TenneT
Taking power further

Green Funding
for the future

Green Finance Report 2016

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In 2016, TenneT continued its innovative approach to green financing, with the issue of a green schuldschein and multiple green bonds. This was the second year that TenneT issued green bonds, after becoming the first non-financial company in the Netherlands to issue euro-denominated green bonds in June 2015.

Since we are committed to connecting society to sustainable sources of energy, this exciting new form of sustainable corporate financing fits our strategy perfectly. Our purpose is to ensure that essential high-voltage infrastructure (currently approximately 22,500 km of grid length) is developed, realized, and managed efficiently, throughout both the Netherlands and a large part of Germany. Green bonds are an important tool for financing projects with clear environmental benefits - such as renewable energy infrastructure. We believe green bonds are the perfect way of financing the energy transition, as well as offering an attractive sustainable investment opportunity.
This TenneT Green Finance Report tracks the progress of our green bond-funded projects, including our green schuldschein. This is a type of privately-placed German debt, similar to a bond, which we issued for the first time in 2016

The proceeds from our green financing initiatives are being used for investments in the grid connections that are used for the transmission of renewable electricity from offshore wind farms to the onshore electricity grid. The proceeds of our green debt issues are specifically dedicated to a portfolio currently consisting of five projects connecting wind farms in the German part of the North Sea to the German onshore grid: DolWin1, DolWin2, Dolwin3, BorWin3 and SylWin1. The last two projects, BorWin3 and SylWin1, were added to the project portfolio during 2016. All of these projects meet the Green Bond Principles and are essential to facilitating the transition to renewable energy. Furthermore, oekom research AG, a leading rating agency in the field of sustainability, issued positive independent opinions on the sustainable quality of our green debt. This applied to our green debt issued in 2015 as well as that issued in 2016.

This annual report describes the performance of the projects linked to this portfolio. The report was reviewed by EY and their assurance report can be referenced on page 10.

Our green financing

TenneT's pioneering use of green bonds is a logical step for us as we work to connect society to a reliable supply of electricity. Renewable energy is the future and this is recognised by politicians as well as by society at large. The number of countries that have already endorsed the Paris Agreement on climate change further underlines this.

As grid operator, we need to execute our EUR 25 billion investment programme in the Netherlands and Germany over the next 10 years in order to provide our customers with the electricity they need - now and in the future.

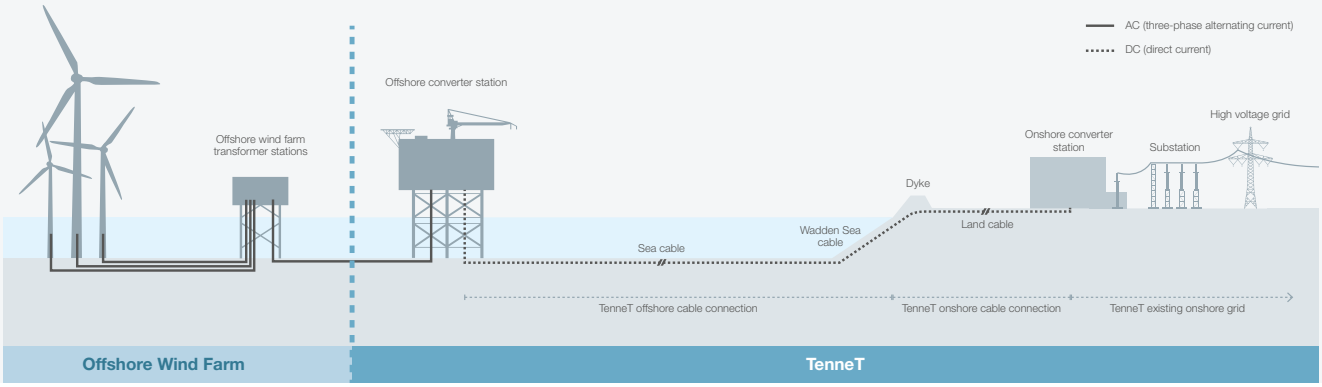
Our total long-term debt from green financing has grown from EUR 1 billion in 2015 to EUR 3 billion in 2016. This makes TenneT the largest (corporate) issuer of green debt in the Netherlands. The increase was achieved by three different issues, starting in May with the issue of a EUR 500 million green schuldschein. In June, we issued two tranches of EUR 500 million each and in October, we issued another EUR 500 million of green bonds. The market has shown a keen interest in each of these, with the issues over-subscribed and firm interest in the longer maturity.

As TenneT strengthens its position in the green debt market, we are fortifying our internal governance around green financing. Our CSR board, which monitors progress on mid-term plans for Corporate Social Responsibility and advises the Executive Board on the integration of CSR into the business, decides which projects should be part of the green debt portfolio and plays an active role in safeguarding the quality of external reporting. The CSR board meets quarterly, is chaired by TenneT's CFO, and includes corporate senior managers from Asset Management, Large Projects, Public Affairs, Communication, and Finance.

In 2016, our strong approach to green bonds was recognised by Moody's. Under its newly developed Green Bond Assessment methodology, Moody's assigned our green bonds a GB1 rating. On a scale of GB1 (= Excellent) to GB5 (= Poor), this is the highest possible rating, underlining that TenneT has followed the Green Bond Principles very closely.

As the first European cross-border grid operator, TenneT is working hard to connect systems and markets. This is necessary in order to safeguard security of supply and connect renewable energy sources to the grid, ensuring a future-proof electricity supply. The German government is planning to construct offshore wind farms with a total capacity of 6.5 GW, and TenneT is playing a key role in connecting these to the grid by 2020. To this end, technically complex projects in AC and DC technology in the North Sea and other major works – both onshore and offshore – are being accelerated.

Schematic of an offshore grid connection



Our projects

The projects highlighted in this report are part of an ambitious programme to provide grid connections to offshore wind parks off the coast of Germany, in the German Bight, as part of the German Energiewende. This is Germany's transition to a low-carbon, environmentally sound, reliable, and affordable energy supply. Harnessing offshore wind power, transporting it ashore through over 130 km of subsea cables and connecting it to the grid (by underground cables) are at the very heart of the transition. The process works by transforming alternating current from wind power plants into direct current on the offshore converter platform. Direct current is transformed back into alternating current to be fed into the grid at the onshore converter station/feed-in point.

By the time all five projects are operational in 2019, TenneT's investments – backed by green financing – will connect 4380 MW of sustainable wind power into the German grid. In 2016, three new wind parks, Sandbank, GodeWind 1 & 2, were connected to our offshore grid and another connection is ready for use by a wind park that still needs to be constructed.

At current, the following five projects are included in the green project portfolio and are funded through green financing, including green bonds:

	DolWin1	DolWin2	DolWin3	BorWin3	SylWin1
Offshore converter platform	DolWin alpha	DolWin beta	DolWin gamma	BorWin gamma	SylWin alpha
Onshore converter station/ feed-in point	Dörpen (Germany)	Dörpen (Germany)	Dörpen (Germany)	Emden (Germany)	Büttel (Germany)
Transmission power	800 MW	916 MW	900 MW	900 MW	864 MW
Cable length	165 km (75 km submarine, 90 km onshore)	135 km (45 km submarine, 90 km onshore)	162 km (83 km submarine, 79 km onshore)	160 km (130 km submarine, 30 km onshore)	205 km (160 km submarine, 45 km onshore)

More information on our offshore projects can be found on **our website**.

Our performance

The quality of each of the projects in terms of sustainability has been verified by oekom through a Green Bond Framework. Oekom, a leading rating agency in the field of sustainability, assessed TenneT's Green Bond Framework, which describes the environmental, social and CO_2 impact indicators relating to the projects linked to the green debt issues. Indicators relevant to our yearly reporting are laid out in the **Green Bond Framework** and the results over 2016 for each of these indicators can be found in the tables on the following pages.

With respect to significant controversies, our offshore connection DolWin2 encountered technical difficulties with the sea and the land cable in 2016, which affected the transport of wind energy. The issue was analysed with the supplier and the connection is back into operation since 8 January 2017, starting with extensive test procedures. There are no issues to report regarding the environment or people.

Advancement of proceeds and projects

As of 31 December 2016, the total cash out spent by TenneT on the five projects came to approximately EUR 4.6 billion, of which about EUR 0.9 billion was already financed by third parties (through both debt and equity). Therefore, the net funding requirement is about EUR 3.7 billion, of which EUR 3.0 billion was financed through the green financing programme in 2015 and 2016. As a result, the green debt is already in full use as financing for the five projects.
An overview of this calculation:

Total budget DolWin1, 2, 3, BorWin3 and SylWin1	EUR 6.2bn
Total cash out spent on DolWin1, 2, 3, BorWin3 and SylWin1	EUR 4.6bn
Third-party financing (debt and equity)	EUR 0.9bn -/-
Net funding requirement green debt	EUR 3.7bn
Funded by green bonds in 2015	EUR 1.0bn -/-
Funded by green bonds in 2016	EUR 2.0bn -/-

(figures as per 31 December 2016)

DolWin1 and SylWin1 became operational in 2015. DolWin2 first became operational in February 2016, but suffered from technical problems and downtime after that. Since then, the cable has been repaired and the grid connection system was put back into operation again from 8 January 2017, starting with extensive test procedures.

Project	Platform in operation
DolWin1	2015
DolWin2	2016*
DolWin3	2017
BorWin3	2019
SylWin1	2015

** initial date for being operational, connection was put back into operation again from 8 January 2017.*

Transport and availability

In 2016 DolWin1, DolWin2 and SylWin1 transmitted 4667 GWh of electricity. Thanks to HVDC technology, grid losses are relatively low. The grid losses and the availability of the three projects are detailed below. Most of the downtime was caused by the repair of the cable of the DolWin2 connection.

	DolWin1	DolWin2	DolWin3	BorWin3	SylWin1	Total
Transported electricity (GWh)	1754	288	-	-	2625	4667
Grid losses (GWh)	61	19	-	-	104	184
Grid losses (%)	3.48%	6.60%	-	-	3.96%	3.94%

	DolWin1	DolWin2	DolWin3	BorWin3	SylWin1	Total
Grid availability (%)	97.2%	33.6%	-	-	97.1%	86,33%
Average interruption (hours)	247	5833	-	-	253	1201

Both transport and availability are reported based on regulatory operation.

Impact on households

The ultimate objective of installing wind farms at sea, and the cables and lines needed to transport the electricity, is to bring renewable energy to electricity consumers. Although most of the electricity is used by industry in Germany, we have decided to report the impact on households.
The number of households which could theoretically benefit from electricity actually transported in 2016 is around 1.5 million.

	DolWin1	DolWin2	DolWin3	BorWin3	SylWin1	Total
Number of households with access to wind power (based on actual operational capacity)	570,000	90,000	-	-	850,000	1,520,000

All five transmission lines together would allow about 5.3 million households in Germany (about 13.2% of all German households) to switch to 100% renewable energy. This calculation is based on the average electricity consumption of a German household in 2014 and the assumption that; a) full capacity of the new transmission lines is used; b) connected wind power plants reach 4,000 full-load hours per year, and; c) around 6.4% of electricity produced is lost during transmission and distribution.

Avoided CO_2 emissions

Electricity produced by wind farms rather than by fossil-based power plants has a significantly lower CO_2 impact. The offshore projects contribute to avoiding these carbon emissions.

	DolWin1	DolWin2	DolWin3	BorWin3	SylWin1	Total
Potential avoidance of CO_2 emissions (based on actual operational capacity, in millions of tonnes)	1.42	0.23	-	-	2.12	3.78

If the full capacity of the five transmission lines is used, wind parks connected to the electricity grid would avoid about 13.3 million tonnes of CO_2 emissions. In 2016, 28% of the maximum potential of avoided CO_2 emissions was realized.

The Paris Agreement of December 2015 bridges today's policies and the aim of reaching climate-neutrality before the end of the century. Amongst other things, governments have agreed to the long-term goal of keeping the increase in global average temperature to well below 2°C above pre-industrial levels. Avoiding CO_2 emissions is key to realising this ambitious target, since society can limit global warming to two degrees by sticking to a fixed carbon budget. This is the total amount that may be emitted from the start of the industrial revolution up to the day that carbon is no longer added to the atmosphere.
It is likely that society can remain below the two degrees if no more than about 2,900 billion tonnes of carbon dioxide is emitted. According to the IPCC: 'We've already emitted 1,900 billion tonnes, leaving a remaining budget of just 1,000 billion tonnes that we can emit between now and forever.'

To calculate the amount of CO_2 avoided by any particular bond portfolio in 2016, please consult the appendix which includes instructions for calculations.

Safety

We believe that every incident is one too many. In our Safety Vision 2018, TenneT describes its ambitions with respect to safety. Our goal is 'zero harm', i.e. no incidents. Our safety vision is based on three pillars: Safety Leadership, One TenneT and Contractor Management. In 2016, the safety performance of our projects dropped. We are fully aware that we need to step up our efforts in order to achieve our ambition of becoming a safety leader.

	DolWin1	DolWin2	DolWin3	BorWin3	SylWin1	Total
Lost workday cases (LWC)	0	2	0	3	2	7
LTIF (LWC/million hours worked)	0	5.3	0	8.3	17.8	4.0
Fatalities (#)	0	0	0	0	0	0

Environment

Sulphur hexafluoride (SF_6) is used in high-voltage equipment, because it is an excellent electrical insulator. SF_6 contributes significantly to greenhouse gas emissions, however. In 2014, TenneT developed a SF_6 policy, striving to minimise usage and emission of SF_6 in both relative and absolute terms, even as it expands the grid. Realizing these targets is particularly challenging for our onshore grid because leakage rates increase with the age of components. Since our offshore assets are still relative new, leakage rates are close to industry standard. In 2016, our total SF_6 leakage rate was 0,03%, far below the industry standard for new equipment.

	DolWin1	DolWin2	DolWin3	BorWin3	SylWin1	Total
Kg SF_6 leaked/Kg SF_6 banked	0%	-	-	-	0.06%	0.03%

Appendix

Avoided CO_2 emissions per bond issue

Avoided CO_2 emissions are key to reaching the ambitious climate targets the world set itself at the Paris climate summit in November 2015. Transporting renewable energy from sea to land clearly contributes to achieving the Paris targets. We highlight avoided CO_2 emissions based on the carbon emission of fossil fuel power plants, linked to our investors' investment. Although our approach is a theoretical one, we believe this indicates the order of magnitude our green finance portfolio.

The calculation is performed in the following way:

- The amount of transported electricity is converted to avoided carbon emissions by the average carbon intensity of fossil fuelled power plants (809 g/KWh) for each project, as show in the table on page 5.
- For each issue, we calculate which part of the total size of the issue belongs to which project.
- The allocation to each project is divided by the total budget for each project and that is multiplied by the avoided carbon emissions of the specific project.
- For each issue, the projects that were part of the green bond portfolio at that time are taken into account. Adding up the avoided carbon emissions of each project gives the total avoided CO_2 emissions per issue.

The avoided CO_2 emissions per bond issue were calculated for 2016. Depending on the size of the investment, the CO_2 emissions per investment can be calculated by:

$$\text{Avoided } CO_2 \text{ emissions related to investment} = \frac{\text{investment size (million)}}{\text{size issue y}} \times \text{avoided } CO_2 \text{ emissions issue y}$$

Date of issue	Type of financing	Size (million EUR)	Avoided CO_2 emissions (tonnes) in 2016*
June 2015	Green Bond	500	280,000
June 2015	Green Bond	500	280,000
May 2016	Green Schuldschein	77	40,000
May 2016	Green Schuldschein	100	60,000
May 2016	Green Schuldschein	55	30,000
May 2016	Green Schuldschein	50	30,000
May 2016	Green Schuldschein	138	80,000
May 2016	Green Schuldschein	80	40,000
June 2016	Green Bond	500	210,000
June 2016	Green Bond	500	210,000
October 2016	Green Bond	500	330,000

** The avoided carbon emissions are realized by the connected wind farms and the transmissions infrastructure.*

Assurance report of the independent auditor

To: the general meeting of shareholders and the Supervisory Board of TenneT Holding B.V.

We have reviewed the Green Finance Report 2016 (hereinafter: the Report) of TenneT Holding B.V., Arnhem (hereinafter: TenneT). The Report comprises a description of the sustainable performance of the BorWin3, DolWin1, DolWin2, DolWin3 and SylWin1 projects during the reporting year 2016.

Limitations in our scope
The green bond reporting principles, as published in "Definitions integrated annual report and green finance report 2016" on **TenneT's website**, are integral part of the Report and therefore of our assurance engagement. Other references (to www.tennet.eu, external websites and other documents) are outside the scope of our assurance engagement.

Board of management's responsibility
The board of management is responsible for the preparation of the Report in accordance with the green bond reporting principles as developed by Tennet as disclosed in "Definitions integrated annual report and green finance report 2016", which are based on the "Green Bond Framework", both disclosed on **www.tennet.eu**
The board of management is also responsible for such internal control as it determines is necessary to enable the preparation of the Report that is free from material misstatement, whether due to fraud or error.

Auditor's responsibility
Our responsibility is to express a conclusion on the report based on our review. We conducted our review in accordance with Dutch law, including the Dutch Standard 3000 Assurance engagements other than audits or reviews of historical financial information. This requires that we comply with ethical requirements and that we plan and perform the review to obtain limited assurance about whether the Report is free from material misstatement.

A review is focused on obtaining limited assurance. The procedures performed in obtaining limited assurance are aimed on the plausibility of information which does not require exhaustive gathering of evidence as in engagements focused on reasonable assurance. The performed procedures consisted primarily of making inquiries of management and other within the entity, as appropriate, applying analytical procedures and evaluating the evidence obtained. Consequently a review engagement provides less assurance than an audit.

Procedures performed
Our main procedures included the following:

- Performing an external environment analysis and obtaining an understanding of the sector, relevant social issues, relevant laws and regulations and the characteristics of the organization.
- Evaluating the acceptability of the reporting principles and their consistent application and the reasonableness of accounting estimates made by management.
- Evaluating the design and implementation of the systems and processes for data gathering and processing of information as presented in the Report.
- Interviews with relevant staff responsible for providing the information in the report, carrying out internal control procedures on the data and the consolidation of the data in the report.
- Evaluating internal and external documentation, in addition to interviews, to determine whether the information in the report is reliable.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

Conclusion
Based on our procedures performed, and with due consideration of the limitations described in the paragraph "Limitations in our scope", nothing has come to our attention that causes us to conclude that the information in the Report, in all material respects, does not provide a reliable and appropriate presentation of the sustainable performance of the BorWin3, DolWin1, DolWin2, DolWin3 and SylWin1 projects during the reporting year 2016, in accordance with the green bond reporting principles as developed by Tennet as disclosed in "Definitions integrated annual report and green finance report 2016" on **www.tennet.eu**

Rotterdam, 6 March 2017

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Disclaimer

`We´, `TenneT´, `TenneT Holding´, `the Group´, `the company´ or similar expressions are used in this report as a synonym for TenneT Holding B.V. and its subsidiaries.
Parts of this report contain forward-looking information. These parts may include unqualified statements on future operating results, government measures, the impact of other regulatory measures on the activities of TenneT as a whole, TenneT´s shares and those of its subsidiaries and joint-ventures in existing and new markets, industrial and macro-economic trends and TenneT´s performance in these. Such statements are preceded or followed by or contain words such as `believes´, `expects´, `anticipates´ or similar expressions. These forward-looking statements are based on current assumptions concerning future activities and are subject to known and unknown factors, and other uncertainties, many of which are beyond TenneT´s control, so that future actual results may differ significantly from these statements.
All financial information in this integrated annual report is reported in millions of euro, unless stated otherwise. As a result, small rounding differences may occur.

Definitions of the KPIs reported are published on our website
http://www.tennet.eu/company/our-responsibility/download-reports/