



SPAREBANKEN SØR

Carbon accounting report 2017

Sparebanken Sør Arendal Array

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:

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 report	Energy (MWh eqv)	Emissions (tCO ₂ e)	Emissions (distribution)
<i>Transportation</i>				138.3	33.2	6.5%
Diesel (B5)		12 000.0	liters	126.8	30.5	5.9%
Petrol		1 200.0	liters	11.5	2.8	0.5%
Scope 1 total				138.3	33.2	6.5%
<i>Electricity*</i>				5 652.1	293.9	57.3%
Electricity Nordic mix		5 652 062.0	kWh	5 652.1	293.9	57.3%
<i>DH Nordic locations</i>				1 156.3	38.2	7.4%
District heating NO/Arendal		1 156 290.0	kWh	1 156.3	38.2	7.4%
<i>Electric vehicles</i>				21.3	1.1	0.2%
Electric car Nordic		125 000.0	pkm	21.3	1.1	0.2%
Scope 2 total				6 829.6	333.2	65.0%
<i>Air travel</i>				-	58.5	11.4%
Continental		96.0	flight trip	-	9.1	1.8%
Intercontinental		14.0	flight trip	-	9.5	1.8%
Nordic		610.0	flight trip	-	39.9	7.8%
<i>Business travel</i>				-	76.9	15.0%
Mileage all. car (NO)		533 715.0	km	-	76.9	15.0%
<i>Waste</i>				-	11.0	2.1%
Waste,incinerated		21 168.0	kg	-	10.6	2.1%
Paper,recycled		11 502.0	kg	-	0.4	0.1%
Glas,recycled		324.0	kg	-	-	-
Organic,recycled		259.0	kg	-	-	-
Plastic,recycled		135.0	kg	-	-	-
Scope 3 total				-	146.3	28.5%
<i>Total</i>				6 967.9	512.7	100.0%

*Alternative Electricity emissions-Market based method (RECs, GoO)

Scope 1

Transport: Actual consumption of fossil fuels in the company's vehicle (owned, rented, leased). Use of diesel (B5) and gasoline in 2017 for emissions corresponding to 33.2 tCO₂e. This is a 19% reduction from the previous year.

Scope 2

Electricity: Measured consumption of electricity in own or rented premises / buildings. The table shows greenhouse gas emissions from electricity, calculated with the location-based emission factor Nordisk miks. Emissions from electricity consumption decreased by 9.3% compared with 2016. Note that the emission of the Nordic mix has decreased by 7% since 2016, reflecting that electricity from sources with lower greenhouse gas emissions (like hydropower compared with gas power) in 2017 compared to the previous year.

Electricity with a market-based factor is presented under the tables in this report. As Sparebank Sør has purchased Origin Guarantees for Electricity Consumption in 2017, the emission factor is zero. The company therefore had no emissions from the use of electricity in 2017 in a market-based perspective.

The practice of presenting emissions from electricity consumption with two different emission factors is further explained under Scope 2 in Methods and Sources.

District heating: Use of district heating in owned / rented buildings. Total district heating emissions have increased by 12.4% and in 2017 which equals 38.2 tCO₂e.

The company's electric cars: Sparebanken Sør owns 5 electric cars. Usage of these accounts for a total emission of 1.1 tCO₂e.

Scope 3

Flights: Measured number of journeys per region. Emissions from flights correspond to 58.5 tCO₂e, representing 11.4% of total emissions in 2017.

Mileage: In 2017, compensation has been paid for 533 715 km. This gives an emission of 79.6 tCO₂e, which is a 7% reduction from 2016.

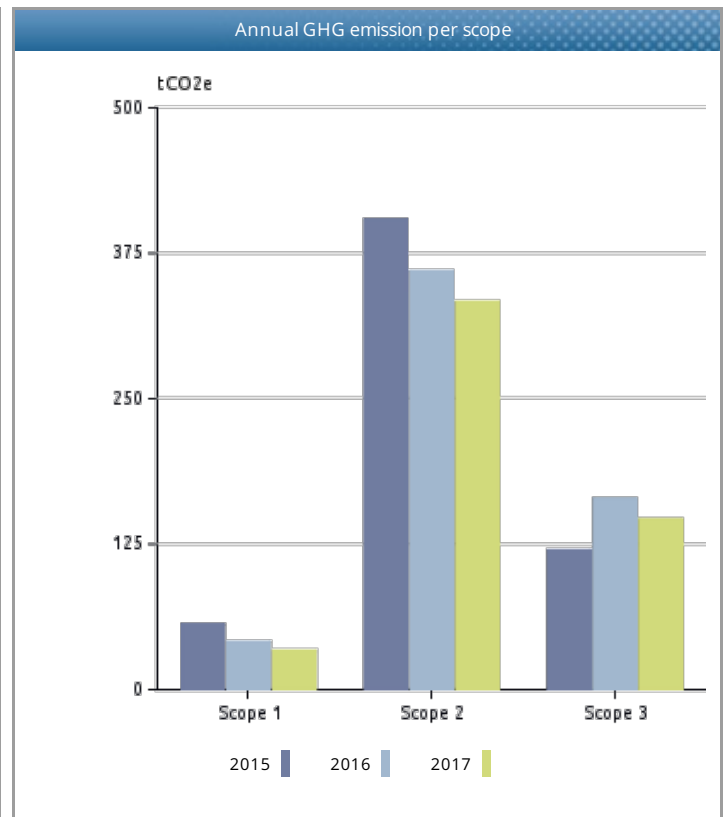
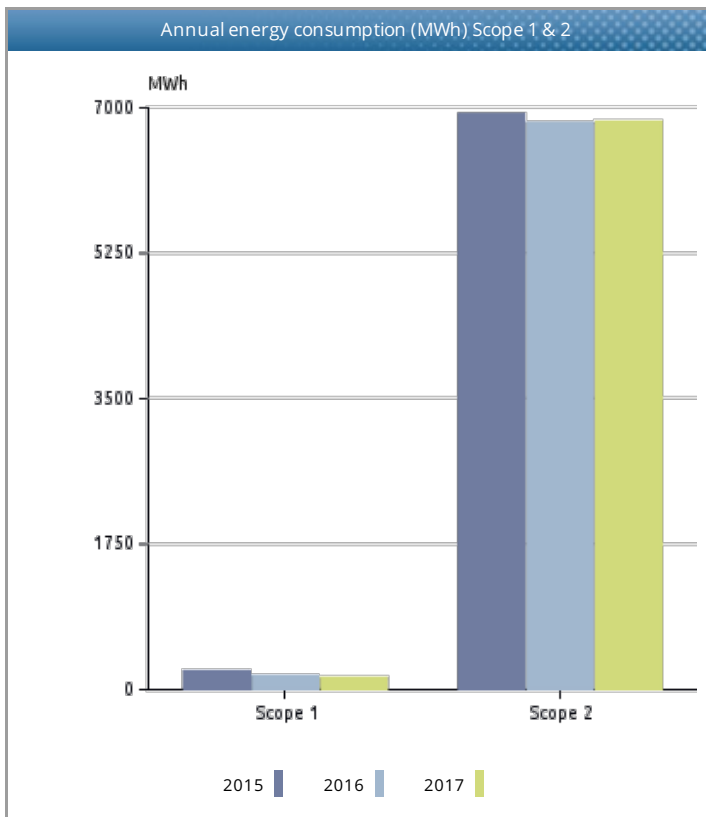
Waste: Reported waste in kg distributed on different waste fractions, as well as treatment method (recycled, energy recycled, disposing). Waste represents 11 tCO₂e discharges in 2017, accounting for 2.1% of total greenhouse gas emissions. Emissions related to glass, organic and plastic waste are below 0.1 tCO₂e. This is relatively small and only marked with a line in the table.

Yearly report – GHG emissions (tCO₂e)

Category	Description	2015	2016	2017	% change from previous year
<i>Transportation</i>					-
Diesel (B5)		53.4	38.1	30.5	-20.1%
Petrol		2.8	2.8	2.8	-0.1%
Scope 1 Emissions		56.1	40.9	33.2	-18.7%
<i>DH Nordic locations</i>					-
District heating NO/Arendal		19.7	33.9	38.2	12.4%
<i>Electric vehicles</i>					-
Electric car Nordic		0.4	1.5	1.1	-26.7%
<i>Electricity*</i>					-
Electricity Nordic mix		384.2	324.2	293.9	-9.3%
Scope 2 Emissions		404.2	359.6	333.2	-7.4%
<i>Air travel</i>					-
Continental		1.3	6.3	9.1	43.4%
Intercontinental		0.7	13.1	9.5	-27.9%
Nordic		24.4	48.4	39.9	-17.5%
<i>Waste</i>					-
Glas,recycled		-	-	-	-
Organic,recycled		-	-	-	-
Paper,recycled		0.6	0.5	0.4	-31.5%
Plastic,recycled		-	-	-	-
Waste,incinerated		12.7	11.7	10.6	-9.2%
<i>Business travel</i>					-
Mileage all. car (NO)		80.0	84.1	76.9	-8.6%
Scope 3 Emissions		119.6	164.2	146.3	-10.9%
Total		580.0	564.8	512.7	-9.2%
<i>Percentage change</i>			-2.6%	-9.2%	
<i>*Alternative Electricity emissions-Market based method (RECs, GoO)</i>					
<i>Percentage change</i>			-	-	

Key energy and climate performance indicators

Name	Unit report	2015	2016	2017	% change from previous year
Total emissions (s1+s2+s3) (tCO2e)		580.0	564.8	512.7	-9.2%
Scope 1 + 2 emissions (tCO2e)		460.4	400.5	366.4	-8.5%
Total tCO2e/FTE		1.3	1.3	1.2	-7.7%
Total tCO2e/Revenue		0.3	0.3	0.2	-8.8%
MWh/FTE		15.9	15.9	16.1	1.4%
MWh/m2 (Scope 2)	m2	0.2	0.2	0.2	0.6%
FTE		449.0	439.0	432.0	-1.6%
Oppvarmet areal (m2)		31 777.0	29 375.0	29 239.0	-0.5%
Revenue		1 769.0	2 110.0	2 100.0	-0.5%



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:

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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.