in conjunction with each other, and critically compare their effects with the total costs, in the framework of the long-term requirements that the high-voltage network has to meet. A comprehensive review is also needed in the light of the responsibilities of the Minister of Economic Affairs and the Minister of Finance in their separate roles vis-à-vis the House of Representatives. Finally, it is also important for electricity consumers, who pay the price at the end of the day.

## Appendix 1 TenneT's organisational structure

Figure 10 shows TenneT's organisational structure on 31 December 2012. The figure includes both TenneT's regulated activities in the Netherlands (1) and its regulated activities in Germany (2), as well as its non-regulated activities (3).

Figure 10 TeneT's organisational structure on 31 December 2012





### 1. Regulated activities in the Netherlands

As the holder of the beneficial title in the high-voltage network, TenneT TSO B.V. performs the regulated activities in the Netherlands. TenneT TSO B.V. has a number of subsidiaries:

- Saranne B.V. holds the legal title to almost the entire 380 kV and 220 kV networks.
- CertiQ B.V. issues sustainable energy certificates. These are intended in part to promote sustainable methods of power generation and in part as a means of obtaining grants from SenterNovem.
- TSO Auction B.V. auctions off interconnector capacity between Belgium and Germany.<sup>45</sup>
- Reddyn is a joint venture between TenneT TSO B.V. and Liander NV; it is responsible for maintaining and replacing Liander's former 110/150 kV and 50 kV networks.
- All the other subsidiaries are the legal owners of the networks bought by TenneT from third parties during the period since 2003.

Although *Stichting Beheer Doelgelde Landelijk Hoogspanningsnet* (a not-for-profit foundation) is formally separate from TenneT Holding B.V., its figures are included in TenneT's consolidated financial statements. The chairman of the foundation's executive committee is also the CEO of both TenneT Holding B.V. and TenneT TSO B.V. The foundation earns revenue from the auctions of interconnections with foreign markets. Under EU regulations, the proceeds of these auctions must be used for building interconnection capacity. If no suitable opportunities are available, the network operator is allowed to use the money to reduce electricity tariffs. The foundation owns 10% of the shares in TenneT TSO Duitsland B.V.

### 2. Regulated activities in Germany

TenneT Offshore GmbH and TenneT TSO GmbH are responsible for transmitting 40% of the power conveyed through the 380 kV and 220 kV networks in Germany. TenneT Offshore GmbH is responsible for transmission by sea and TenneT TSO GmbH for transmission overland.

The subsidiaries owned by TenneT Offshore GmbH either are responsible for arranging the connections with the offshore wind farms or own shareholdings in other subsidiaries, thus allowing third parties to contribute equity capital by acquiring a minority shareholding.

The other entities involved in the performance of regulated activities in Germany were incorporated either for the purpose of financing the takeover of Transpower or for tax reasons.

### 3. Non-regulated activities in the Netherlands

The companies responsible for performing non-regulated activities in the Netherlands comprise four sets of subsidiaries as follows:

- APX is responsible for the trade in electricity. APX is owned jointly by TenneT Holding B.V. (which has a 70.84% stake) and Elia (29.16%).
- NOVEC B.V. rents out aerial installation points for the distribution of radio and television signals and other forms of telecommunications.
- RELINED B.V. is a 50-50 joint venture between TenneT Holding B.V. and ProRail B.V. Relined rents out overcapacity at times when TenneT and ProRail do not make full use of their glass fibre cable capacity.

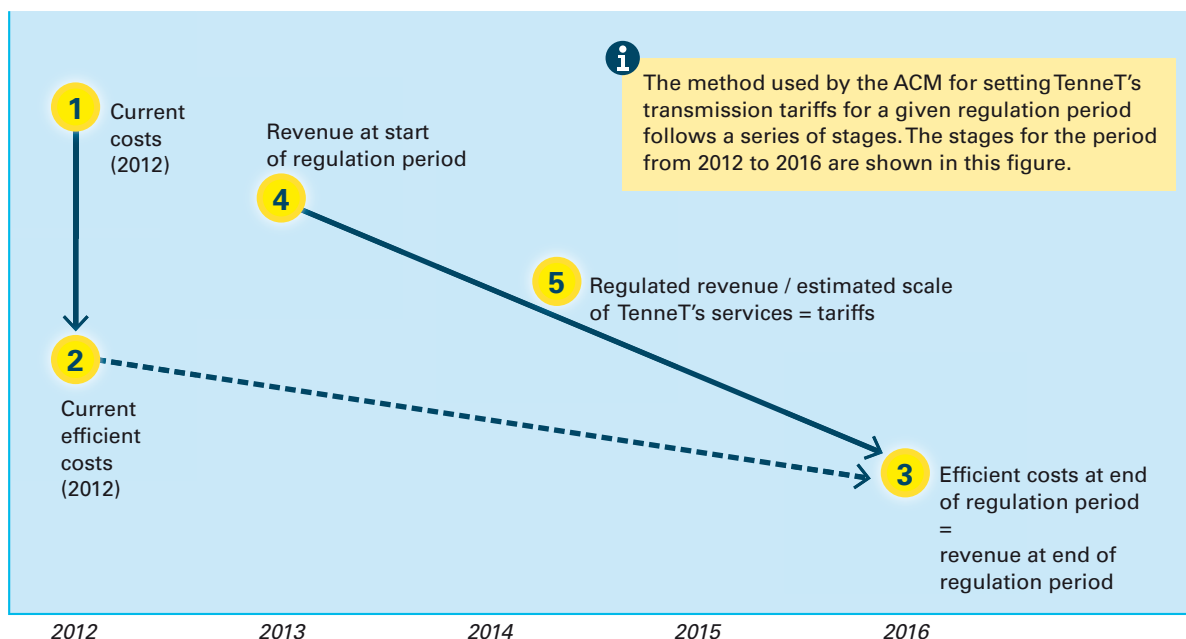
<sup>45</sup> TSO Auction B.V. was in the process of being wound-up at the beginning of 2014.

- NLink International B.V. is the sole owner of BritNed Development Ltd, a 50-50 joint venture between NLink International B.V. and National Grid International Ltd for the development, construction and operation of the BritNed cable, i.e. the interconnector between the Netherlands and the UK.

## Appendix 2 Method of calculating the efficiency of routine investments

For the purpose of this audit, we examined the method of calculation used for the current regulation period, i.e. 2014-2016. This follows a series of stages, as outlined in this appendix. See Figure 11.

Figure 11 Method of calculating TenneT's transmission tariffs



Stage 1. The most recent level of actual cost immediately before the new regulation period (i.e. the 'current costs' in the figure) is the starting point for the calculation of the transmission tariffs. In this particular case, given that the ACM designed, refined and adopted the method in 2013, these are the costs incurred by TenneT in 2012. The ACM distinguishes between the cost of capital and operating costs. The cost of capital consists of the depreciation of past investments,<sup>46</sup> interest charged on loans and the return on equity. The sources of this equity are TenneT itself and the shareholder, i.e. the State of the Netherlands, which is paid a dividend. TenneT needs capital in order to prefinance its investments, but does not receive any income from these investments until a later period. These are the years in which TenneT depreciates the investment.

<sup>46</sup> The ACM bases the depreciation on the actual purchase price and its standard period of depreciation. Under these standard periods of depreciation, a mast with foundations is depreciated over a 55-year period, for example, whereas a transformer is depreciated over 35 years.

Operating costs consists of staff expenses, management costs and the cost of purchasing electrical power.<sup>47</sup> TenneT is required to report its operating costs to the ACM in accordance with the latter's reporting requirements.<sup>48</sup>

*Stage 2.* Once the ACM has calculated the most recent level of actual cost (i.e. the 'current costs'), it then calculates the *current efficient costs*. This it does with the aid of a benchmarking study, which looks at the costs incurred by foreign network operators in undertaking investments on a similar scale to TenneT's.<sup>49</sup> The ACM uses the findings of the benchmarking study to work out how much money TenneT could have saved if it had been as efficient as other network operators. It deducts the difference (known as the 'efficiency discount') from the actual cost, thereby producing the figure for the current efficient costs (2).

*Stage 3.* The ACM then calculates the productivity improvement that should ensue for the economy as a whole and the electricity industry in particular. Here too, the ACM bases its calculations on studies performed by external experts. The ACM adjusts the previously calculated figure for the current efficient costs on the basis of the findings of these studies, thus producing a figure for the efficient costs incurred by TenneT at the end of the regulation period (3). The ACM has already factored into this final figure both the efficiency improvement that TenneT is projected to make during the course of the regulation period and the relevant rate of inflation. Given that the ACM has already taken account of the return on equity, the final figure also represents the revenue the ACM permits TenneT to earn at the end of the regulation period, i.e. in 2016.

*Stage 4.* In the fourth stage of the process, the ACM fixes the starting point for the calculation: TenneT's revenue at the start of the regulation period (4). In order to do this, the ACM compares TenneT's 'current costs' (1), i.e. the figure for 2012, with the level of revenue generated in 2012 (figure for 2013). Although the level of revenue may be the same as the level of cost, this is not necessarily the case. The actual level of revenue may turn out to be higher thanks to an extra efficiency improvement, for example if TenneT makes use of economies of scale in the purchase of materials (which it now buys in partnership with its German subsidiary). By adjusting the level of revenue at the start of the regulation period, any gains are passed on to TenneT's customers. It should be pointed out that the ACM did not see any need to make any such adjustments for 2014-2016.

*Stage 5.* Once the revenue both at the start and at the end of a given regulation period (stage 3) have been calculated, the ACM can then work out the precise value of TenneT's annual revenue. The ACM calculates TenneT's annual revenue by gradually adjusting TenneT's revenue at the start of the regulation period (5). This is the figure

<sup>47</sup> Power is the electricity that TenneT needs in order to balance the supply of electricity with the demand. More specifically, TenneT has made certain arrangements with electricity producers and bulk consumers for them to adjust their production or consumption, as the case may be. TenneT's responsibility for the efficiency of the electricity system is closely entwined with its responsibility for electricity transmission services.

<sup>48</sup> The ACM applies a number of special rules to the various types of operating costs as these better reflect the nature of the costs. For example, the ACM calculates the average operating costs on the basis of the average for the past three years, on account of the volatility inherent to this cost category.

<sup>49</sup> In calculating the tariffs for 2014-2016, the ACM first commissioned a study of the various possible benchmarking methods. It then chose one of these methods and asked an external consultant to perform a benchmarking study using this particular method.

for the regulated revenue. Dividing this figure by the estimated scope of TenneT's services results in a tariff for each service.

Until recently, no special arrangements had been made for TenneT's routine expansion investments. In 2014, the ACM solved the problem of the routine expansion investments in calculating the transmission tariffs for 2014-2016. Once the project in question has been completed, TenneT is allowed to pass on the costs it incurs in making these investments in the tariffs. The ACM does not assess the efficiency of these projects in this period, but does take account of the projected productivity improvement when setting the tariffs.

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#### **Translation**

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#### **Cover**

Design: Corps Ontwerpers, The Hague

Photo: Corbis/Hollandse Hoogte

The Hague, September 2015