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NIRAS CLIMATE ACCOUNT 2015

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Prepared by ACS
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1 INTRODUCTION

This climate account is made for the Danish consultancy company NIRAS. NIRAS is an international multidisciplinary consultancy company with activities in Denmark and 35 countries across the world.

The account follows The Greenhouse Gas (GHG) Protocol Corporate Standard[1].

1.1 Organisational and operational boundaries

This report estimates the GHG-emissions caused by NIRAS A/S activities in the year 2015 and is the third of its kind. Hence, *2013 was the baseline year* for this type of inventory at NIRAS.

The operational boundary covers scope 1, scope 2 and part of scope 3 (business travel) caused by NIRAS' Danish operations. The scopes are defined by the GHG protocol and are further explained in section 2.

The offices which are included within NIRAS A/S in 2015 are:

- Allerød
- Ålborg
- Århus
- Esbjerg
- Kolding
- Odense
- Nykøbing Falster
- Holbæk
- Frederikshavn
- Holsterbro
- Bredgade

For this inventory a selected range of activities (within scope 1, scope 2 and scope 3) have been included, dependent on the accessibility of data and to which degree it is possible to influence the magnitude of the emissions.

The included activities are:

Scope 1

- Natural gas for heating
- Use of company cars
- Use of employee cars for business purpose (car allowance)

[1] http://www.ghgprotocol.org/standards/corporate-standard

Scope 2

- Electricity used in offices
- District heating used in offices
- Production of renewable energy

Scope 3

- Transportation by train
- Transportation by airplane

In future reports the organisational and operational boundaries may vary (new activities included/old activities excluded), and new measurements as well as new GHG emission sources may be applied. In case of such an occurrence, NIRAS will conduct a recalculation and backcast these data points.

In the following section the results of the 2015 climate account will be presented.

2 RESULTS 2015

The emissions are categorized into either direct or indirect emissions. Direct emissions are defined as emissions that are directly caused by a source, which the company owns or controls. Indirect emissions arise from the company's consumption of energy products and services, where the company does not have direct control or ownership of the emission source.

The direct and indirect emissions are divided into the following scopes (see The GHG Protocol Corporate Standard):

- Scope 1: All direct emissions caused by the company, e.g. emissions from company cars and from company owned boilers for energy production.
- Scope 2: All indirect emissions caused by the company's purchase of energy, including electricity and district heating.
- Scope 3: Other indirect emissions caused by the company's procurement of goods and services, for example procurement of IT equipment, consulting, food, outsourced activities, travel, advertising, marketing, waste, etc.

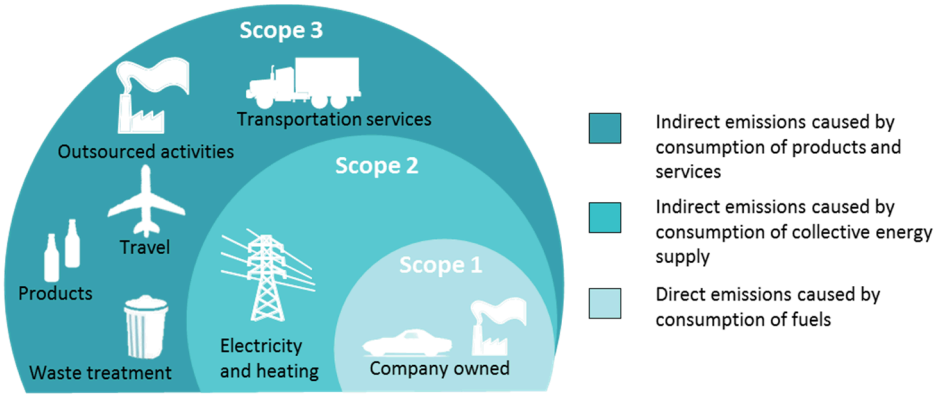

Figure 1: Scope 1-3 according to the GHG Protocol Corporate Standard

2.1 The total CO_2-emission in 2015

In 2015 the total GHG-emissions for NIRAS A/S were 2,089 ton of CO_2, which corresponds to 1.9 ton per fulltime employee.

In the figure below a distribution of the emissions can be seen according to the different scopes and activities. The development in emissions between 2013 and 2015 will be addressed in section 3.

	2015	
Activities	CO_2-emissions (ton)	% share
Scope 1	**924**	**44%**
Natural gas for heating	209	10%
Use of company cars	320	15%
Use of employee cars for business purpose	395	19%
Scope 2	**426**	**20%**
Electricity used in offices	332	16%
District heating used in offices	94	4%
Scope 3	**739**	**36%**
Transportation by train	12	1%
Domestic air transport	42	2%
Continental air transport	242	12%
Intercontinental air transport	443	21%
Total	**2,089**	**100%**

Figure 2: CO_2-emissions divided according to the different scopes and activities

The results of figure 2 are also presented in the multi-layer pie chart below:

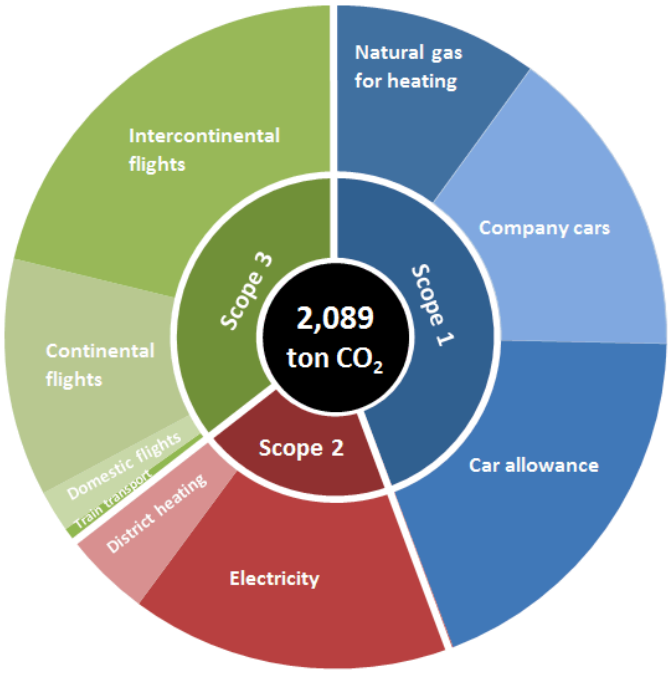

Figure 3: Visualization of the distribution of the CO_2-emissions in 2015 on different scopes and activities

2.2 Production of renewable energy

NIRAS produces renewable energy (electricity) based on solar panels. The company additionally collects food waste which is used to produce electricity and heat by a third party.

The solar panels produced a total of 179,555 kWh at the Allerød office in 2014. From these 10,658 kWh were sold back to the grid. The remaining 168,897 kWh were used at the Allerød office and constituted 16% of the electricity consumed in the building.

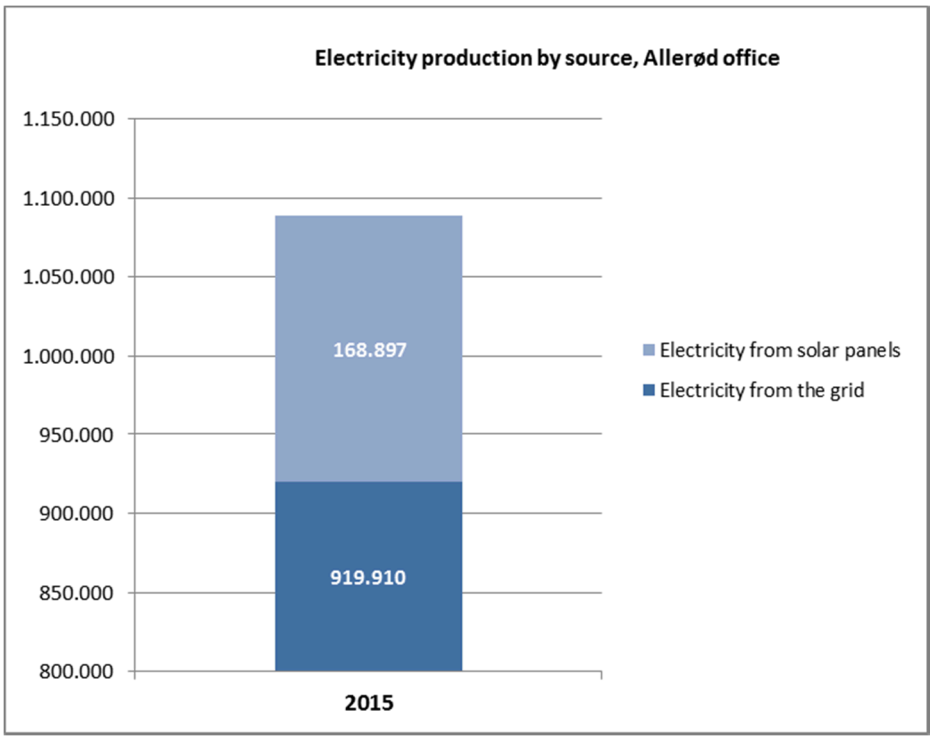

Figure 4: Division of the total consumption of electricity at the Allerød office on electricity from the grid and from solar panels (2015)

By producing electricity from solar cells a reduction of 39,353 kg CO_2 has been accomplished. Please note that the CO_2 emissions related to electricity in figure 2 only include electricity purchased from the grid, and the reduction of 39,353 kg CO2 has been accounted for.

Furthermore NIRAS sells food waste for electricity production to a company called Biotrans Nordic. Food waste collected at NIRAS in 2015 produced a total of 9,333 kWh of electricity and 11,688 kWh of heating. This equivalents to 4,564 kg CO_2 reduction, which is included in the climate account.

3 THE DEVELOPMENT OF EMISSIONS FROM 2013 TO 2014

Figure 5 below illustrates how the total emissions from NIRAS has developed from 2013 to 2015.

	2013	2014	2015
Activities	CO_2-emissions (ton)	CO_2-emissions (ton)	CO_2-emissions (ton)
Scope 1	**934**	**909**	**924**
Natural gas for heating	229	196	209
Use of company cars	318	346	320
Use of employee cars for business purpose	387	367	395
Scope 2	**610**	**537**	**426**
Electricity used in offices	504	455	332
District heating used in offices	106	82	94
Scope 3	**605**	**752**	**739**
Transportation by train	15	18	12
Domestic air transport	51	55	42
Continental air transport	159	230	242
Intercontinental air transport	380	449	443
Total	**2,149**	**2,198**	**2,089**

Figure 5: Comparison of CO_2 emissions across scopes between 2013, 2014 and 2015

Figure 5 shows that the total emissions have decreased with 60 ton CO_2 from 2,149 ton in 2013 to 2,089 ton in 2015.

3.1 Scope 1+2

The total amount of emissions from Scope 1 and 2 activities decreased between 2013 and 2015 with 194 tons of CO_2. The total amount of kWh electricity has increased from 2013 to 2015 but due to the decrease in the national electricity emission factor the total emissions associated with electricity has decreased. The national electricity emission factor has fallen to 233 g CO_2/kWh compared to 358 g CO_2/kWh in 2013.

In Figure 6 below it is evident that the consumption of electricity from the grid increased with 186,906 kWh from 2013 to 2014. As of 2014 NIRAS has no longer been connected to the ventilation system of the neighboring company, but established its own ventilation system, which has increased the consumption of electricity.

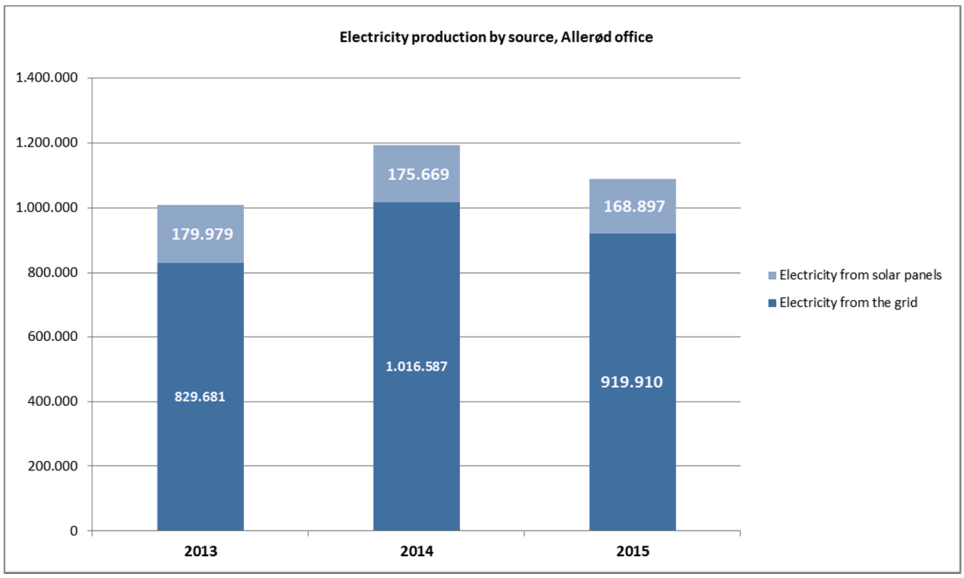

Figure 6: Division of the total consumption of electricity at the Allerød office on electricity from the grid and from solar panels (2013 - 2015)

The arrangement of food collection for district heating and electricity production started in mid-2013 and Figure 7 shows how the production - as expected - more than doubled from 2013 to 2014. In 2015 30 % of less food waste was collected and this has led to a decrease in district heating and electricity production in 2015.

	2013	2014	2015
Electricity production from food (kWh)	6,618	14,661	9,333
District heating production from food (kWh)	8,288	18,360	11,688

Figure 7: Production of energy and electricity from food collection

3.2 Scope 3

Emissions from Scope 3 activities increased from 34% to 35% of the total emissions from 2014 to 2015, which was mainly due to an increase in continental and intercontinental air transport.

3.3 Relative CO_2

As presented in the beginning of section 3 the overall emissions have decreased from 2013 to 2015. In this section the total emission will be put in perspective related to number of employees and m^2 at the NIRAS offices.

Figure 8. Emissions/employee and emissions/m2 8 presents the emissions per full time employee and the emissions per m2 in 2013 - 2015. The number of fulltime employees increased with 81 people from 2013 to 2015 and by taking this growth into account it is evident that the CO_2 emissions per full time employee decreased from 2.1 to 1.9 ton from 2013 to 2015.

	2013	2014	2015
CO_2 Emissions (tons)	2,149	2,198	2,089
Full time employees	1,009	1,089	1,090
M^2	25,468	25,785	30,248
CO_2/employee (tons)	2.1	2.0	1.9
CO_2/m^2 (kg)	82	80	69

Figure 8. Emissions/employee and emissions/m2

As shown in the figure above the total area of NIRAS offices grew with 4780 m2 from 2013 to 2015, and the CO_2 emission per m^2 has decreased from 82 kg CO_2/m^2 in 2013 to 69 kg CO_2/ m^2.