



# TenneT Holding BV

## Additional CSR data

CSR data linked to Integrated Annual Report 2019

## Introduction

In this additional CSR data document, we provide more details on the 2019 CSR performance of TenneT. Together with over 3,700 employees, either working in one of our 8 offices in Germany and the Netherlands or at other locations, we aim to secure supply of energy for society and strive to make responsible choices in doing so. In our Integrated Annual Report 2019 (IAR2019) we report about the topics that are considered to be most relevant to our internal and external stakeholders taking the TenneT Holding perspective, prepared in accordance with sustainability guidelines defined by the Global Reporting Initiative Standards. The materiality process is fundamental to integrated reporting as it ensures we meet the level of transparency our stakeholders have the right to expect. More information about this, is disclosed later in this document.

Our CSR policy and activities are broader and are not limited to topics resulting from the materiality analysis. Therefore additional CSR data is reported in this document, to provide additional information of the progress of TenneT regarding the people and planet ambitions we have set ourselves in the CSR ambition plan 2025 as well as providing more detailed information of how we create value.

In our integrated annual report, most of our data is presented at TenneT Holding level. To give more insight in our operations, KPIs in this document are presented on TenneT Holding level and country level. We have presented the data in line with the structure of the integrated annual report.

For definitions of the reported KPIs please go to the [CSR section of our website](#).

In case there are any additional questions considering CSR reporting, please send an email to [CSR@tennet.eu](mailto:CSR@tennet.eu).



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# 1. About TenneT

## 1.1 Our stakeholders

Our stakeholders have been determined based on an internal assessment and a validation of the stakeholders identified. On a daily basis, we are in contact with our stakeholders and aim to include their considerations where possible, in the policies we make and the actions we take.

In the list below, we have included our key stakeholders identified, which key topics and concerns have been raised in 2019 and where we have addressed this in our reporting, which is in line with GRI102 – 44.

Stakeholder group	Method of engagement	Key topics and concerns raised	Disclosed in IAR chapter
Customers	Informative, close involvement in various areas and contractual agreements	<ul style="list-style-type: none"> <li>- Security of supply</li> <li>- Strategic partnerships and client relations</li> <li>- Driving the energy transition</li> </ul>	<ul style="list-style-type: none"> <li>- Ensure a high security of supply</li> <li>- Solve societal challenges with stakeholders and through partnerships</li> </ul>
Debt investors and rating agencies	Close involvement and contractual agreements	<ul style="list-style-type: none"> <li>- Financial health</li> <li>- Responsible supply chain practices</li> <li>- Our own environmental impact</li> <li>- TenneT strategy and Transformation</li> </ul>	<ul style="list-style-type: none"> <li>- Secure a solid financial performance and investor rating</li> <li>- Ensure critical infrastructure for society</li> <li>- Strategy and value creation</li> </ul>
Employees	Close involvement	<ul style="list-style-type: none"> <li>- TenneT strategy and Transformation</li> <li>- Safety</li> <li>- Health and development</li> <li>- Diversity and inclusiveness</li> <li>- Talent attraction</li> </ul>	<ul style="list-style-type: none"> <li>- Strategy and value creation</li> <li>- Create a sustainable workplace</li> </ul>
Governments, political parties and regulatory bodies	Informative and close involvement	<ul style="list-style-type: none"> <li>- Financial health</li> <li>- Driving the energy transition</li> <li>- Security of supply</li> </ul>	<ul style="list-style-type: none"> <li>- Secure a solid financial performance and investor rating</li> <li>- Ensure critical infrastructure for society</li> <li>- Ensure a high security of supply</li> </ul>
Local communities	Local interaction	<ul style="list-style-type: none"> <li>- Stakeholder engagement</li> <li>- Security of supply</li> <li>- Safety</li> </ul>	<ul style="list-style-type: none"> <li>- Solve societal challenges with stakeholders and through partnerships</li> <li>- Ensure critical infrastructure for society</li> <li>- Create a sustainable workplace</li> </ul>
Media	Informative and close involvement	<ul style="list-style-type: none"> <li>- Security of supply</li> <li>- Our own environmental impact</li> <li>- Driving the energy transition</li> <li>- Financial health</li> </ul>	<ul style="list-style-type: none"> <li>- Ensure critical infrastructure for society</li> <li>- Create value to transition to a low carbon economy</li> <li>- Solve societal challenges with stakeholders and through partnerships</li> <li>- Secure a solid financial performance and investor rating</li> </ul>
Non-governmental organisations (NGOs)	Informative, cooperative, consulting and involvement on project level	<ul style="list-style-type: none"> <li>- Driving the energy transition</li> <li>- Our own environmental impact</li> <li>- Responsible supply chain practices</li> <li>- Talent attraction</li> </ul>	<ul style="list-style-type: none"> <li>- Solve societal challenges with stakeholders and through partnerships</li> <li>- Create value to transition to a low carbon economy</li> <li>- Ensure critical infrastructure for society</li> <li>- Create a sustainable workplace</li> </ul>

Stakeholder group	Method of engagement	Key topics and concerns raised	Disclosed in IAR chapter
Other European TSOs	Close involvement	<ul style="list-style-type: none"> <li>- Security of supply</li> <li>- Improving European cooperation and coordination</li> <li>- Sharing of innovation</li> </ul>	<ul style="list-style-type: none"> <li>- Solve societal challenges with stakeholders and through partnerships</li> <li>- Ensure a high security of supply</li> </ul>
Shareholders (Corporate and projects)	Close involvement	<ul style="list-style-type: none"> <li>- TenneT Strategy and Transformation</li> <li>- Financial health</li> <li>- Driving the energy transition</li> </ul>	<ul style="list-style-type: none"> <li>- Strategy and value creation</li> <li>- Create a sustainable workplace</li> <li>- Secure a solid financial reputation and investor rating</li> </ul>
Suppliers	Market consultations, pre-qualifications, negotiations, meetings	<ul style="list-style-type: none"> <li>- Ensure critical infrastructure for society</li> <li>- Responsible supply chain practices</li> <li>- Safety</li> </ul>	<ul style="list-style-type: none"> <li>- Ensure critical infrastructure for society</li> <li>- Create value to transition to a low carbon economy</li> <li>- Create a sustainable workplace</li> </ul>

## 1.2 Materiality analysis

Our policy is to perform this analysis on a bi-annual basis. This policy has been determined in 2019, as we believe that this provides us with the appropriate amount of insights with respect to the most material aspects related to our policies, actions and reporting. As mentioned in IAR2019, we have redefined our list of relevant aspects in 2019. Here we have reduced the amount of topics as we have clustered certain former topics and we have added and deleted others. In the table below, we have disclosed more information on this

Relevant topic IAR2018	Relevant topic IAR2019	Notes
Sustainable Grid Infrastructure	Security of supply	This previous topic relates to the investments of TenneT in our grid to realise the energy transition. In our updated strategy, this relates to creating a sustainable infrastructure, deliver our projects as promised and to be able to secure supply not only today, but also tomorrow.
NWE electricity market	Security of supply	TenneT has a clear vision with respect to an efficient and effective energy landscape, where integrated energy markets are a part of. However, we have integrated this topic in security of supply in line with our strategic reorientation.
Community engagement	Stakeholder engagement	This remains a relevant topic to us, but to reflect that it relates to more stakeholders instead of only community, we have changed the wording.
Societal financial impact	Financial health	In designing, building, maintaining and operating the grid, we strive to make choices that benefit the reliability of our grid, making sustainable choices and considering the affordability. This aspect is now included in financial health.
Digital technologies	Driving the energy transition	Several topics to help us shape the future energy landscape have been clustered and are now included in the new topic 'Driving the energy transition'.
Financial performance	Financial health	Several financial topics have been now clustered under Financial health
Financing	Financial health	Several financial topics have been now clustered under Financial health



Connecting citizens	Accessibility of our grid	The former topic is a part of this new topic, as the new topic is related to more parties than citizens.
Customer care and satisfaction	Strategic partnerships	Currently, we see that the most material aspect with respect to our customers are the strategic partnerships we have to make impact and help shape the future energy landscape.
Environmental incidents	Our own environmental impact	Several topics that are related to our own environmental impact have been clustered in this new topic.
Regulatory framework	Financial health	Several financial topics have been now clustered under Financial health, this also relates to our allowed revenues as we perform regulated activities.
Carbon footprint	Our own environmental impact	Several topics that are related to our own environmental impact have been clustered in this new topic.
Procurement practices & supplier assessments	Responsible supply chain practices	We have clustered topics with respect to responsible supply chain practices.
Biodiversity	Our own environmental impact	Several topics that are related to our own environmental impact have been clustered in this new topic.
Human Rights	Responsible supply chain practices	We have clustered topics with respect to responsible supply chain practices.
Tax transparency	Deleted	Based on the analysis performed, this aspect is deemed less material
Remuneration policy	Deleted	Based on the analysis performed, this aspect is deemed less material





## 1.3 Social charters

As TenneT, we have committed ourselves to certain public charters. As mentioned in IAR2019, this relates to the UN Global Compact (we report our progress via a separate report, refer to: <https://www.tennet.eu/nl/bedrijf/mvo-en-duurzaamheid/download-reports/> where we have included our UN Global Compact Communication on Progress report) and the OECD (Organisation for Economic Development) guidelines. In the table below we have included more on where we provide more information on this.

OECD themes	Chapter
<b>Disclosure</b>	More transparency with respect to our policies and activities is disclosed in various parts of our reporting, such as IAR2019, GFR2019 and our website <a href="http://www.tennet.eu">www.tennet.eu</a> .
<b>Human rights</b>	- Ensure critical infrastructure for society, Sustainable supply chain practices
<b>Employment and industrial relations</b>	- Ensure critical infrastructure for society, Sustainable supply chain practices - Create a sustainable workplace
<b>Environment</b>	- Create value to transition to a low carbon economy - Green Finance Report 2019 - Additional Data Document 2019
<b>Combating bribery, bribe solicitations and extortion</b>	- Compliance and integrity - <a href="https://www.tennet.eu/company/compliance/compliance-at-tennet/">https://www.tennet.eu/company/compliance/compliance-at-tennet/</a>
<b>Consumer interests</b>	- Solve societal challenges with stakeholders and through partnerships
<b>Science and technology</b>	- Solve societal challenges with stakeholders and through partnerships, Innovative collaborations to unlock flexibility, Flexibility for the future - Deliver a high security of supply
<b>Competition</b>	- Secure a solid financial reputation and investor rating - Governance and Risk Management - Consolidated financial statements
<b>Taxation</b>	- Consolidated financial statements



## 2. Our performance in 2019

### 2.1 Deliver a high security of supply

As an European TSO, our main task is to secure supply of electricity for the people that live in our serving area. TenneT's track record in grid availability is among the best in the world. We work hard to guarantee a reliable electricity grid, a task that is complicated by the volatility of renewable energy, which makes it harder to balance supply with the rising demand. This is one of the main elements of how we as a company create value. Our key performance indicator with respect to this important output is related to the availability of our grid.

#### 2.1.1 Grid availability

In the table below, our on shore grid availability is presented:

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	Total
Grid availability	99.9998%	100.0000%	99.9998%	99.9988%	99.9958%	99.9988%	99.9986%	100.0000%	99.9986%
110/150 kV									
Interruptions	12	N/A	12	16	N/A	16	11	N/A	11
Energy not transported	10,556	N/A	10,556	1,184	N/A	1,184	1,072	N/A	1,072
220/380 kV									
Interruptions	1	1	2	-	1	1	-	-	-
Energy not transported	156	0.22	156	-	60	60	-	-	-

Our total grid availability (ASAI) is reported as the sum of the availability on the national grids, thereby underestimating the availability for TenneT as a whole. The industry has defined two standard KPIs for grid availability reporting. The SAIDI (System Average Interruption Duration Index) is the average outage duration for each customer served. The ASIDI (Average System Interruption Duration Index) is the average outage duration for interrupted active power flow. Since 2017 TenneT reports according to GRI Standards, which requires more extensive reporting on the identified materials themes. For grid availability this means the SAIDI and ASIDI are reported from 2017.

	2019		2018		2017	
	NL	D	Total	NL	Total	NL
SAIDI						
110/150 kV	0.94	N/A	5.50	N/A	8.44	N/A
220/380 kV	0.00	N/A	-	N/A	-	N/A
ASADI						
110/150 kV	N/A	N/A	N/A	N/A	N/A	N/A
220/380 kV	4.19	0.00	-	0.06	-	-

### 2.2 Ensure a critical infrastructure for society

To ensure that we are able to keep our high level our grid availability is at, we are working hard to maintain our current grid and design and build on a daily basis to help shape the future energy landscape to be able to secure supply not only today but also tomorrow. We are proud that we have been able to exceed our budgeted amount of investments and the progress related to that, despite setbacks we have experienced at some of our projects. This results in the critical infrastructure we are operating 24 hours a day, 365 days a year.



## 2.2.1 Technical data

In the table below, we have included more information with respect to the critical infrastructure we have realised and are maintaining.

Technical data	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	Total
Number of substations:									
110/150 kV	288	5	293	289	5	294	288	5	293
220/380 kV	44	125	169	45	123	168	45	124	169
<b>Total number of substations</b>	<b>332</b>	<b>130</b>	<b>462</b>	<b>334</b>	<b>128</b>	<b>462</b>	<b>333</b>	<b>129</b>	<b>462</b>
HVDC converter stations	3	18	21	3	16	19	2	14	16
Connected offshore windfarms	-	21	21	-	19	19	-	17	17
Circuit length:									
Underground total	2,530	2,176	4,706	2,140	1,952	4,092	2,106	1,743	3,849
Overhead total	8,167	10,804	18,971	8,112	10,559	18,671	8,113	10,862	18,975
<b>Total</b>	<b>10,697</b>	<b>12,980</b>	<b>23,677</b>	<b>10,252</b>	<b>12,511</b>	<b>22,763</b>	<b>10,219</b>	<b>12,605</b>	<b>22,824</b>
150/300/450 kV DC	583	1,495	2,078	420	1,335	1,755	420	1,174	1,594
220/380 kV	3,199	10,795	13,994	2,986	10,555	13,541	2,939	10,845	13,784
110/150 kV	6,915	690	7,605	6,945	621	7,566	6,893	587	7,480
<b>Total</b>	<b>10,697</b>	<b>12,980</b>	<b>23,677</b>	<b>10,351</b>	<b>12,511</b>	<b>22,862</b>	<b>10,252</b>	<b>12,606</b>	<b>22,858</b>

## 2.3 Create a sustainable workplace

Our people are our most valuable asset. They are the key to our continued success and growth. That's why we create a safe, healthy, stimulating and energising place for them to work, grow and to bring the best in them. Over 3,750 employees contribute to our mission to provide a secure and reliable supply of electricity, 24 hours a day, 365 days a year. Next to this, we also make use of contractors, e.g. to help us in realising our projects. We aim to work together with our contractors, for instance when it comes to creating a safe working environment. In tables below additional data regarding FTE, headcount, permanent/temporary contracts, CAO/function contracts, male/female ratios, age distribution, inflow/outflow, management/non-management, full-time/part-time employees and education costs is presented. In our CSR ambition plan 2025, we have defined three specific areas of focus: diversity, safety and society. More details on the number of stakeholder engagements can be found on page 3. In the tables below, we provide more insight on our diversity and safety focus areas.

### 2.3.1 Employee data

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	Total
<b>FTE (end of period)</b>									
FTE internal	1,516	2,088	3,604	1,368	1,903	3,271	1,283	1,788	3,071
FTE external	663	332	995	604	399	1,003	465	301	766
<b>Total</b>	<b>2,178</b>	<b>2,420</b>	<b>4,598</b>	<b>1,972</b>	<b>2,302</b>	<b>4,274</b>	<b>1,748</b>	<b>2,089</b>	<b>3,837</b>
<b>Headcount (end of period)</b>									
Headcount internal	1,580	2,188	3,768	1,422	1,987	3,409	1,335	1,862	3,197
Headcount external	809	336	1,145	726	403	1,129	574	297	871
<b>Total</b>	<b>2,389</b>	<b>2,524</b>	<b>4,913</b>	<b>2,148</b>	<b>2,390</b>	<b>4,538</b>	<b>1,909</b>	<b>2,159</b>	<b>4,068</b>
<b>Headcount (end of period)</b>									
Permanent contract	1,402	1,904	3,306	1,292	1,741	3,033	1,225	1,631	2,856
Temporary contract	178	284	462	130	246	376	110	231	341
<b>Total</b>	<b>1,580</b>	<b>2,188</b>	<b>3,768</b>	<b>1,422</b>	<b>1,987</b>	<b>3,409</b>	<b>1,335</b>	<b>1,862</b>	<b>3,197</b>



	2019			2018			2017		
	NL	D	Total	NL	D	Total	0	0	0
<b>Permanent contract</b>									
Permanent contract male	1,086	1,533	2,619	1,004	1,399	2,403	942	1,318	2,260
Permanent contract female	316	371	687	288	342	630	283	313	596
<b>Total</b>	<b>1,402</b>	<b>1,904</b>	<b>3,306</b>	<b>1,292</b>	<b>1,741</b>	<b>3,033</b>	<b>1,225</b>	<b>1,631</b>	<b>2,856</b>
% male	77%	81%	79%	78%	80%	79%	77%	81%	79%
% female	23%	19%	21%	22%	20%	21%	23%	19%	21%

	2019			2018			2017		
	NL	D	Total	NL	D	Total	0	0	0
<b>Temporary contract</b>									
Temporary contract male	137	157	294	98	154	252	94	166	260
Temporary contract female	41	127	168	32	92	124	16	65	81
<b>Total</b>	<b>178</b>	<b>284</b>	<b>462</b>	<b>130</b>	<b>246</b>	<b>376</b>	<b>110</b>	<b>231</b>	<b>341</b>
% male	77%	55%	64%	75%	63%	67%	85%	72%	76%
% female	23%	45%	36%	25%	37%	33%	15%	28%	24%

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	Total
<b>Headcount internal</b>									
Collective labour contracts	1,345	1,794	3,139	1,230	1,611	2,841	1,168	1,503	2,671
Function contracts	205	216	421	192	216	408	167	210	377
Other contracts	30	178	208	26	160	186	11	149	160
<b>Total</b>	<b>1,580</b>	<b>2,188</b>	<b>3,768</b>	<b>1,448</b>	<b>1,987</b>	<b>3,435</b>	<b>1,346</b>	<b>1,862</b>	<b>3,208</b>

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	Total
<b>Headcount internal gender</b>									
Male	1,223	1,690	2,913	1,102	1,553	2,655	1,036	1,484	2,520
Female	357	498	855	320	434	754	299	378	677
<b>Total</b>	<b>1,580</b>	<b>2,188</b>	<b>3,768</b>	<b>1,422</b>	<b>1,987</b>	<b>3,409</b>	<b>1,335</b>	<b>1,862</b>	<b>3,197</b>
% male	77%	77%	77%	77%	78%	78%	78%	80%	79%
% female	23%	23%	23%	23%	22%	22%	22%	20%	21%

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	Total
<b>Headcount internal by age</b>									
Under 20 years	6	32	38	-	33	33	-	35	35
20-30 years	109	437	546	84	392	476	71	382	453
30-40 years	345	793	1,138	316	702	1,018	300	660	960
40-50 years	526	457	983	475	418	893	450	382	832
50-60 years	424	389	813	424	360	784	403	328	731
Over 60 years	170	80	250	123	82	205	111	75	186
<b>Total</b>	<b>1,580</b>	<b>2,188</b>	<b>3,768</b>	<b>1,422</b>	<b>1,987</b>	<b>3,409</b>	<b>1,335</b>	<b>1,862</b>	<b>3,197</b>

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	Total
<b>Headcount internal inflow</b>									
Male	185	246	431	122	110	232	91	111	202
Female	56	135	191	35	55	90	17	26	43
<b>Total</b>	<b>241</b>	<b>381</b>	<b>622</b>	<b>157</b>	<b>165</b>	<b>322</b>	<b>108</b>	<b>137</b>	<b>245</b>
% male	77%	65%	69%	78%	67%	72%	84%	81%	82%
% female	23%	35%	31%	22%	33%	28%	16%	19%	18%

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	Total
<b>Headcount internal outflow</b>									
Male	82	104	186	57	46	103	36	45	81
Female	28	61	89	13	13	26	11	18	29
<b>Total</b>	<b>110</b>	<b>165</b>	<b>275</b>	<b>70</b>	<b>59</b>	<b>129</b>	<b>47</b>	<b>63</b>	<b>110</b>
% male	75%	63%	68%	81%	78%	80%	77%	71%	74%
% female	25%	37%	32%	19%	22%	20%	23%	29%	26%

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	Total
<b>Headcount internal management</b>									
Male	100	116	216	97	110	207	99	108	207
Female	26	17	43	24	14	38	20	14	34
<b>Total</b>	<b>126</b>	<b>133</b>	<b>259</b>	<b>121</b>	<b>124</b>	<b>245</b>	<b>119</b>	<b>122</b>	<b>241</b>
% male	79%	87%	83%	80%	89%	84%	83%	89%	86%
% female	21%	13%	17%	20%	11%	16%	17%	11%	14%

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	Total
Headcount internal non-management									
Male	1,123	1,574	2,697	1,005	1,443	2,448	937	1,376	2,313
Female	331	481	812	296	420	716	279	364	643
Total	1,454	2,055	3,509	1,301	1,863	3,164	1,216	1,740	2,956
% male	77%	77%	77%	77%	77%	77%	77%	79%	78%
% female	23%	23%	23%	23%	23%	23%	23%	21%	22%

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	Total
Headcount internal full-time									
Male	1,112	1,596	2,708	1,010	1,476	2,486	951	1,416	2,367
Female	133	342	475	116	307	423	113	275	388
Total	1,245	1,938	3,183	1,126	1,783	2,909	1,064	1,691	2,755
% male	89%	82%	85%	90%	83%	85%	89%	84%	86%
% female	11%	18%	15%	10%	17%	15%	11%	16%	14%

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	Total
Headcount internal part-time									
Male	111	94	205	92	77	169	85	68	153
Female	224	156	380	204	127	331	186	103	289
Total	335	250	585	296	204	500	271	171	442
% male	33%	38%	35%	31%	38%	34%	31%	40%	35%
% female	67%	62%	65%	69%	62%	66%	69%	60%	65%

	2019			2018		
	NL	D	Total	NL	D	Total
Newly hired females at management level	15%	15%	15%	26%	30%	28%

	2018			2017			2016		
	NL	D	Total	NL	D	Total	NL	D	NL
Average education costs per employee	2,222	2,479	2,371	2,008	2,180	2,108	2,246	2,092	2,157

## 2.3.2 Remuneration

We reward our employees for their work by offering an appropriate package of salary, pension and secondary benefits. To illustrate the difference in remuneration between the highest full-time salary and median fulltime salary at TenneT, we have calculated the ratio of fixed salary (including acquired leave days), variable remuneration and pension benefits.

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	NL
Ratio CEO to median	5.2	5.5	5.4	5.5	5.6	5.6	7.1	7.6	7.5

## 2.3.3 Health

We help our people to live healthy and active lives, and find a stimulating work-life balance. We offer coaching to our employees in the Netherlands and encourage all employees to join our Always Energy programme. This programme is open to all our employees and also includes events where their partners are invited to participate. In 2019, this program has been redesigned and is less focussed on the traditional elements of biking, running, Nordic walking and skating and more on a broader sense of vitality, such as mindfulness and other training modules to energise our employees.

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	NL
Biking	60	18	78	49	16	65	125	51	176
Biking MTB	22	40	62	16	29	45	55	61	116
Nordic Walking	29	14	43	58	233	291	96	62	158
Running	75	45	120	239	24	263	109	61	170
Skating	-	-	-	-	-	-	40	8	48
Other	59	59	118						
Total	245	176	421	362	302	664	425	243	668

## 2.3.4 Safety



The safety of everyone involved in our activities – our employees and our contractors – is a top priority. We continually strive for zero work-related incidents and accidents. Our goal is to become a safety leader and to have a pro-active safety culture. We aim to be recognised as such by our own employees as well as by our stakeholders. Our safety performance is presented in the table below.

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	Total
LTIF	2.69	5.95	3.61	1.0	3.1	2.4	1.30	3.25	2.53
TRIR	2.70	6.80	4.83	1.3	4.1	3.1	1.79	4.12	3.26
HRI	19	28	47	19	30	49	7	16	23
Fatalities	-	-	-	-	-	-	-	-	-
Investigation index	89%	99%	95%	100%	0%	0%	100%	100%	100%

## 2.4 Create value to transition to a low carbon economy

As TenneT, we believe that we are able to make a significant contribution with respect to the energy transition. With the knowledge and experience we have gained in more than 20 years of securing supply of electricity to the people that live in the areas we serve, we want to serve society and help shape the future energy landscape. To us, this means that we also want to set the right example ourselves in being a green and responsible grid operator. That is why we have defined ambitions and targets to reduce our own impact with respect to climate, circularity and nature.

### 2.4.1 Climate

We present our gross CO<sub>2</sub> footprint for 2019, 2018 and 2017 in three scopes: direct emissions from our own operations; indirect emissions related to purchased energy; and indirect emissions related to other purchased goods. Our net carbon footprint takes our measures to green our electricity use into account, resulting in a lower carbon footprint. Our calculations are based on the CO<sub>2</sub> Footprint Network Operators Manual, of the Association of Energy Network Operators in the Netherlands, CO<sub>2</sub>emissiefactoren.nl and document "Entwicklung der spezifischen Kohlendioxid- Emissionen des deutschen Strommix in den Jahren 1990 bis 2018". The detailed carbon footprint of 2019 is presented below, which includes since 2017 the helicopter and vessel transport to our offshore platforms. The 2018 and 2017 figures can be found in the appendix.

2019					
Scope 1		conversion factor		emission in ton CO2e	net emissions in ton CO2
Lease					
	495,875 km	DE	0.000181 ton CO2/km	90	90
	- km	NL	0.000181 ton CO2/km	2,761	2,761
Total Lease				2,851	2,851
Gas use offices					
	3.36 GWh	DE	178.5 tonnes CO2e/GWh	600	600
	133,934.50 m3	NL	0.001785 ton CO2e/m3	239	
Total energy use office				839	600
SF6 leakage					
	117.00 kg	DE	23.5 ton CO2e/kg SF6	2,750	2,750
	862.00 kg	NL	23.5 ton CO2e/kg SF6	20,257	20,257
Total SF6 leakage				23,007	23,007
Total Scope 1				26,696	26,457
Scope 2					
Electricity use offices					
	4.61 GWh	DE	0 tonnes CO2e/GWh	-	-
	6.35 GWh	NL	476 tonnes CO2e/GWh	3,025	-
Total Electricity use offices				3,025	-
Grid losses					
	3,785.00 GWh	DE	474 tonnes CO2e/GWh	1,794,090	1,794,090
	1,249.80 GWh	NL	476 tonnes CO2e/GWh	594,905	-
Total grid losses				2,388,995	1,794,090
Electricity use stations					
	178 GWh	DE	474 tonnes CO2e/GWh	84,372	-
	20 GWh	NL	476 tonnes CO2e/GWh	9,413	-
Total Electricity use stations				93,785	-
Total Scope 2				2,485,804	1,794,090
Scope 3					
Business and commute					
	16,483,132 km	DE	0.000181 ton CO2/km	2,983	2,983
	15,966,137 km	NL	0.000181 ton CO2/km	2,890	2,890
Total business and commute				5,873	5,873
Air travel					
	4,246,915 km	DE	0.000278 ton CO2/km	1,181	1,181
	5,624,332 km	NL	0.000278 ton CO2/km	1,564	1,564
Total air travel				2,744	2,744
Train					
	4,915,334 km	DE	0.000005 ton CO2/km	25	25
	2,419,233 km	NL	0.000005 ton CO2/km	12	12
Total Train				37	37
Offshore transport					
Helicopters					
	447,496 l	DE	0.00354 ton CO2/l	1,584	1,584
Supply vessels					
	1,083,800 l	TenneT Offshore	0.00292 ton CO2/l	3,165	3,165
Total offshore transport					
Total Scope 3				13,403	13,403
Total				2,525,904	1,833,950



### Grid losses

TenneT's main impact with respect to climate is related to grid losses. Over 90% of the carbon footprint is related to this. Grid losses are calculated as the difference between the amounts of electricity produced entering our transmission system and the amount that leaves our system for consumption. The grid losses presented per country and voltage level can be found in the table below.

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	Total
<b>110/150 kV</b>									
Grid losses (GWh)	382	N/A	382	167	N/A	167	424	N/A	424
Transported GWh	89,618	N/A	89,618	27,020	N/A	27,020	93,657	N/A	93,657
% grid losses of transported GWh	0.43%	N/A	0.43%	0.62%	N/A	0.62%	0.45%	N/A	0.45%
<b>220/380 kV</b>									
Grid losses (GWh)	868	3,785	4,653	979	3,894	4,873	931	3,724	4,655
Transported GWh	74,358	164,464	238,822	81,046	168,110	249,156	79,069	159,401	238,470
% grid losses of transported GWh	1.17%	2.30%	1.95%	1.21%	2.32%	1.96%	1.18%	2.34%	1.95%
<b>Total grid losses (GWh)</b>	<b>1,250</b>	<b>3,785</b>	<b>5,035</b>	<b>1,146</b>	<b>3,894</b>	<b>5,040</b>	<b>1,355</b>	<b>3,724</b>	<b>5,079</b>

### SF<sub>6</sub>

SF<sub>6</sub> is used in high-voltage equipment on substations because it is an excellent electrical insulator and is necessary for interrupting currents in circuit breakers. However, SF<sub>6</sub> is a strong contributor to greenhouse gas emissions, as this is over 23,000 times more polluting than CO<sub>2</sub>. Below the leaked and banked amounts are reported.

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	Total
SF <sub>6</sub> leaked (kg)	862	117	979	606	463	1,069	819	115	934
SF <sub>6</sub> banked (kg)	163,661	236,315	399,976	162,151	197,954	360,105	146,648	190,186	336,834
SF <sub>6</sub> leaked %	0.53%	0.05%	0.24%	0.37%	0.23%	0.30%	0.56%	0.06%	0.28%

## 2.4.2 Circularity

In our CSR ambition plan 2025, we have included our ambition to minimise use of scarce materials, reusing materials and reducing waste in our operations. To this extent, we are currently working on obtaining more insights in the materials we use by means of obtaining material passports from our suppliers and identifying all sources of waste. This will provide us with insights to set the basis for our reference year 2020 for our target to reduce both the use of virgin copper, as well as non-recyclable waste with 25% by 2025.

## 2.4.3 Nature

### Environmental incidents

With our operations we have undoubtedly impact on nature. We recognise that we have a responsibility to care for the well-being of the natural environment, and are therefore transparent about the oil leakages and environmental incidents caused by our actions.

	2019			2018			2017		
	NL	D	Total	NL	D	Total	NL	D	Total
Oil Leaked (litres)	1,842	1,995	3,837	954	5,425	6,379	6,849	11	6,860
Environmental incidents	24	26	50	28	27	55	28	16	44

### Use of herbicides

Because of the nature of our operations, operating high voltage infrastructure, mechanically weeding is not always possible. For that reason we make use of herbicides to control plant growth and avoid dangerous situations. For some of the herbicides that are banned on a national level due to risks of application, we have an exception as no reasonable alternatives are available. Herbicides are only used in a limited number of areas, since a permit from the state's agricultural chamber is necessary.



Below the use of herbicides in 2019 in the Netherlands and Germany is reported.

Herbicide	Germany	The Netherlands
Round-up/ Glyphos/ TOUCHDOWN (liters)	5.2	752.6
U 46 MCPA (liters)	0.0	33.0
Basta (liters)	0.0	0.0
Finalsan Plus (liters)	92.9	0.0
Toki/Nozomi (kg)	17	0.0
PROMOTOR (liters)	0.0	0.0

#### *Areas managed in regions of high biodiversity*

The majority of TenneT's lines and cables are outside regions with high biodiversity, since these areas are protected by national and international laws. However, some of our infrastructure does cross areas of high biodiversity and below we report the surface areas managed in protected natural areas in the Netherlands and Germany. Since different types of natural areas overlap, for instance protected bird and habitat areas, the sum of protected areas does not sum up to the total. We aim to collect this data regarding our nature ambition on a periodical basis. The most recent data is collected in 2016, or updated more recent where stated otherwise.

Type of natural protected area Netherlands	Surface area managed in protected area (km <sup>2</sup> )
Total forest and heather	11.6
Total Natura 2000	6.2
Bird guideline area	5.1
Habitat guideline area	4.1
Protected natural area's	0.7
Type of natural protected area Germany	Surface area managed in protected area (km <sup>2</sup> )
Natura 2000 (Bird, Habitat and Flora and Fauna areas)	13.1
Nature conservation areas	6.5
National parks	1.7
Natural parks	63.3
Biosphere reserves	2.3
Special protection area (Birds Directive)	17.4
Wadden Sea World Heritage property	1.6
Ramsar Convention	1.2
Total area (without overlap)	85.8

## 2.5 Secure a solid financial performance and investor rating












We notice that there is a growing interest from the investor community with respect to our Environmental Social and Governance (ESG) policies and performance. This growing interest is also visible when it comes to our green bonds and other forms of green financing.





In 2019, Standard & Poor's has performed an ESG evaluation, an assessment of its ability to operate successfully, now and in the future. Standard & Poor's awarded TenneT the classification 'strong', with a score of 83 out of 100. For more information with respect to this evaluation, please read the full [report](#).

To finance its renewable energy activities, TenneT has developed a Green Financing Framework, which is aligned to the ICMA Green Bond Principles published in June 2018 and the LMA Green Loan Principles published in December 2018. As part of this framework, we have committed ourselves to report on certain performance data with respect to our green financing instruments issued. That is why we publish our Green Finance Report on an annual basis. Here we provide information on the advancement of proceeds and projects, as well as performance information regarding the projects included in the Green Finance portfolio such as the environmental and safety performance of these projects. Our 2019 Green Finance Report is available on our [website](#).

## 2.6 Solve societal challenges with stakeholders and through partnerships

We believe in the power of partnerships and that these are crucial in achieving our goals with respect to the future energy landscape and helping society transition to a low carbon economy. We are working with many stakeholders to find solutions and solve these societal challenges. As we have many partnerships, we have highlighted a selection of this in the overview below.

Partner	Logo	Description	Year
<b>Infrastructure Outlook 2050 with Gasunie</b>		This joint project together with Gasunie aims to find the answers for the energy transition. A scenario where the electricity and gas energy infrastructures are seamlessly integrated is a key element of this partnership. A pilot project together with Thyssengas has been initiated in 2019 called Element Eins, which involves the construction of a power-to-gas installation of 100MW in Lower-Saxony, Germany.	2019
<b>North Sea Wind Power Hub</b>		A partnership together with Energinet, Gasunie and the Port of Rotterdam to evaluate and develop technical concepts for an internationally coordinated roll out of 'hub-and-spoke' powerhubs in the North Sea to help shape a more integrated European energy market.	2017
<b>Vandebon</b>		TenneT is working together with Vandebon in a pilot project, to aggregate power from electric cars and household batteries. This provides flexibility, helping to balance the grid and prevent congestion.	2018
<b>Sonnen E-services</b>		Comparable to our partnership with Vandebon, we are performing a similar pilot with Sonnen E-services in Germany.	2018
<b>GOPACS</b>		A partnership partnership with the Dutch Distribution System Operators (DSOs) to launch a new smart solution to reduce congestion in the electricity grid by using flexible power from the market.	2019
<b>MIGRATE</b>		A consortium where TenneT is working together with 25 partners to find solutions to the technological challenges of the power system stability. In particular, it tackles the growing impact of Power Electronic (PE) devices on the dynamic stability of the grid.	2015
<b>Groene Netten coalition</b>		An initiative of MVO Nederland is the Groene Netten coalition. Here key infrastructure companies are working together with the aim to work together to accelerate aspects with respect to sustainable practices, such as circularity and energy reduction.	2015
<b>De Vlinderstichting</b>		Together with 'De Vlinderstichting' we are working to take next steps with respect to our Nature ambition, aiming to improve the biodiversity near our assets.	2018
<b>St. de Noordzee</b>		In collaboration with St. de Noordzee a positive impact of the Dutch offshore activities in the Netherlands on marine biodiversity is pursued. Stichting de Noordzee and TenneT together gather academics to open a discussion on the possibilities to improve nature and biodiversity in the North sea.	2016
<b>Energy cooperation in the North Sea: NOGEPA, NWEA, TNO, TenneT and Stichting Natuur &amp; Milieu</b>		Dutch offshore North Sea oil and gas operators, the offshore wind sector and NGO's, have joined forces and declare that they will collaborate in order to contribute to a safe, sustainable, reliable and affordable energy system in balance with improving eco-systems.	2016
<b>Green Deal Infra-nature</b>		Via the Green Deal, an instrument from the Dutch ministries to progress sustainability, we are able to: <ul style="list-style-type: none"> <li>• learn from the experience of other companies</li> <li>• create a relevant network with Ministries, NGO's and similar infrastructure companies.</li> <li>• set up a joint lobby for biodiversity related issues. The Ministry of Economic Affairs for example, wants to look upon a solution for the regulatory issues related to biodiversity.</li> </ul>	2016

Partner	Logo	Description	Year
Natuur & Milieu		We signed a partnership agreement with Natuur & Milieu in October 2014 for 'Wind op Zee' (NL). Natuur & Milieu is coordinating the input for the EIA procedure for Wind op Zee.	2014
Cigre, workgroup corridor management		Cigre is an international non-profit association for promoting collaboration with experts from all around the world by sharing knowledge and joining forces to improve electric power systems of today and tomorrow. One of the working groups focusses on biodiversity and landscape to have effective corridor management.	
Best Grid / Renewables Grid Initiative (RGI)		Cooperation with a local NGO to analyse how to connect biotopes via power lines 2014-2015 – Partner was the Renewables Grid Initiative and NABU lower Saxony.	2014
NABU (German BirdLife), under Best Grid		For the project SuedLink, TenneT is cooperating very closely with the regional branch of NABU (German BirdLife) in Lower Saxony. Since 2017, we have agreed with other TSOs and the NABU (Naturschutzbund Deutschland) to set-up a bird hot line. People that find a dead bird in the vicinity of our lines can call this line, managed by the NABU, which keeps a register. The information will be used to change the type of bird flaps we use and potentially help us design new lines that are safer for birds in the future.	2014
The European Grid Declaration on Electricity Network Development and Nature Conservation		Under the RGI, a coalition of 24 organisations, including nine of Europe's largest TSOs, and NGOs such as WWF, Greenpeace, Birdlife International and Friends of the Earth Europe, work together.	2011

## Appendix

2018

Scope 1		conversion factor	emission in ton CO <sub>2</sub> e	net emissions in ton CO <sub>2</sub>
<b>Lease</b>				
480,822 km	DE	0.000181 ton CO <sub>2</sub> /km	87	87
- km	NL	0.000181 ton CO <sub>2</sub> /km	5,445	5,445
<b>Total Lease</b>			<b>5,532</b>	<b>5,532</b>
<b>Gas use offices</b>				
4.43 GWh	DE	178.5 tonnes CO <sub>2</sub> i	791	791
126,474.18 m <sup>3</sup>	NL	0.001785 ton CO <sub>2</sub> e/m	226	-
<b>Total energy use office</b>			<b>1,017</b>	<b>791</b>
<b>SF<sub>6</sub> leakage</b>				
463.00 kg	DE	23.5 ton CO <sub>2</sub> e/kg	10,881	10,881
606.00 kg	NL	23.5 ton CO <sub>2</sub> e/kg	14,241	14,241
<b>Total SF<sub>6</sub> leakage</b>			<b>25,122</b>	<b>25,122</b>
<b>Total Scope 1</b>			<b>31,670</b>	<b>31,444</b>
<b>Scope 2</b>				
<b>Electricity use offices</b>				
3.49 GWh	DE	0 tonnes CO <sub>2</sub> i	-	-
6.23 GWh	NL	476 tonnes CO <sub>2</sub> i	2,963	-
<b>Total Electricity use offices</b>			<b>2,963</b>	<b>-</b>
<b>Grid losses</b>				
3,894.00 GWh	DE	474 tonnes CO <sub>2</sub> i	1,845,756	1,845,756
1,146.20 GWh	NL	476 tonnes CO <sub>2</sub> i	545,591	-
<b>Total grid losses</b>			<b>2,391,347</b>	<b>1,845,756</b>
<b>Electricity use stations</b>				
176 GWh	DE	474 tonnes CO <sub>2</sub> i	83,415	83,415
20 GWh	NL	476 tonnes CO <sub>2</sub> i	9,413	-
<b>Total Electricity use stations</b>			<b>92,827</b>	<b>83,415</b>
<b>Total Scope 2</b>			<b>2,487,138</b>	<b>1,929,171</b>
<b>Scope 3</b>				
<b>Business and commute</b>				
18,816,692 km	DE	0.000181 ton CO <sub>2</sub> /km	3,406	3,406
14,494,221 km	NL	0.000181 ton CO <sub>2</sub> /km	2,623	2,623
<b>Total business and commute</b>			<b>6,029</b>	<b>6,029</b>
<b>Air travel</b>				
5,474,568 km	DE	0.000278 ton CO <sub>2</sub> /km	1,522	1,522
2,926,069 km	NL	0.000278 ton CO <sub>2</sub> /km	813	813
<b>Total air travel</b>			<b>2,335</b>	<b>2,335</b>
<b>Train</b>				
4,341,889 km	DE	0.000005 ton CO <sub>2</sub> /km	22	22
1,916,132 km	NL	0.000005 ton CO <sub>2</sub> /km	10	10
<b>Total Train</b>			<b>31</b>	<b>31</b>
<b>Offshore transport</b>				
<b>Helicopters</b>				
446,886 l	DE	0.00354 ton CO <sub>2</sub> /l	1,582	1,582
<b>Supply vessels</b>				
1,579,500 l	DE	0.00292 ton CO <sub>2</sub> /l	4,612	4,612
<b>Total offshore transport</b>			<b>6,194</b>	<b>6,194</b>
<b>Total Scope 3</b>			<b>14,590</b>	<b>14,590</b>
<b>Total</b>			<b>2,533,397</b>	<b>1,975,205</b>



2017

Scope 1			conversion factor	emission in ton CO2e	net emissions in ton CO2
<b>Lease</b>					
	417,109 km	DE	0.000181 ton CO2/km	75	75
	- km	NL	0.000181 ton CO2/km	5,092	5,092
<b>Total Lease</b>				<b>5,167</b>	<b>5,167</b>
<b>Gas use offices</b>					
	4.01 GWh	DE	178.5 tonnes CO2i	716	716
	124,281.00 m3	NL	0.001785 ton CO2e/m	222	-
<b>Total energy use office</b>				<b>938</b>	<b>716</b>
<b>SF6 leakage</b>					
	114.85 kg	DE	23.5 ton CO2e/kg	2,699	2,699
	819.00 kg	NL	23.5 ton CO2e/kg	19,247	19,247
<b>Total SF6 leakage</b>				<b>21,945</b>	<b>21,945</b>
<b>Total Scope 1</b>				<b>28,051</b>	<b>27,829</b>
<b>Scope 2</b>					
<b>Electricity use offices</b>					
	5.26 GWh	DE	0 tonnes CO2i	-	-
	4.96 GWh	NL	476 tonnes CO2i	2,361	-
<b>Total Electricity use offices</b>				<b>2,361</b>	<b>-</b>
<b>Grid losses</b>					
	3,724.00 GWh	DE	474 tonnes CO2i	1,765,176	1,765,176
	1,355.60 GWh	NL	476 tonnes CO2i	645,266	-
<b>Total grid losses</b>				<b>2,410,442</b>	<b>1,765,176</b>
<b>Electricity use stations</b>					
	168.70 GWh	DE	474 tonnes CO2i	79,964	79,964
	19.32 GWh	NL	476 tonnes CO2i	9,195	-
<b>Total Electricity use stations</b>				<b>89,159</b>	<b>79,964</b>
<b>Total Scope 2</b>				<b>2,501,961</b>	<b>1,845,140</b>
<b>Scope 3</b>					
<b>Business and commute</b>					
	17,687,124 km	DE	0.000181 ton CO2/km	3,201	3,201
	13,800,456 km	NL	0.000181 ton CO2/km	2,498	2,498
<b>Total business and commute</b>				<b>5,699</b>	<b>5,699</b>
<b>Air travel</b>					
	4,697,483 km	DE	0.000278 ton CO2/km	1,306	1,306
	2,942,113 km	NL	0.000278 ton CO2/km	818	818
<b>Total air travel</b>				<b>2,124</b>	<b>2,124</b>
<b>Train</b>					
	4,307,763 km	DE	0.000005 ton CO2/km	22	22
	1,430,288 km	NL	0.000005 ton CO2/km	7	7
<b>Total Train</b>				<b>29</b>	<b>29</b>
<b>Offshore transport</b>					
<b>Helicopters</b>					
	567,811.8 l	DE	0.00354 ton CO2/l	2,010	2,010
<b>Supply vessels</b>					
	1,579,500 l	DE	0.00292 ton CO2/l	4,612	4,612
<b>Total offshore transport</b>					
<b>Total Scope 3</b>				<b>14,474</b>	<b>14,474</b>
<b>Total</b>				<b>2,544,486</b>	<b>1,887,443</b>