



Greenhouse Gas Protocol Report for SBAB

Assessment Period: 2015

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Assessment Details

Consolidation Approach

Operational Control

Organisational Boundaries

Operations of SBAB

Included

- Göteborg
- Karlstad
- Malmö
- Stockholm

Operational Boundary

- Air travel
- Cars
- District heating
- Electricity - Green Tariff
- Employee owned cars (unknown fuel)
- Incinerated waste
- Rail (train, tram, light rail, underground)
- Recycled waste

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Introduction

A greenhouse gas (GHG) emissions assessment quantifies the total greenhouse gases produced directly and indirectly from a business or organisation's activities. Also known as a carbon footprint, it is an essential tool, providing your business with a basis for understanding and managing its climate change impacts.

A GHG assessment quantifies all seven Kyoto greenhouse gases where applicable and is measured in units of carbon dioxide equivalence, or CO₂e¹. The seven Kyoto gases are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), nitrogen trifluoride (NF₃), sulphur hexafluoride (SF₆) and perfluorocarbons (PFCs). The global warming potential (GWP) of each gas is illustrated in the Table 1.

Table 1. GWP of Kyoto Gases (IPCC 2007)

Greenhouse Gas	GWP
Carbon dioxide (CO ₂)	1
Methane (CH ₄)	25
Nitrous oxide (N ₂ O)	298
Hydrofluorocarbons (HFCs)	124 - 14,800
Perfluorocarbons (PFCs)	7,390 - 12,200
Nitrogen trifluoride (NF ₃)	17,200
Sulphur hexafluoride (SF ₆)	22,800

This assessment has been carried out in accordance with the World Business Council for Sustainable Development and World Resources Institute's (WBCSD/WRI) Greenhouse Gas Protocol; a Corporate Accounting and Reporting Standard. This protocol is considered current best practice for corporate or organisational greenhouse gas emissions reporting. GHG emissions have been reported by the three WBCSD/WRI Scopes.

Scope 1 includes direct GHG emissions from sources that are owned or controlled by the company such as natural gas combustion and company owned vehicles. Scope 2 accounts for GHG emissions from the generation of purchased electricity, heat and steam generated off-site. Scope 3 includes all other indirect emissions such as waste disposal, business travel and staff commuting. Reporting of these activities is optional under the WBCSD/WRI GHG Protocol, but as they can contribute a significant portion of overall emissions Ecometrica recommends they are reported where applicable.

A GHG assessment is an essential tool in the process of monitoring and reducing an organisation's climate change impact as it allows reduction targets to be set and action plans formulated. GHG assessment results can also allow organisations to be transparent about their climate change impacts through reporting of GHG emissions to customers, shareholders, employees and other stakeholders. Regular assessments allow clients to track their progress in achieving reductions over time and provide evidence to support green claims in external marketing initiatives such as product labelling or CSR reporting. Ecometrica GHG assessments are designed to be transparent, consistent and repeatable over time.

¹ Carbon dioxide equivalent or CO₂e is a term for describing different greenhouse gases in a common unit. For any quantity and type of greenhouse gas, CO₂e signifies the amount of CO₂ which would have the equivalent global warming impact.

Data Quality and Availability

In order to provide the most accurate estimate of an organisation's GHG emissions, primary (actual) data should be used where it is available, up to date and geographically relevant. Secondary data in the form of estimates, extrapolations and industry averages may be used when primary data is not available. Table 2 details the quality of data submitted for this assessment with the key assumptions used stated below.

Data Quality Overview



Accuracy Overview		tCO ₂ e/year	%
Actual		158	99.6
Estimated		0.571	0.36
	Total	159	100

Table 2. Data Quality and Availability

Source of emissions	Data quality
Premises	
District heating	Mixed
Electricity	N/A
Electricity (nordic mix)	N/A
Electricity - Green Tariff	Mixed
Incinerated waste	Complete
Recycled waste	Complete
Company owned vehicles	
Cars	Complete
Business Travel	
Air travel	Complete
Employee owned cars (unknown fuel)	Complete
Rail (train, tram, light rail, underground)	Complete

Assessment Summary for SBAB

Gross Overall Emissions: 159 tCO₂e

Key Performance Indicators

Absolute GHG emissions will vary over time and often correspond to the expansion or contraction of an organisation. It is useful therefore to use reporting metrics that take these effects into account and monitor relative GHG emissions intensity. A common emissions intensity metric is tonnes of CO₂e per full time equivalent. This has been calculated, along with other relevant metrics, in the table below:

Data	KPI
297,000 Credit volume (MSEK)	5.34e-4 tCO ₂ e per Credit volume (MSEK)
443 Full Time Equivalent Employees	0.358 tCO ₂ e per Full Time Equivalent Employee

Summary by Activity (tCO₂e)



By Activity	tCO ₂ e/year	%
Premises	60.6	38.2
Company owned vehicles	15	9.46
Business Travel	83	52.3
Total	159	100

Summary by WBCSD/WRI Scope (tCO₂e)



Scope	tCO ₂ e/year	%
Scope 1	13.7	8.66
Scope 2	54.5	34.3
Scope 3	90.4	57
Total	159	100

Summary by Greenhouse Gas

Greenhouse Gas	GWP	tGHG/year	tCO ₂ e/year
CO ₂	1	87.7	87.7
CH ₄	25	0.0013	0.0326
N ₂ O	298	0.00241	0.717
CO ₂ e	1	70.2	70.2
Total		159	159

Detailed Results

Detailed Summary by WBCSD/WRI Scope

Source of Emissions	tCO ₂ /yr	tCH ₄ /yr	tN ₂ O/yr	Total Emissions (tCO ₂ e/yr)	%
Scope 1 Total	12.8	4.58e-4	1.92e-4	13.7	8.66%
Company owned vehicles Total	12.8	4.58e-4	1.92e-4	13.7	8.66%
Cars	12.8	4.58e-4	1.92e-4	13.7	8.66%
Scope 2 Total	0	0	0	54.5	34.3%
Premises Total	0	0	0	54.5	34.3%
District heating	0	0	0	40.5	25.6%
Electricity - Green Tariff	0	0	0	13.9	8.79%
Scope 3 Total	75	8.45e-4	0.00222	90.4	57%
Business Travel Total	74.8	8.45e-4	0.00222	83	52.3%
Air travel	59	6.09e-4	0.00194	59.6	37.5%
Air travel: Flights, long-haul, average, upstream emissions	0	0	0	0.119	0.0747%
Air travel: Flights, medium-haul, average, upstream emissions	0	0	0	1.93	1.22%
Air travel: Flights, short-haul, upstream emissions	0	0	0	4.09	2.58%
Employee owned cars (unknown fuel)	15.9	2.36e-4	2.75e-4	16	10.1%
Rail (train, tram, light rail, underground)	0	0	0	1.32	0.833%
Company owned vehicles Total	0	0	0	1.27	0.802%
Cars: Average diesel car, upstream emissions	0	0	0	1.27	0.802%
Premises Total	0.127	0	0	6.16	3.89%
District heating: District Heating (Eslöv-Lund-Lomma, Sweden), upstream emissions	0	0	0	0.2	0.126%
District heating: District Heating (Göteborg. Partille. Ale, Sweden), upstream emissions	0	0	0	0.0513	0.0324%
District heating: District Heating (Stockholm, Sweden), upstream emissions	0	0	0	1.63	1.03%
District heating: District Heating, Karlstads Energi AB, upstream emissions	0	0	0	3	1.89%
Electricity - Green Tariff: Electricity, Vattenfall AB Wind Power, T&D losses	0	0	0	0.857	0.54%
Electricity - Green Tariff: Electricity, Vattenfall AB Wind Power, upstream emissions	0	0	0	0.226	0.143%
Incinerated waste	0.127	0	0	0.195	0.123%
Recycled waste	0	0	0	0	0%
Total	87.7	0.0013	0.00241	159	100%

Summary by Company Unit

Assessment	2014		2015	
Company Unit	Total Emissions (tCO ₂ e)	Emissions per FTE (tCO ₂ e/FTE)	Total Emissions (tCO ₂ e)	Emissions per FTE (tCO ₂ e/FTE)
SBAB	171	0.43	159	0.358
Göteborg	0.953	-	0.709	-
Karlstad	55.8	-	31.6	-
Malmö	2.6	-	2.99	-
Stockholm	27	-	25.4	-

Annual Activity Data

Source of Emissions	Value	Unit
Business Travel		
Air travel		
Long-haul, average class (RFI 2)	5,488	pass.km
Medium-haul, average class (RFI 2)	104,196	pass.km
Short-haul (RFI 2)	125,993	pass.km
Employee owned cars (unknown fuel)		
Large car (unknown fuel)	65,628	km
Rail (train, tram, light rail, underground)		
Swedish rail	1,091,454	pass.km
Company owned vehicles		
Cars		
Average diesel car	32,279	km
Average ethanol car (E85)	20,038	km
Electric car	9,736	km
Medium LPG car	36,886	km
Premises		
District heating		
District Heating (Göteborg. Partille. Ale), Sweden	8.52	MWh
District Heating (Stockholm), Sweden	238,677	kWh
District Heating Karlstads Energi AB	527,901	kWh
District heating (Eslöv-Lund-Lomma), Sweden	30,186	kWh
Electricity - Green Tariff		
Electricity, Vattenfall AB Wind Power	984,596	kWh
Incinerated waste		
Combusted waste, energy recovery, PVC (incl. forming)	0.13	tonne
Combusted waste, energy recovery, board	2.32	tonne
Combusted waste, energy recovery, glass	0.28	tonne
Combusted waste, energy recovery, mixed paper and board	0.13	tonne
Combusted waste, energy recovery, steel cans	0.26	tonne
Waste, incinerated (heat recovery), MSW	0.01	kg
Waste, incinerated (heat recovery), MSW	7.5	tonne
Waste, incinerated (no heat recovery), MSW	0.56	tonne
Recycled waste		
Waste, recycled	22,370	kg

References

IEA (2011). Statistics. <http://www.iea.org/stats/index.asp>.

IEA (2011). CO2 Emissions from Fuel Combustion, 2011 Edition, Highlights. International Energy Agency.

IPCC (2006). Revised IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual. Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge.

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Defra/DECC (2012). Guidelines to Defra/DECC's GHG conversion factors for company reporting. Department of Environment Food and Rural Affairs/Department for Energy and Climate Change, London.

Defra/DECC (2014). UK Government conversion factors for greenhouse gas reporting. Department of Environment Food and Rural Affairs/Department for Energy and Climate Change, London.

Defra/DECC (2015). UK Government conversion factors for greenhouse gas reporting. Department of Environment Food and Rural Affairs/Department for Energy and Climate Change, London.

Environdec (2013). Vattenfall Wind Power certified Environmental Product Declaration EPD of electricity from Vattenfall's wind farms, available online at: http://gryphon.environdec.com/data/files/6/9018/epd183_Vattenfall_Nordic_Wind_2013.pdf

Environdec (2013). Vattenfall Wind Power certified Environmental Product Declaration EPD of electricity from Vattenfall's wind farms, available online at: http://gryphon.environdec.com/data/files/6/9018/epd183_Vattenfall_Nordic_Wind_2013.pdf

Kungliga Tekniska högskolan (2012). Utvärdering av Elbilsupphandlingens testflotta samt förslag på fortsatt utvärderingsplan.

SEPA (2014)b. Emissionsfaktorer-och-varmevarden-vaxthusgaser-och-luftforeningar-2015. Swedish Environmental Protection Agency.

SJ (2011). SJ AB Sustainability Report 2010

Smith, A., K. Brown, S. Ogilvie, K. Rushton, and J. Bates, 2001: Waste management options and climate change. Final Report ED21158R4.1 to the European Commission, DG Environment, AEA Technology, Oxfordshire.

Svensk Fjärrvärme (2015) Lokala miljävärden 2014. Sweden

Assessment Summary for Göteborg

Gross Overall Emissions: 0.709 tCO₂e

Key Performance Indicators

Absolute GHG emissions will vary over time and often correspond to the expansion or contraction of an organisation. It is useful therefore to use reporting metrics that take these effects into account and monitor relative GHG emissions intensity. A common emissions intensity metric is tonnes of CO₂e per full time equivalent. This has been calculated, along with other relevant metrics, in the table below:

Data	KPI
350 Office floor area (square metres)	0.00203 tCO ₂ e per Office floor area (square metre)

Summary by Activity (tCO₂e)



By Activity	tCO ₂ e/year	%
Premises	0.709	100
Total	0.709	100

Summary by WBCSD/WRI Scope (tCO₂e)



Scope	tCO ₂ e/year	%
Scope 2	0.641	90.4
Scope 3	0.0682	9.62
Total	0.709	100

Summary by Greenhouse Gas

Greenhouse Gas	GWP	tGHG/year	tCO ₂ e/year
CO ₂ e	1	0.709	0.709
Total		0.709	0.709

Assessment Summary for Karlstad

Gross Overall Emissions: 31.6 tCO₂e

Key Performance Indicators

Absolute GHG emissions will vary over time and often correspond to the expansion or contraction of an organisation. It is useful therefore to use reporting metrics that take these effects into account and monitor relative GHG emissions intensity. A common emissions intensity metric is tonnes of CO₂e per full time equivalent. This has been calculated, along with other relevant metrics, in the table below:

Data	KPI
6,096 Office floor area (square metres)	0.00518 tCO ₂ e per Office floor area (square metre)

Summary by Activity (tCO₂e)



By Activity	tCO ₂ e/year	%
Premises	31.6	100
Total	31.6	100

Summary by WBCSD/WRI Scope (tCO₂e)



Scope	tCO ₂ e/year	%
Scope 2	27.9	88.4
Scope 3	3.65	11.6
Total	31.6	100

Summary by Greenhouse Gas

Greenhouse Gas	GWP	tGHG/year	tCO ₂ e/year
CO ₂ e	1	31.6	31.6
Total		31.6	31.6

Assessment Summary for Malmö

Gross Overall Emissions: 2.99 tCO₂e

Key Performance Indicators

Absolute GHG emissions will vary over time and often correspond to the expansion or contraction of an organisation. It is useful therefore to use reporting metrics that take these effects into account and monitor relative GHG emissions intensity. A common emissions intensity metric is tonnes of CO₂e per full time equivalent. This has been calculated, along with other relevant metrics, in the table below:

Data	KPI
248 Office floor area (square metres)	0.012 tCO ₂ e per Office floor area (square metre)

Summary by Activity (tCO₂e)



By Activity	tCO ₂ e/year	%
Premises	2.99	100
Total	2.99	100

Summary by WBCSD/WRI Scope (tCO₂e)



Scope	tCO ₂ e/year	%
Scope 2	2.77	92.9
Scope 3	0.211	7.08
Total	2.99	100

Summary by Greenhouse Gas

Greenhouse Gas	GWP	tGHG/year	tCO ₂ e/year
CO ₂ e	1	2.99	2.99
Total		2.99	2.99

Assessment Summary for Stockholm

Gross Overall Emissions: 25.4 tCO₂e

Key Performance Indicators

Absolute GHG emissions will vary over time and often correspond to the expansion or contraction of an organisation. It is useful therefore to use reporting metrics that take these effects into account and monitor relative GHG emissions intensity. A common emissions intensity metric is tonnes of CO₂e per full time equivalent. This has been calculated, along with other relevant metrics, in the table below:

Data	KPI
4,755 Office floor area (square metres)	0.00534 tCO ₂ e per Office floor area (square metre)

Summary by Activity (tCO₂e)



By Activity	tCO ₂ e/year	%
Premises	25.4	100
Total	25.4	100

Summary by WBCSD/WRI Scope (tCO₂e)



Scope	tCO ₂ e/year	%
Scope 2	23.1	91.2
Scope 3	2.24	8.81
Total	25.4	100

Summary by Greenhouse Gas

Greenhouse Gas	GWP	tGHG/year	tCO ₂ e/year
CO ₂	1	0.127	0.127
CO ₂ e	1	25.3	25.3
		Total	25.4