



Carbon accounting report 2016

DNB

The aim of this report is to get an overview of the organisation's greenhouse gas (GHG) emissions, which is an integrated part of the company's climate strategy. The carbon accounting is a fundamental tool in order to identify concrete measures to reduce the energy consumption and corresponding GHG emissions. The annual report enables the organisation to benchmark performance indicators and evaluate progress over time.

This report comprises all units within DNB ASA, including international affiliates. Scope 3 emissions does not include indirect GHG emissions related to purchased energy made by DNB Commercial Property.

The input data is based on information from both internal and external data sources and then converted into tonnes CO₂-eq. The analysis is based on the international standard; A Corporate Accounting and Reporting Standard, developed by the Greenhouse Gas Protocol Initiative (GHG protocol). This is the most important standard for measuring greenhouse gas emissions and was the basis for the ISO standard 14064-1.

Energy and GHG emissions

Category	Description	Consumption	Unit	Energy (MWh eqv)	Emissions (tCO ₂ e)	Emissions (distribution)
<i>Transportation</i>				3 893.1	968.1	6.0%
Diesel (B5)		150 359.0	liters	1 520.1	382.2	2.4%
Diesel		128 448.0	liters	1 366.7	343.8	2.1%
Petrol		105 149.0	liters	1 006.3	242.1	1.5%
<i>Stationary combustion</i>				103.0	19.0	0.1%
Natural gas		103 033.0	kWh	103.0	19.0	0.1%
Scope 1 total				3 996.1	987.0	6.1%
<i>Electricity*</i>				46 321.0	5 542.6	34.3%
Electricity Nordic mix		36 894 880.0	kWh	36 894.9	2 066.1	12.8%
Electricity Germany		119 057.0	kWh	119.1	57.5	0.4%
Electricity Estonia		168 572.0	kWh	168.6	165.0	1.0%
Electricity Lithuania		3 096 288.0	kWh	3 096.3	681.2	4.2%
Electricity Singapore		824 241.0	kWh	824.2	375.0	2.3%
Electricity USA		1 244 507.0	kWh	1 244.5	607.3	3.8%
Electricity China		183 165.0	kWh	183.2	129.1	0.8%
Electricity Luxembourg		457 912.0	kWh	457.9	144.7	0.9%
Electricity United Kingdom		330 000.0	kWh	330.0	149.8	0.9%
Electricity Brazil		27 475.0	kWh	27.5	3.6	-
Electricity Latvia		1 671 842.0	kWh	1 671.8	197.3	1.2%
Electricity Poland		1 129 062.0	kWh	1 129.1	864.9	5.4%
Electricity India		27 475.0	kWh	27.5	22.1	0.1%
Electricity Greece		54 949.0	kWh	54.9	36.9	0.2%
Electricity Chile		91 582.0	kWh	91.6	41.9	0.3%
<i>DH Nordic locations</i>				16 443.2	930.5	5.8%
District heating SE/Stockholm		232 266.0	kWh	232.3	12.0	0.1%
District heating NO/Oslo		4 549 025.0	kWh	4 549.0	68.2	0.4%
District heating Denmark mix		68 169.0	kWh	68.2	8.0	-
District cooling SE/Stockholm		19 287.0	kWh	19.3	0.5	-
District heating NO/Trondheim		790 243.0	kWh	790.2	21.9	0.1%
District heating NO/Bergen		1 103 899.0	kWh	1 103.9	22.6	0.1%
District heating Latvia mix		869 701.0	kWh	869.7	151.3	0.9%
District heating LI/Vilnius		2 475 831.0	kWh	2 475.8	391.4	2.4%
District cooling NO/Oslo		4 815 386.0	kWh	4 815.4	211.9	1.3%
District heating Norway mix		1 519 420.0	kWh	1 519.4	42.7	0.3%
<i>District heating general</i>				1 252.1	0.1	-
District heating Bio 80%		7 658.0	kWh	7.7	0.1	-
District cooling Seawater		1 244 420.0	kWh	1 244.4	-	-
<i>Heat fuel specific</i>				350.0	64.4	0.4%
Heat-natural gas		349 961.0	kWh	350.0	64.4	0.4%
Scope 2 total				64 366.3	6 537.6	40.5%
<i>Air travel</i>				-	6 061.5	37.6%
Continental		14 122 257.0	pkm	-	1 257.6	7.8%
Intercontinental		18 385 324.0	pkm	-	1 862.6	11.5%
Domestic		19 961 563.0	pkm	-	2 941.3	18.2%
Nordic		-	pkm	-	-	-
<i>Business travel</i>				-	752.9	4.7%
Mileage all. car (NO)		4 400 809.0	km	-	651.3	4.0%
Mileage all. avg.		527 251.0	km	-	98.6	0.6%
Petrol car avg.		1 305.0	liters	-	3.0	-

<i>Waste</i>				-	428.7	2.7%
Waste, incinerated		558 084.0	kg	-	280.2	1.7%
Paper, recycled		2.8	m3	-	-	-
Paper, recycled		400 121.4	kg	-	12.8	0.1%
Glas, recycled		19 969.8	kg	-	0.6	-
Metal, recycled		4 213.0	kg	-	0.1	-
Organic, recycled		6.9	m3	-	0.1	-
Organic, recycled		13 839.1	kg	-	0.4	-
Plastic, recycled		128.0	m3	-	0.3	-
Plastic, recycled		7 691.0	kg	-	0.2	-
WEEE, recycled		18 074.0	kg	-	0.6	-
Wood waste, incinerated		13 700.0	kg	-	0.4	-
Special waste		2 160.7	kg	-	0.1	-
Hazardous waste, recycled		-	kg	-	-	-
Hazardous waste, incinerated		-	kg	-	-	-
Waste mix, landfill		27.6	m3	-	2.9	-
Waste mix, landfill		308 405.3	kg	-	129.8	0.8%
<i>Autolease kunder - klimavoter</i>				-	1 255.0	7.8%
Diesel		1 255 000.0	kgCO2	-	1 255.0	7.8%
<i>Tap fra elektrisitetsnettet</i>				-	101.7	0.6%
Electricity Nordic grid loss		36 319 519.0	kWh	-	101.7	0.6%
<i>Water consumption</i>				-	17.7	0.1%
Water supply		12 876.0	m3	-	4.4	-
Water supply	Bjørvika	38 576.0	m3	-	13.3	0.1%
Scope 3 total				-	8 617.5	53.4%
<i>Total</i>				68 362.4	16 142.2	100.0%
<i>*Alternative Electricity emissions-Market based method (RECs, GoO)</i>						

Office space (m2): DNB in Norway is restructuring locations and premises, resulting in a decline in office space. The office space areas show a reduction of 7% compared to the total office area in 2015.

Electricity, district heating and cooling in Norway: The energy consumption and energy sources in the 21 largest premises have been identified. The remaining electricity consumption is estimated to include only electricity and calculated on the basis of kWh/m2 from the 21 largest premises. The Nordic electricity emission factor in 2016 have a been reduced with 13% compared to 2015.

Electricity, district heating and cooling - international affiliates: Since 2015 the numbers include all international affiliates for the first time. Energy consumption for offices with less than 50 full times employees is estimated. However, the level of uncertainty and the actual impact is considered low.

Air travel: The reported data is actual travel distance (person kilometre) per region reported by the travel agency and comprise all units within DNB ASA, including international affiliates.

*Scope 2 electricity: DNB ASA purchases Guarantees of Origination of renewable energy production covering all its electricity consumption. The GHG emissions calculated in scope 2 for purchased electricity is calculated according to locations based method (total of 5 543 tCO2). Hence, the scope 2 GHG emissions calculated according to the marked based methodology will be zero. For more explanation, read chapter "Methodology and Sources" under Scope 2.

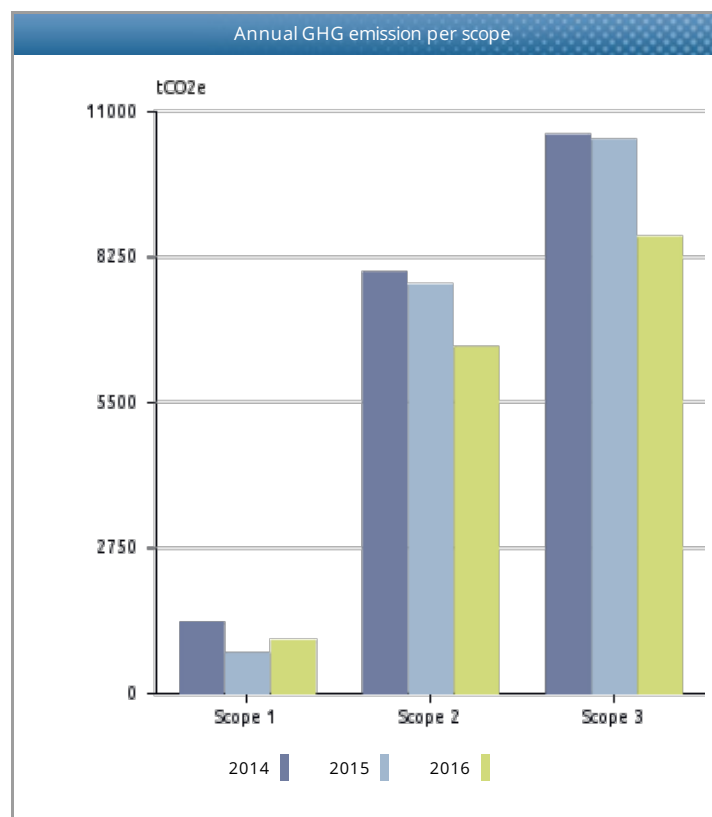
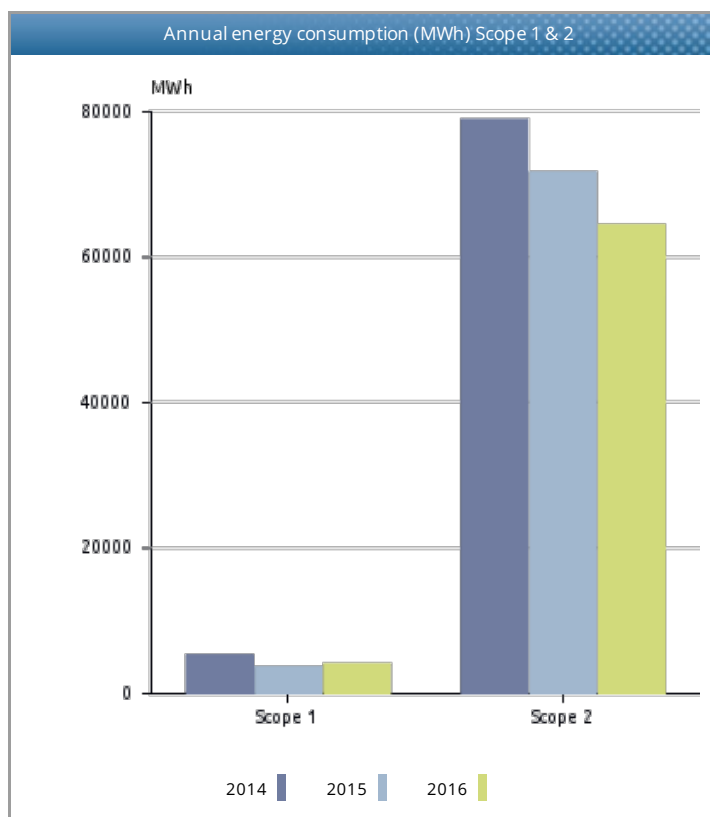
Yearly report – GHG emissions (tCO₂e)

Category	Description	2014	2015	2016	% change from previous year
<i>Stationary combustion</i>					-
Burning oil		35.9	-		-
Gas oil		8.6			-
Natural gas		86.9	5.3	19.0	255.9%
<i>Transportation</i>					-
CNG (compr.nat.gas)		0.2			-
Diesel		328.5	454.4	343.8	-24.4%
Diesel (B5)		562.8	68.5	382.2	458.0%
Diesel (B5)				-	-
E85 bioetanol		-			-
Petrol		313.0	223.7	242.1	8.2%
Scope 1 Emissions		1 335.9	751.9	987.0	31.3%
<i>DH Nordic locations</i>					-
District cooling NO/Oslo		226.9	209.2	211.9	1.3%
District cooling SE/Stockholm				0.5	100.0%
District heating Denmark mix			8.9	8.0	-10.8%
District heating Latvia mix		145.1	111.7	151.3	35.5%
District heating LI/Vilnius		560.7	609.5	391.4	-35.8%
District heating NO/Bergen		78.7	37.5	22.6	-39.6%
District heating NO/Drammen		35.0			-
District heating NO/Fredrikstad		7.7			-
District heating NO/Hamar		8.6			-
District heating NO/Oslo		278.4	84.9	68.2	-19.6%
District heating NO/Trondheim		121.0	36.2	21.9	-39.5%
District heating Norway mix		17.9	121.1	42.7	-64.8%
District heating SE/Stockholm			5.1	12.0	136.0%
<i>District heating general</i>					-
District cooling Seawater			-	-	-
District heating Bio 80%			0.7	0.1	-79.4%
<i>Electricity*</i>					-
Electricity Brazil			3.7	3.6	-2.0%
Electricity Chile			86.6	41.9	-51.6%
Electricity China			242.8	129.1	-46.8%
Electricity Estonia		213.1	183.8	165.0	-10.2%
Electricity Finland		5.2			-
Electricity Germany			66.6	57.5	-13.7%
Electricity Greece				36.9	100.0%
Electricity India				22.1	100.0%
Electricity Latvia		238.0	219.8	197.3	-10.2%
Electricity Lithuania		1 313.4	950.2	681.2	-28.3%
Electricity Luxembourg			93.1	144.7	55.4%
Electricity Nordic mix		4 637.5	2 772.6	2 066.1	-25.5%
Electricity Poland			1 052.4	864.9	-17.8%
Electricity Singapore			117.1	375.0	220.3%
Electricity United Kingdom			175.5	149.8	-14.6%
Electricity USA			418.8	607.3	45.0%
<i>Heat fuel specific</i>					-
Heat-natural gas		65.4	104.7	64.4	-38.5%

<i>Scope 2 Emissions</i>		7 952.5	7 712.4	6 537.6	-15.2%
<i>Air travel</i>					-
Continental		790.2	1 260.7	1 257.6	-0.2%
Domestic		3 431.5	3 515.9	2 941.3	-16.3%
Intercontinental		1 312.5	2 050.7	1 862.6	-9.2%
Nordic				-	-
<i>Waste</i>					-
Desktop computer,dismantled			0.1		-100.0%
Glas,recycled		0.5	0.6	0.6	10.7%
Hazardous waste,recycled			-	-	-
Hazardous waste,incinerated				-	-
LCD screen,dismantled			0.5		-100.0%
Metal,recycled		0.4	-	0.1	229.3%
MSW (EU27),landfill		242.1			-
Organic,recycled		0.3	0.4	0.6	37.6%
Paper,recycled		15.3	18.6	12.8	-30.9%
Plastic,recycled		0.2	0.2	0.5	119.9%
Special waste		0.2	0.4	0.1	-83.0%
Waste mix, landfill			83.2	132.7	59.5%
Waste,incinerated		395.1	366.9	280.2	-23.7%
WEEE,recycled		0.6	0.4	0.6	43.1%
Wood waste,incinerated		-	-	0.4	100.0%
<i>Autolease kunder - klimavoter</i>					-
Diesel		3 421.0	2 171.0	1 255.0	-42.2%
<i>Tap fra elektrisitetsnettet</i>					-
Electricity Nordic grid loss			130.0	101.7	-21.8%
<i>Business travel</i>					-
Mileage all. avg.				98.6	100.0%
Mileage all. car (NO)		925.8	839.2	651.3	-22.4%
Petrol car avg.				3.0	100.0%
<i>Water consumption</i>					-
Water supply	Bjørvika	12.7	13.0	13.3	2.0%
Water supply			4.8	4.4	-8.6%
<i>Scope 3 Emissions</i>		10 548.3	10 456.7	8 617.5	-17.6%
Total		19 836.6	18 921.0	16 142.2	-14.7%
<i>Percentage change</i>			-4.6%	-14.7%	
<i>*Alternative Electricity emissions-Market based method (RECs, GoO)</i>					
<i>Percentage change</i>			-	-	

Key energy and climate performance indicators

Name	Unit	2014	2015	2016	% change from previous year
Sum energy per location (MWh)		78 852.1	71 658.4	64 366.3	-10.2%
Total energy scope 1 +2 (MWh)		84 106.9	75 247.8	68 362.4	-9.2%
Total emissions (s1+s2+s3) (tCO2e)		19 836.6	18 921.0	16 142.2	-14.7%
Scope 1 + 2 emissions (tCO2e)		9 288.3	8 464.4	7 524.7	-11.1%



Methodology and sources

The Greenhouse Gas Protocol Initiative (GHG protocol) is developed by the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD). This analysis is according to A Corporate Accounting and Reporting Standard Revised edition, currently one of four GHG Protocol accounting standards explaining how to calculate and report GHG emissions. The reporting considers the following greenhouse gases, all converted into CO₂ equivalents: CO₂, CH₄ (methane), N₂O (laughing gas), SF₆, HFCs and PFCs.

This analysis is based on the operational control aspect that defines what should be included in the carbon inventory, as well as in the different scopes. When using the control approach to consolidate GHG emissions, companies shall choose between either the operational control or financial control criteria. Under the control approach, a company accounts for the GHG emissions from operations over which it has control. It does not account for GHG emissions from operations in which it owns an interest but has no control.

The carbon inventory is divided into three main scopes of direct and indirect emissions.

Scope 1 Mandatory reporting includes all direct emission sources where the organisation has operational control. This includes all use of fossil fuels for stationary combustion or transportation, in owned, leased or rented assets. It also includes any process emissions, from e.g. chemical processes, industrial gases, direct methane emissions etc.

Scope 2 Mandatory reporting includes indirect emissions related to purchased energy; electricity or heating/cooling where the organisation has operational control. The electricity emissions factors used in CEMAsys is based on national gross electricity production mixes on a 3 years rolling average (IEA Stat). The Nordic electricity mix covers the weighted production in Sweden, Norway, Finland and Denmark, which reflects the common Nord Pool market area. Emission factors per fuel type are based on assumption in the IEA methodological framework. Factors for district heating/cooling are either based on actual (local) production mixes, or average IEA stat.

In January 2015, the GHG Protocol published new guidelines for calculating emissions from electricity consumption.

Primarily two methods are used to “allocate” the GHG emissions created by electricity generation to the end consumers of a given grid. These are the *location-based* and the *market-based* method. The location-based method reflects the average emissions intensity of grids on which energy consumption occurs, while the market-based method reflects emissions from electricity that companies have purposefully chosen (or their lack of choice).

Businesses who report on their GHG emissions will now have to disclose both location-based emissions from the production of electricity and the market-based emissions related to the potential purchase of Guaranties of Origin (GoO).

The purpose of this amendment in the reporting method is on one hand to show the impact of energy efficiency and saving measures, and on the other hand to display how the acquisition of GoOs affect the GHG-emissions. Using both methods in the emission reporting highlights the effect of all measures regarding electricity consumption.

The location-based method: The location-based method is based on statistical emissions information and electricity output aggregated and averaged within a defined geographic boundary and during a defined time period. Within this boundary, the different energy producers utilize a mix of energy resources, where the use of fossil fuels (coal, oil and gas) result in direct GHG-emissions. These emissions are reflected in the location-based emission factor.

The market-based method: The choice of emission factor using this method is determined by whether the business acquires GoOs or not. When selling GoOs, the supplier certify that the electricity is produced by only renewable sources, which has an emission factor of 0 grams of CO₂e per kWh. However, for electricity without the guarantee of origin, the emission factor is based on the remaining electricity production after all GoOs for renewable energy are sold. This is called a *residual mix*, which is normally substantially higher than the location-based factor. As an example, the market-based Norwegian residual mix factor is approximately 7 times higher than the location-based Nordic mix factor. The reason for this high factor is due to Norway's large export of GoOs to foreign consumers. In a market perspective, this implies that Norwegian hydropower is largely substituted with an electricity mix including fossil fuels.

Scope 3 Voluntary reporting of indirect emissions from purchased products or services in the value chain. The scope 3 emissions are a result of the company's different activities, which are not controlled by the company, i.e. they're indirect. Examples are business travel, goods transportation, waste handling, consumption of products etc. In general, the GHG report

should include information that users, both internal and external to the company need for their decision making. An important aspect of relevance is the selection of an appropriate inventory boundary that reflects the substance and economic reality of the company's business relationships.

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