



Carbon accounting report 2018

NPRO

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.

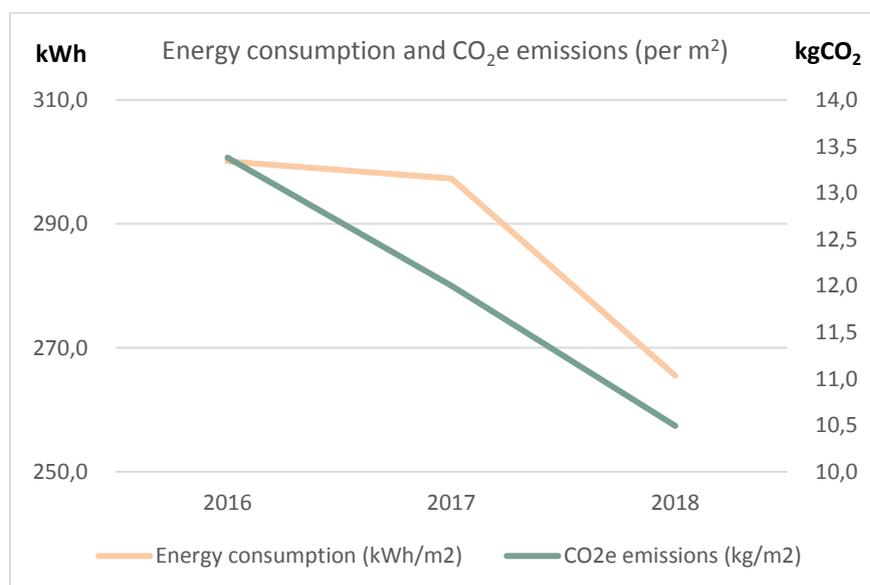
This report comprises the following units: 22 buildings, 1 marina, 2 data centres and the energy central for 2018.

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.

Norwegian Property ASA

In 2018 Norwegian Property ASA continued the reduction of its total CO₂e emissions, with a reduction of 11.9% compared to the previous year. This is despite the increased number of properties included in the reporting of consumption and emissions in 2018 compared to 2017. The increased number of properties explains the 1.2% increase in total energy consumption.

As a corporate real estate company, the natural focus for NPRO's Carbon Accounting report is the energy consumption and CO₂e emissions relating to operating the leased buildings. To achieve comparable results from year to year, NPRO measures the energy consumption and emissions per m² in the leased buildings. For the last three years, there has been a reduction in both energy consumption and CO₂e emission per m²¹.



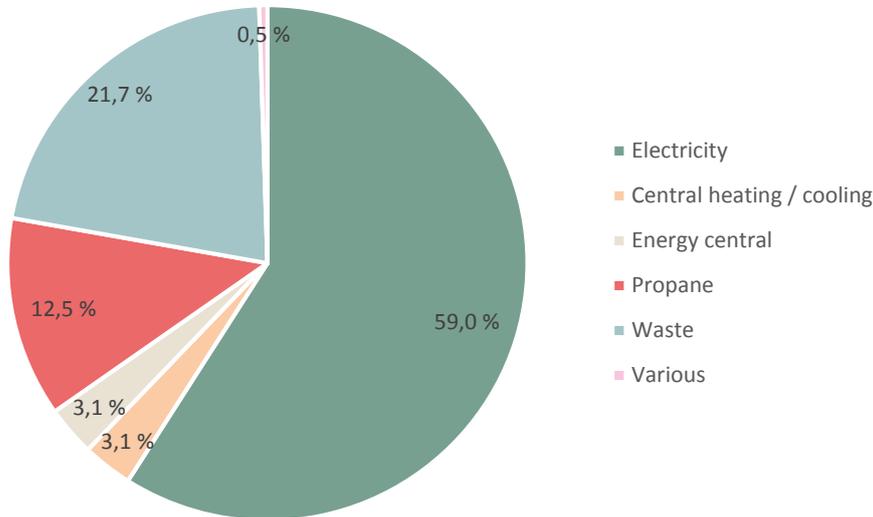
NPRO's property portfolio includes many restaurants and retail stores at Aker Brygge. These areas consume more energy than regular office areas. NPRO therefore introduced a split reporting on energy consumption and emission for offices, retail and restaurants from 2018.

	2016	2017	2018
Energy consumption (kWh/sqm), SUM	300,1	297,3	265,5
Office			181,0
Retail			511,0
Restaurant			792,0
CO₂e emissions (kg/sqm)	13	12	10
Office			6
Retail			16
Restaurant			28

¹In the calculation of energy consumption and CO₂e emission per m², lit and heated areas (offices, retail stores, and restaurants) in buildings that have been leased are included in the report, while areas such as parking, basements and storage are excluded. Furthermore, only consumption where NPRO is responsible for operating the building is included in this report.

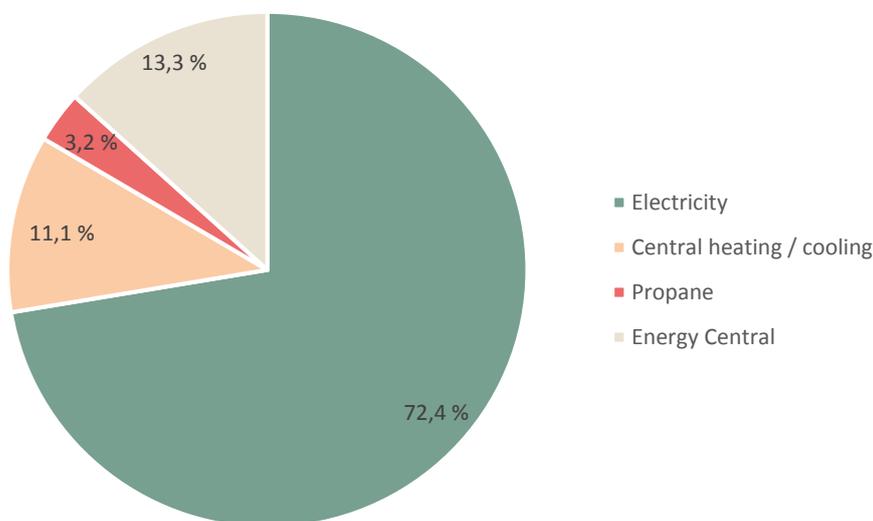
Comments

Total CO₂e emissions: In 2018, NPRO’s Carbon Accounting included total emissions of 3,547.8 metric tons of CO₂ equivalents (tCO₂e). Compared to 2017, this is a reduction of 11.9% or 487.4 tCO₂e.



The figure above shows the distribution of CO₂e emissions per source. The measures NPRO have decided to focus on in their environmental strategy are increasing the share of clean energy sources, such as the Energy central at Aker Brygge, and increasing the degree of waste sorting for the properties. NPRO is also working on reducing the general consumption of energy.

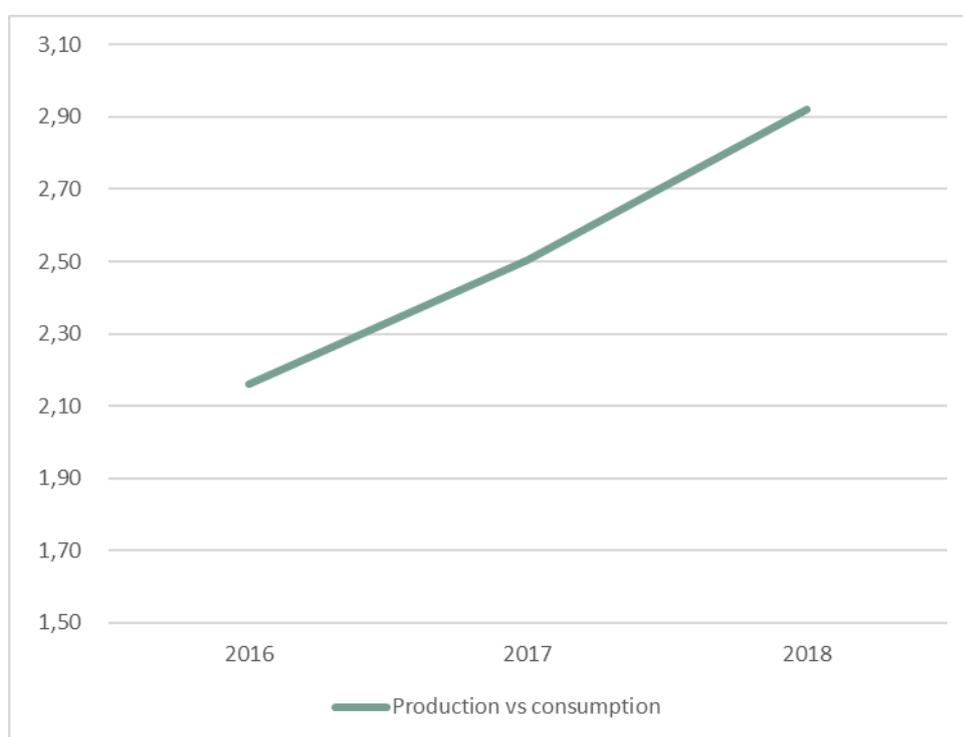
Total energy consumption: NPRO had an energy consumption of 62,216 MWh in 2018, compared to 61,455 MWh in 2017. This is an increase of 1.2% and is equivalent to 768.3 MWh. The main reason for this increase was the inclusion of Snarøyveien 36 in the Carbon Accounting report for 2018. The electricity consumption was reduced by 3.5%, from 50,502.3 MWh in 2017 to 48,732.9 MWh in 2018. Instead of electricity, NPRO has changed to cleaner energy sources such as the Energy central at Aker Brygge and regular district heating/cooling.



Total area: NPRO leased 221,398 m² in 2018 compared to 189,651 m² in 2017, an increase of 31,747 m² or 16% from 2017 to 2018. The increase was caused by the inclusion of Snarøyveien 36 in the Carbon Accounting report for 2018, since the building went from being a bare house contract (where the tenant is responsible for operating the building) to being operated by NPRO. During 2018, NPRO leased a greater amount of m² compared to 2017 in some buildings, while other buildings were under rehabilitation.

Energy Central: The properties connected to the Energy Central (Bryggegata 7-9, Terminalbygget and Verkstedhallene) have increased their consumption of heating and cooling from the Energy Central with 16%. In 2017 and 2018, the Energy Central accounted for respectively 12% and 13% of the total energy consumption of NPRO.

NPRO is continuously working on improving the efficiency of the Energy Central. The Central consumes some electricity in order to produce heating and cooling from sea water. The share of produced energy compared to consumed energy was 292% in 2018.



Emission factors: Emission factors used in the Carbon Accounting report change annually. The total change from 2017 to 2018 was, resulting from emission factor changes, 311.4 tCO₂e.

Emissions from electricity are calculated with a location-based emission factor called Nordic mix. The Nordic mix emission factor has been reduced by 13.5% from 2017 to 2018, which reduces total emission by 295.2 tCO₂e. This indicates that electricity produced in the Nordic region in 2018 has become more renewable compared to last year (example: hydro power increases, while coal/fossil fuel power decreases in the production of electricity).

The emission factors for district heating and cooling for 2018 are updated at the end of 2019. Therefore, these emission factors do not cause changes in the emissions in this carbon accounting report.

Scope 1

Scope 1 includes the company's emissions from transport and oil burners. This adds up to a very small share of NPRO's consumption and emissions.

The direct emissions in Scope 1 for 2018 was 7.3 tCO₂e, where 6.4 tCO₂e originate from an oil burner in Gullhaugveien 9-13. This oil burner will be converted to use bio fuel during the summer of 2019.

Scope 2

65.3% of the emissions from 2018 are allocated in Scope 2, which includes indirect emissions from the purchase of energy. For NPRO, these are emissions from the energy consumption in the buildings, such as electricity, district heating and cooling.

The consumption of energy in Scope 2 increased from 61,455.4 MWh in 2017 to 62,216.1 MWh in 2018, a change equivalent to 760.7 MWh or 1.2%.

Electricity: The Scope 2 electricity consumption was reduced by 3.5%, from 50,502.3 MWh in 2017 to 48,732.9 MWh in 2018, which is equivalent to 433.1 tCO₂e.

Electricity with a market-based emission factor (Renewable Energy Certificates (RECs) and residual mix) is marked with an asterisk (*) at the bottom of the tables in pages 8 and 9. Since NPRO has not purchased electricity with Guarantees of Origin (GoO) or RECs, the calculations use a methodology based on Nordic electricity residual mix emission factor (Ref. RE-DISS, 2018). Based on this approach, Norwegian Property's emissions decreased by 195.7 tCO₂e or 1.4 % from 2017 to 2018. This new practice was introduced to the GHG Protocol in 2015 and is explained further in this report under the Methodology and Sources section below.

District heating and cooling: District heating and cooling consumption emissions in Scope 2 are reduced by 1% or 1.5 tCO₂e from 2017 to 2018, while the consumption increased with 1,246.8 MWh. District heating and cooling production at the Energy Central has increased from 7,296.4 MWh in 2017 to 8,532 MWh in 2018, an increase of 1,236 MWh and 16.9 %.

Scope 3

34.5% of the emission for 2018 are allocated to Scope 3, where indirect emissions related to the purchase or leasing of goods and services are reported. In this category, NPRO reports on traveling, waste and propane consumption.

Air travel: There was a reduction in emissions related to air travel from 16.2 tCO₂e in 2017 to 9.1 tCO₂e in 2018, equivalent with a reduction of 44%.

Business travel: The emissions related to business travel in 2018, which includes hotel accommodation and car mileage, account for 0.7 tCO₂e.

Waste: There was a reduction of 5% or 44.1 tCO₂e in the amount of total waste produced. The major share of the waste originates from Aker Brygge, which had 2,300 tonnes of waste in 2018. The degree of waste sorting has increased significantly since NPRO started working actively with environmental issues in 2011, when the degree of waste sorting was 12 % at Aker Brygge. For 2018

the degree of sorting was 62%, a small reduction from 2017, when the degree of waste sorting was 63%.

	2016	2017	2018
Degree of waste sorting in properties	62 %	63 %	59 %

Propane: The tenants' consumption of propane is appropriate to report in Scope 3. The consumption of propane is mainly caused by restaurants who use propane for cooking. NPRO is currently working on a project where the energy consumption of restaurants and retail stores are evaluated. As part of this project, the consumption of propane will also be considered.

Data collection

NPRO has collected energy data directly from the energy supplier for the Marina, Dokkbygget, Fondbygget, Kaibbygg I and II, Maskinveien 32, Bryggegata 7-9, Svanholmen 2, Terminalbygget and Verkstedhallene, as well as district heating/cooling in Nydalen. For buildings not mentioned here, data has been collected from the buildings' own energy systems. 2015 was the first year with full production at the Energy Central at Aker Brygge. The Central produces district heating and cooling from sea water. The central's consumption of electricity is reported as consumption by the Energy Central, while the supply of energy to the buildings connected to the central is measured in each building's energy monitoring system and reported for each building.

Locations included in the Carbon Accounting Report 2018

Buildings area (m²) 2016-2018
Bryggegata 7-9
Dokkbygget
Fondbygget
Kaibbygg 1
Kaibbygg 2
Terminalbygget
Tingvalla
Verkstedhallene
Gjerdrumsvei 10 D
Gjerdrumsvei 14-16
Gjerdrumsvei 17
Gjerdrumsvei 8
Gullhaug Torg 3
Gullhaugveien 9-13
Nydalsveien 15
Nydalsveien 17
Sandakerveien 130
Badehusgaten 33-39
Maskinveien 32
Svanholmen 2
Drammensveien 60
Snarøyveien 36
Energisentral (divided between buildings)

Locations without area 2016-2018
Snow melting plant
Tingvalla båthavn
Tingvalla Marina
Gullhaugveien 9-13 Data Center
Sandakerveien 130 Data Center

Energy and GHG emissions

Category	Description	Consumption	Unit	Energy (MWh eqv)	Emissions (tCO2e)	Emissions (distribution)
<i>Transportation</i>				-	0.9	-
Car avg.		5 145.0	km	-	0.9	-
<i>Stationary combustion</i>				25.9	6.4	0.2%
Burning oil	Oil Burner	25 870.0	kWh	25.9	6.4	0.2%
Scope 1 total				25.9	7.3	0.2%
<i>Electricity*</i>				48 732.9	2 193.0	61.8%
Electricity Nordic mix		42 249 585.9	kWh	42 249.6	1 901.2	53.6%
Electricity Nordic mix	Data Center	4 258 592.7	kWh	4 258.6	191.6	5.4%
Electricity Nordic mix	Energy Central - consumption	2 224 724.0	kWh	2 224.7	100.1	2.8%
<i>DH Nordic locations</i>				7 847.5	123.5	3.5%
District heating NO/Oslo		5 385 140.0	kWh	5 385.1	80.8	2.3%
District heating NO/Oslo	Energy Central - consumption	697 460.0	kWh	697.5	10.5	0.3%
District heating NO/Stavanger		170 144.0	kWh	170.1	3.4	0.1%
District cooling NO/Stavanger		72 450.0	kWh	72.4	3.8	0.1%
District cooling NO/Oslo		1 288 581.0	kWh	1 288.6	19.3	0.5%
District heating NO/Nydalen		233 680.0	kWh	233.7	5.8	0.2%
<i>District heating general</i>				8 532.0	-	-
District heating Renewable	Energy Central - production	4 562 365.0	kWh	4 562.4	-	-
District cooling Seawater	Energy Central - production	3 969 644.0	kWh	3 969.6	-	-
Scope 2 total				65 112.4	2 316.5	65.3%
<i>Air travel</i>				-	9.1	0.3%
Continental		1 188.0	pkm	-	0.1	-
Intercontinental		29 722.0	pkm	-	3.3	0.1%
Domestic		35 946.0	pkm	-	5.7	0.2%
Nordic		-	pkm	-	-	-
<i>Business travel</i>				-	0.7	-
Hotel acc.(Nordic)		14.0	nights	-	0.1	-
Hotel acc.(Europe)		11.0	nights	-	0.1	-
Mileage all. car (NO)		3 452.0	km	-	0.5	-
<i>Propane tenants Aker Brygge</i>				2 076.3	445.2	12.5%
Propane		151 558.0	kg	2 076.3	445.2	12.5%
<i>Waste</i>				-	769.0	21.7%
Waste,incinerated		1 432 713.0	kg	-	719.2	20.3%
WEEE,recycled		182 530.0	kg	-	3.9	0.1%
Hazardous waste, recycled		3 397.0	kg	-	0.1	-
Waste mix, recycled		2 152 824.0	kg	-	45.9	1.3%
Scope 3 total				2 076.3	1 224.0	34.5%
<i>Total</i>				67 214.6	3 547.8	100.0%
<i>*Alternative Electricity emissions-Market based method (RECs, GoO)</i>					14083.8	

Yearly report – GHG emissions (tCO₂e)

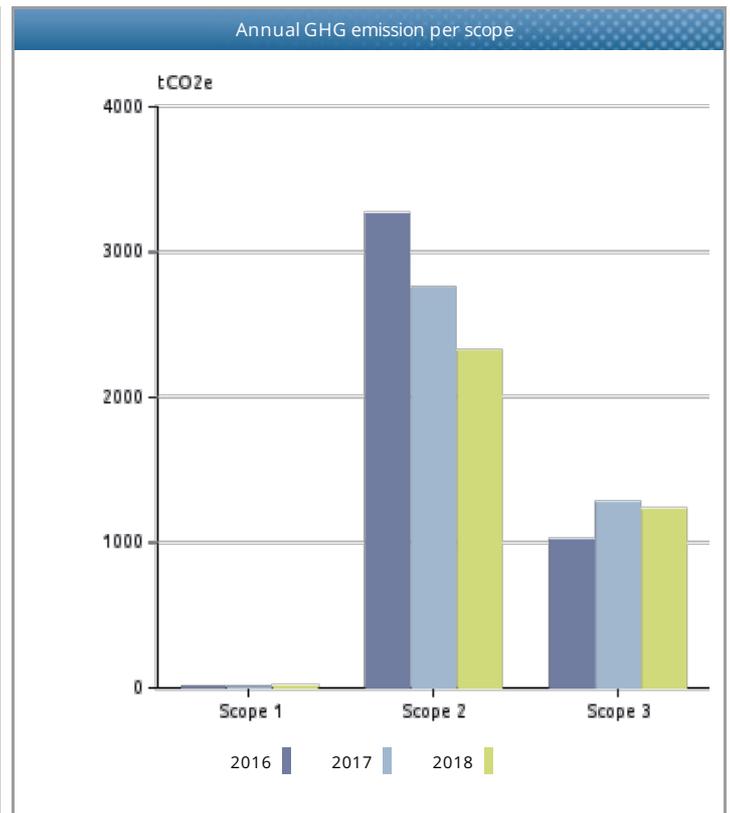
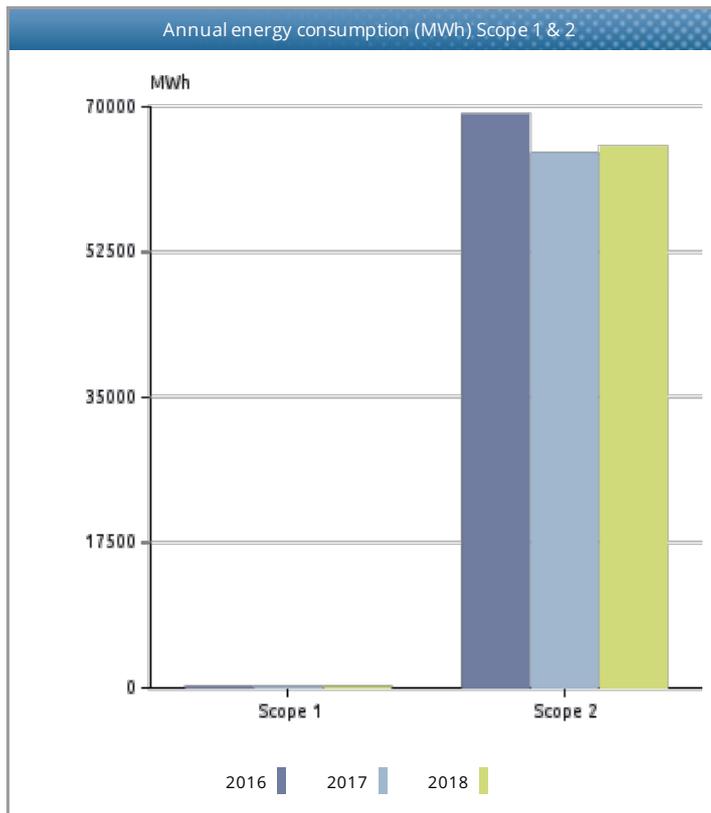
Category	Description	2016	2017	2018	% change from previous year
<i>Stationary combustion</i>					
Burning oil		0.8	0.8		-100.0%
Burning oil	Oil Burner			6.4	100.0%
<i>Transportation</i>					
Car avg.		1.0	0.9	0.9	-1.1%
Scope 1 Emissions		1.7	1.7	7.3	318.2%
<i>DH Nordic locations</i>					
District cooling NO/Oslo		45.3	10.5	19.3	84.8%
District cooling NO/Stavanger		8.2	32.0	3.8	-88.1%
District heating NO/Nydalen		4.2	5.2	5.8	10.7%
District heating NO/Oslo		61.7	62.7	80.8	28.8%
District heating NO/Oslo	Energy Central - consumption	9.7	10.0	10.5	4.9%
District heating NO/Stavanger		7.1	4.0	3.4	-16.6%
<i>District heating general</i>					
District cooling Seawater	Energy Central - production	-	-	-	-
District cooling Seawater	Energy Central - production	-	-	-	-
District heating Renewable	Energy Central - production	-	-	-	-
District heating Renewable	Energy Central - production	-	-	-	-
<i>Electricity*</i>					
Electricity Nordic mix	Energy Central - production	131.5	117.0	100.1	-14.4%
Electricity Nordic mix	Data center	350.3	250.9	191.6	-23.6%
Electricity Nordic mix		2 640.7	2 078.5	1 901.2	-8.5%
Electricity Nordic mix	Office		179.7		-100.0%
Scope 2 Emissions		3 258.7	2 750.6	2 316.5	-15.8%
<i>Air travel</i>					
Continental		0.2	1.8	0.1	-94.3%
Domestic		6.1	4.4	5.7	28.7%
Intercontinental		3.1	10.0	3.3	-66.5%
Nordic		0.2	-	-	-
<i>Waste</i>					
Hazardous waste, recycled				0.1	100.0%
Waste mix, recycled		68.0	69.5	45.9	-34.0%
Waste, incinerated		743.5	733.0	719.2	-1.9%
WEEE, recycled			10.6		-100.0%
WEEE, recycled				3.9	100.0%
<i>Business travel</i>					
Hotel acc. (Europe)		0.1	0.4	0.1	-63.3%
Hotel acc. (Nordic)		0.1	0.1	0.1	7.7%
Mileage all. car (NO)		0.8	0.7	0.5	-33.6%
<i>Propane tenants Aker Brygge</i>					
Propane		192.5	443.5	445.2	0.4%
Scope 3 Emissions		1 014.6	1 273.9	1 224.0	-3.9%
Total		4 275.1	4 026.2	3 547.8	-11.9%
<i>Percentage change</i>			<i>-5.8%</i>	<i>-11.9%</i>	
<i>*Alternative Electricity emissions-Market based method (RECs, GoO)</i>		<i>16114</i>	<i>13888.1</i>	<i>14083.8</i>	
<i>Percentage change</i>			<i>-13.8%</i>	<i>1.4%</i>	

Yearly Report - Key Figures Energy

Category	Description	Unit	2016	2017	2018
<i>Stationary combustion</i>					
Burning oil		MWh	3.1	3.3	
Burning oil	Oil burner	MWh			25.9
Stationary combustion Total		MWh	3.1	3.3	25.9
Scope 1 Total		MWh	3.1	3.3	25.9
<i>DH Nordic locations</i>					
District cooling NO/Oslo		MWh	1 029.6	697.5	1 288.6
District cooling NO/Stavanger		MWh	73.7	610.4	72.5
District heating NO/Nydalen		MWh	104.3	211.2	233.7
District heating NO/Oslo		MWh	4 115.7	4 180	5 385.1
District heating NO/Oslo	Energy Central - consumption	MWh	648.1	664.8	697.5
District heating NO/Stavanger		MWh	711.5	204.1	170.1
DH Nordic locations Total		MWh	6 682.8	6 568	7 847.5
<i>District heating general</i>					
District cooling Seawater	Energy Central - production	MWh	3 298.1	3 253.7	3 969.6
District heating Renewable	Energy Central - production	MWh	3 262.6	4 042.7	4 562.4
District heating general Total		MWh	6 560.7	7 296.4	8 532
<i>Electricity*</i>					
Electricity Nordic mix		MWh	47 154.5	43 427.3	42 249.6
Electricity Nordic mix	Energy Central - consumption	MWh	2 348.6	2 249.6	2 224.7
Electricity Nordic mix	Data Center	MWh	6 254.6	4 825.4	4 258.6
Electricity* Total		MWh	55 757.7	50 502.3	48 732.9
<i>Heat fuel specific</i>					
Heat-natural gas		MWh			
Heat fuel specific Total		MWh	0	0	0
Scope 2 Total		MWh	69 001.3	64 366.6	65 112.4
Total		MWh	69 004.4	64 369.9	65 138.2
Total in Giga Joule		GJ	248 415.9	231 731.5	234 497.7
Percentage change			-8.1%	-6.7%	1.2%

Key energy and climate performance indicators

	Unit	2016	2017	2018
tCO ₂ e/FTE (S1+2)		60.4	54	47.4
tCO ₂ e/ FTE (S1+2+3)		79.2	78.9	72.4
tCO ₂ e/Revenues (S1+2)	MNOK	3.6	3.5	2.9
tCO ₂ e/Revenues (S1+2+3)	MNOK	4.8	5.1	4.5
FTE		54	51	49



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.

References:

[Department for Business, Energy & Industrial Strategy](#) (2018). Government emission conversion factors for greenhouse gas company reporting (DEFRA)

IEA (2018). CO2 emission from fuel combustion, International Energy Agency (IEA), Paris.

IEA (2018). Electricity information, International Energy Agency (IEA), Paris.

IMO (2014). Reduction of GHG emissions from ships - Third IMO GHG Study 2014 (Final report). International Maritime Organisation, <http://www.iadc.org/wp-content/uploads/2014/02/MEPC-67-6-INF3-2014-Final-Report-complete.pdf>

IPCC (2014). IPCC fifth assessment report: Climate change 2013 (AR5 updated version November 2014). <http://www.ipcc.ch/report/ar5/>

RE-DISS (2018). Reliable disclosure systems for Europe – Phase 2: European residual mixes.

WBCSD/WRI (2004). The greenhouse gas protocol. A corporate accounting and reporting standard (revised edition). World Business Council on Sustainable Development (WBCSD), Geneva, Switzerland /World Resource Institute (WRI), Washington DC, USA, 116 pp.

WBCSD/WRI (2011). Corporate value chain (Scope 3) accounting and reporting standard: Supplement to the GHG Protocol corporate accounting and reporting standard. World Business Council on Sustainable Development (WBCSD), Geneva, Switzerland /World Resource Institute (WRI), Washington DC, USA, 149 pp.

WBCSD/WRI (2015). GHG protocol Scope 2 guidance: An amendment to the GHG protocol corporate standard. World Business Council on Sustainable Development (WBCSD), Geneva, Switzerland /World Resource Institute (WRI), Washington DC, USA, 117 pp.

This list of references may not be complete. Depending on the use of the CEMAsys emission factors database, there are a number of different local and national sources. If necessary, please contact CEMAsys Help Desk for further details.