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**BOMBARDIER TRANSPORTATION
NETHERLANDS B.V.**

CO₂ Reduction Plan 2017-2021

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November 1, 2018

BOMBARDIER



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BOMBARDIER IN THE NETHERLANDS

Reduction of CO₂ emissions

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The world is changing. Sustainability is becoming more important within the daily routine. Climate change is on our mind, which is also visible in the vision of our society and the vision on how we should treat the planet. We find it to be more common to behave more environmental friendly and to reduce CO₂ emissions in our daily lives. Therefore, Bombardier Transportation Netherlands B.V. has decided to act and introduce a CO₂ reduction system.

The effects of this decision are clearly visible within and outside the organization. Internally Bombardier Transportation Netherlands B.V. maximizes the possibilities to prevent negative effects on the environment. In projects Bombardier Transportation Netherlands B.V. is proactive in taking measures that reduce the CO₂ emissions of its activities.

ENERGY ASSESSMENT

The aim of the energy assessment is to analyze the current and prior-period energy usage of Bombardier Transportation Netherlands B.V. The assessment will compose of at least 80% of the energy used.

The most energy consumption flows of Bombardier Transportation Netherlands B.V. are:

- Fuel consumption 61%
- Flights 20%
- Electricity 17%

As a result, most of the CO₂ emissions of Bombardier Transportation Netherlands B.V. are caused by fuel consumption. These 61% equal to 89 tons of CO₂ emissions and are emitted by 15 cars in total.

The second highest in the list, are emissions caused by flights with a total of 28 tons (20%) of CO₂ emissions. Emissions caused by flights are followed-up by emissions resulting from electricity consumption, altogether 24 tons of CO₂ emissions.

Trends in the energy usage and progress in CO₂ reduction

The table below shows the progress in CO₂ emissions reduction since a base year 2016. An absolute number of CO₂ emissions have slightly increased in 2017 if compared to the year of 2016. From the year 2017, Bombardier Transportation Netherlands B.V. is going to measure, control and reduce its CO₂ emissions. Therefore, starting from the year 2018 there will be a visible trend.

This is the first year Bombardier Transportation Netherlands B.V. gathers information about its CO₂ emissions. Therefore, there are no previous energy assessments done yet.

Please note:

The table shows that there was a big difference in amount of flights between 2016 and 2017. In 2017 there has been an increase in CO₂ emissions of almost 10 tons. This is due to the significant increase in mid-length flights (700 - 2500 km).

An independent control of the emission data was done on the 06-03-2017 by Marjan Kloos (Dé CO₂ Adviseurs).

Trends progress in CO₂ reduction (tons kg)

Scope 1	2016	2017	Percentage change
Gas consumption	3,36	2,46	- 27%
Diesel	12,75	15,07	18%
Petrol	78,81	74,10	6%
Total	94,92	91,63	-3%

Scope 2	2016	2017	Percentage change
Electricity usage (grey)	24,64	22,81	-7%
Electricity usage electric cars (grey)	1,48	1,65	12%
Business km OV	2,03	2,26	11%
Short-haul flights < 700	5,47	0,57	-90%
Medium-haul flights 700-2500	8,22	19,37	136%
Long-haul flights > 2500	4,79	7,95	66%
Total	46,63	54,61	17%

Total scope 1 and 2	141,55	146,24	3%
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IMPROVEMENT POTENTIAL

Based on the first CO₂ data footprint of Bombardier Transportation Netherlands B.V., the fuel consumption of the leased cars has been chosen for further investigation in 2018. For the energy assessment, Bombardier Transportation Netherlands B.V. delved into the issue of fuel consumption of leased cars, based on the amount of fuel which has been used.

In 2016: 13 cars were in the fleet. In 2017: the amount of cars leased has grown to 15. From the cars that were added to the fleet, four cars were labeled A and two had economy label B. From the cars which has been removed from the fleet, three had economy label A and from one car the economy label is unknown.

Improvement insight

Measure 1: To implement a detailed registration of tank and driving data so there will be more insight in fuel consumption and emissions of the cars used.

Measure 2: Stimulate employees to fill in the correct kilometers - In 2016 and 2017 there are no mileages known so the actual consumption per car cannot be determined.

Measure 3: Collect tank data of all cars.

Potential for reduction

The energy analysis of fuel consumption showed us the following possibilities to further reduce CO₂ emissions:

Measure 1: Training which teaches the employees to drive in a more economical way. Also, feedback on driving style will be given to the drivers.

Measure 2: Make the fleet more sustainable by setting a maximum level for CO₂ emissions in the lease policy. This might be done by leasing electric cars in the future.

Measure 3: Reducing peak traffic so the emissions are lower and employees can drive longer and further on one full tank.

Measure 4: Tracking system for better registration of, among other things, driving style and fuel consumption.

The measures above are included in the CO₂ Reduction Plan.

Comparison of the objectives with peers

The CO₂ Performance Ladder states that the objectives of Bombardier Transportation Netherlands B.V. need to be realistic and ambitious. To assess this, an analysis of the objectives of peers in the same field was made.

Bombardier Transportation Netherlands B.V. could be compared to the companies in the same sector of services. Therefore, the main reduction objective has to be equal to companies in the sector. According to the measure list of the SKAO, Bombardier Transportation Netherlands B.V. achieves an overall score of B: Semi-Advanced.

Several examples of sectoral fellows who held the CO₂ Performance Ladder certificate have the following objectives:

- Peer 1 | Siemens Nederland

They set their reduction objective to reduce 50% in scope 1 and 2 in 2020 compared to 2011.

They take the following measures to realize this objective:

- Applying decentralized energy systems to optimize energy costs
- Use of vehicles which have low emissions
- Increasing use of energy with little or no CO₂ emissions, such as natural gas or wind energy

- Peer 2 | Alstom Transport

They set their reduction objective to reduce 10% in scope 1 and 2 in 2020 compared to 2014.

They take the following measures to realize this objective:

- Purchase of renewable energy
- Use of a smaller office space
- Attention to driving style by means of a drivers challenge



MAIN CO₂ OBJECTIVES

Bombardier Transportation Netherlands B.V. wants to emit 15% less CO₂ in 2021 compared to 2016.

This is specified in the following objectives for scope 1 and 2:

Scope 1 10% reduction in 2021 compared to 2016

Scope 2 50% reduction in 2021 compared to 2016

Scope 1 Sub-objective fuel consumption fleet

In order to be able to achieve the scope 1 objective, the possible reduction measures have taken into account how much fuel can be saved with the company cars. This has been estimated at approximately 10% reduction in the next four years. This reduction is related to the total number of kilometers driven.

Scope 2 Sub-objective electricity consumption

In order to be able to reduce electricity consumption and associated CO₂ emissions, measures have been taken in Bombardier Transportation Netherlands B.V. This has been estimated at a 50% reduction in consumption over the next four years. To be able to monitor this, progress is linked to the number of degree days.

Measure Planning

- Switch to green electricity (purchasing Dutch gvo's)
- Lights out when the sun is shining
- Efficient electricity usage in the lab
- More economical cars at replacement
- More efficient driving
- Tracking systems in all lease cars
- No driving in rush hours to reduce CO₂ emissions
- Green Driver Challenge/ 'The new driving'

Progress in CO₂ reduction

This is the first year that the CO₂ emissions are calculated. There is no progress to be shown yet. A progress table will be presented from 2018 onwards.

In addition to evaluating the progress of the whole scope 1 and 2, the main objective is also set up in order to formulate objectives, which are more detailed and measurable. Every half year, during the evaluation of the reduction plan, the progress in CO₂ reduction will be described below for each sub-objective. This progress is demonstrated on the basis of the collected emission data concerning scope 1 and 2.

Participation in sector- and chain initiatives

The idea behind participation in an initiative is that information can be exchanged through interaction with other companies, so new ideas and developments in the field of CO₂ reduction can be realized in collaboration. For this purpose, active participation is required, for example, through working groups.

Current initiative:

Bombardier is participating in Platform Duurzaam OV & Spoor (Platform Sustainable Public Transport & Rail). The platform aims at a CO₂ neutral public transport in 2050 and created future scenarios for 7 different themes that reflect the important technological and social changes for CO₂ neutral 2050. Working together within this platform with industry and governmental institutions is very beneficial for us to achieve our ambitious objectives. As a leader in rail technology, we can provide the platform with performance information about our innovations in the area of energy reduction, such as the battery-powered *TALENT 3* train or new energy saving computer systems for safety signalling.



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