

## Multidata - Bluegarden

This report is an independent review of the company's Carbon Footprint Analysis based on the total energy consumption related to corporate operations. The carbon footprint gives a general overview of the company's greenhouse gas emissions, converted into CO<sub>2</sub> - equivalents and it is based on reported data from internal and external systems.

The analysis facilitates the identification of possible measures to reduce the energy consumption and thus also the overall carbon footprint. The purposes of the carbon indicators are to measure the carbon intensity per employee and per value creation in addition to showing environmental transparency towards external players.

The analysis is based on the international standard **Greenhouse Gas Protocol Initiative (GHG protocol)**, which is the most important standard for measuring greenhouse gas emissions, developed by World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD). The GHG protocol consists of two accounting standards explaining how to calculate and report GHG emissions and was the basis for the ISO standard 14064-I. The GHG protocol founds its carbon inventory and reporting on three main scopes of direct and indirect emissions. The reporting considers the following greenhouse gases, all converted into CO<sub>2</sub> equivalents: CO<sub>2</sub>, CH<sub>4</sub> (methane), N<sub>2</sub>O (laughing gas), SF<sub>6</sub>, HFCs and PFCs.

The company's total amount for 2009 are **1 057,0** tonnes CO<sub>2</sub>.

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**Key figures emissions**

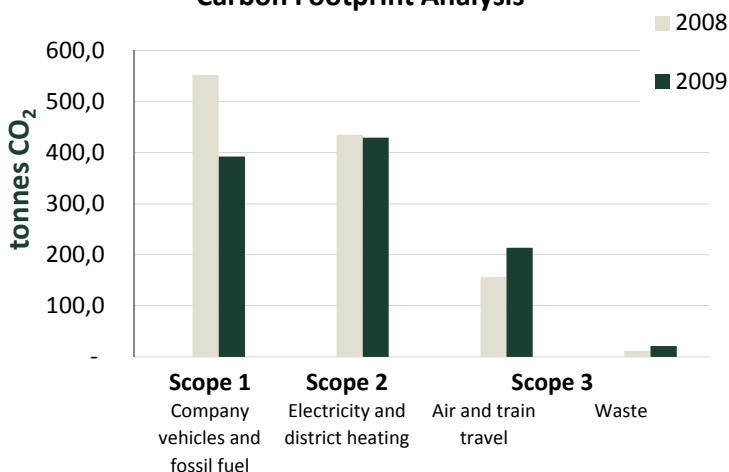
Category	Consumption	Energy eq. (MWh) <sup>1</sup>	Emissions (tonnes CO <sub>2</sub> )	Percentage
Petrol	54 930 l	502,3	127,8	12 %
E85	- l	-	-	-
Diesel	52 202 l	483,2	131,4	12 %
Bio diesel 5%	- l	-	-	-
Autogas vehicles	1 280 l	7,0	0,2	-
Electric cars	7 154 kWh	65,1	16,6	-
Fuel oil / kerosene	- l	-	-	-
Propane / LPG	- l	-	-	-
Natural gas	49 831 m <sup>3</sup>	697,6	116,6	11 %
<b>Sum scope 1</b>		<b>1755,2 MWh</b>	<b>392,6 tonnes CO<sub>2</sub></b>	<b>36 %</b>
Electricity	2 090 650 kWh	2 090,7	385,4	36 %
District heating	386 121 kWh	386,1	44,0	4 %
<b>Sum scope 2</b>		<b>2476,8 MWh</b>	<b>429,4 tonnes CO<sub>2</sub></b>	<b>41 %</b>
Flight hours	2 830 hours		214,0	20 %
Train	- km		-	-
Transportation of goods	- tonne km		-	-
General waste	77 870 kg		21,0	2 %
Paper	27 492 kg		-	0 %
Glass	- kg		-	-
Metal	- kg		-	-
Plastic	- kg		-	-
Organic waste	2 435 kg		-	-
<b>Sum scope 3</b>		<b>0,0</b>	<b>235,0 tonnes CO<sub>2</sub></b>	<b>22 %</b>
<b>Total corporate CO<sub>2</sub> emissions</b>		<b>4232,0 MWh</b>	<b>1057,0 tonnes CO<sub>2</sub></b>	<b>98 %</b>

1) Energy equivalent is calculated for the corporate main operations (scope 1 and 2) to show the yearly energy intensity related to the corporate daily activities.

**Energy and carbon indicators**

	2008	2009	08/09
Total corporate CO <sub>2</sub> emissions:	1116,9	1057,0	-5,4 %
Total energy consumption scope 1 and 2 (MWh):	4557,2	4232,0	-7,1 %
Energy consumption per square metre (kWh / m <sup>2</sup> )	215,3	190,0	-11,7 %
CO <sub>2</sub> emissions per employee (tonnes CO <sub>2</sub> / employee)	1,7	1,6	-5,9 %
CO <sub>2</sub> emissions per turnover (tonnes CO <sub>2</sub> / million NOK)	1,3	1,2	-10,7 %

**Carbon Footprint Analysis**



**Reporting according to the Greenhouse Gas Protocol**

**Scope 1: Direct emissions**

Comprises all direct emissions from company controlled sources, such as company vehicles, own power and heat generation, transportation of employees etc.

**Scope 2: Indirect emissions**

This level concerns all emissions from purchased energy, mainly electricity or district heating.

**Scope 3: Indirect emissions**

Comprises other indirect emissions from company activities originating from sources not controlled by the company, such as, emissions from sub-suppliers, service and waste management.

## Key figures emissions

Category	2008	Notes	2009	08/09
Petrol	210,6	1	127,8	-39 %
E85	2,1	1	-	-100 %
Diesel	133,1	1	131,4	-1 %
Bio diesel 5%	-		-	-
Autogas vehicles	-		0,2	-
Electric cars	-		16,6	-
Fuel oil / kerosene	-		-	-
Propane / LPG	-		-	-
Natural gas	206,8	1	116,6	-44 %
<b>Sum scope 1</b>	<b>552,6</b>		<b>392,6</b>	<b>-29 %</b>
Electricity	406,5	2	385,4	-5 %
District heating	28,9	3	44,0	52 %
<b>Sum scope 2</b>	<b>435,4</b>		<b>429,4</b>	<b>-1 %</b>
Air travel	156,9	4	214,0	36 %
Train travel	-		-	-
Transportation of goods	-		-	-
General waste	11,7	5	21,0	80 %
Paper	-	5	-	0 %
Glass	-		-	-
Metal	-		-	-
Plastic	-		-	-
Organic waste	-		-	-
<b>Sum scope 3</b>	<b>168,6</b>		<b>235,0</b>	<b>39 %</b>
<b>Total corporate CO<sub>2</sub> emissions</b>	<b>1156,6</b>		<b>1 057,0</b>	<b>-9 %</b>

## Notes

1. Reported annual quantities of; fuel usage in liters and m3, and private car user scheme (PCUS).
2. Reported annual amount of electricity usage. To calculate emission from the electricity used in Norway and Sweden, we used the Nordic mix factor from 2004-2008 of 0,099 kg CO<sub>2</sub>/kWh (Source: Nordel & PointCarbon). Emission from the electricity used in Denmark was calculated using the Energinet.dk emission factor for east Denmark of 0,465 kg CO<sub>2</sub>/kWh, giving consideration to a 5% transmission losses.
3. Reported amount of district heating. To calculate emission from district heating, we used an emission factor of ,114 kg CO<sub>2</sub>/kWh, calculated based on the fuel mix used by Hafslud in producing district heating in Oslo and its environs.
4. Emission from flight is based on annual amount of CO<sub>2</sub> in tons reported by the travelling agencies.
5. Reported quantities of general waste and paper. Paper is almost completely recycled and in this way benefits the environment and hence do not contribute to greenhouse gas emission.

## Reference

- Scope 1 - Carbon indicator for fuel; SFT (Norwegian Pollution Control Authority) and Energilink (Teknisk Ukeblad)  
- Energy converting for fuel; Energilink and NVE, NP, BP and Statoil Forskningscenter (2001-2008).
- Scope 2 - Carbon indicator for electricity is calculated from a Nordic production mix. Reference: Nordel and PointCarbon.  
- Carbon indicator for district heating is calculated out of an energy mix, reported from the district heating supplier.
- Scope 3 - Carbon indicator for flights is calculated based on information from Lavutslippsutvalget and DEFRA.  
- Carbon indicator for transportation of goods; SINTEF, DEFRA, SSB, NSB, Swedish National Road and Transport Research Institute.  
- Carbon indicator for the management of general waste: Grønn Byggallianse and recycled waste (energy- or material recycle) from Avfall Norge. Either the process of waste is energy- or recycling of waste materials, it gives in this context. zero emission.