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SIVECO ROMANIA

Annual Carbon Footprint Report 2016
According to the GHG Protocol

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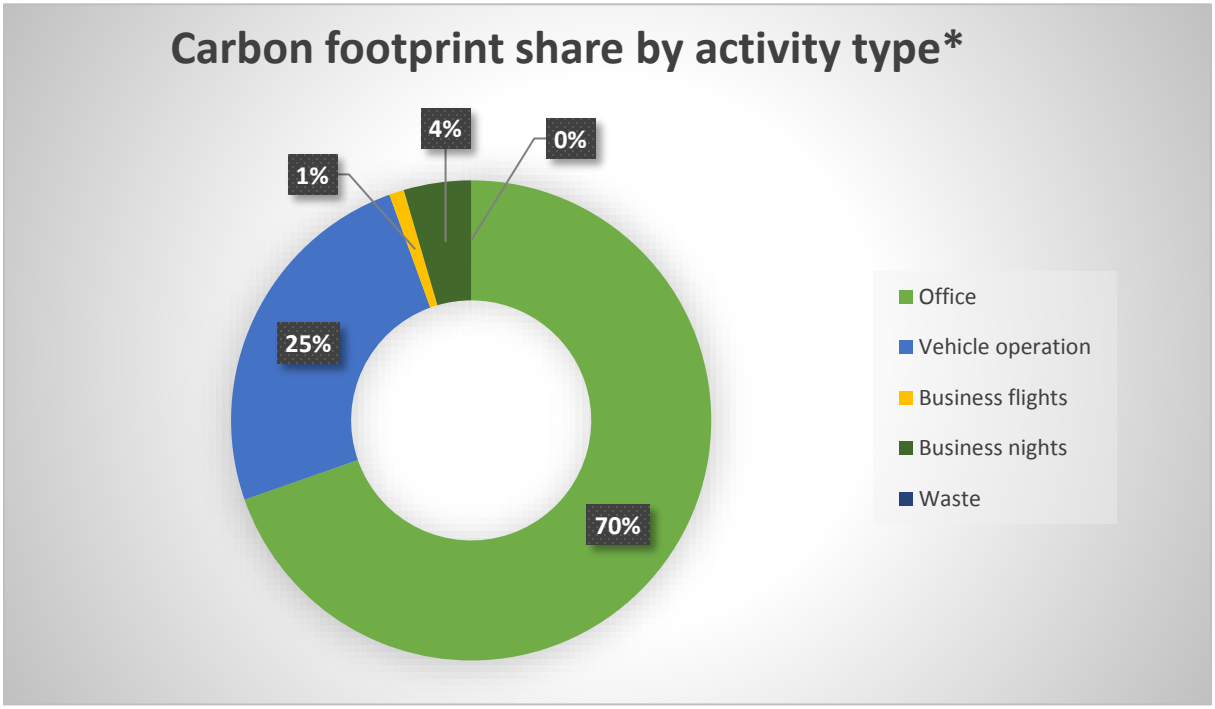
1. SUMMARY

1.1. Key sustainability highlights

As a company, SIVECO has a strong commitment towards sustainability and has developed solid principles regarding the wellbeing of the community where it operates. Since 2008, SIVECO Romania published each year a comprehensive report on sustainability, thus turning this activity into a good tradition to follow.

For the 2016 sustainability report, they will include the carbon footprint calculation as part of their environment reporting. It is important to point out that carbon footprint calculation is the first step in reducing the GHG emission and in achieving a better carbon management overall. Reporting the carbon footprint means taking responsibility for the environmental impact due to the company's activity and being transparent.



**Office includes office heating, electricity usage, and personal computers. Company vehicles include all vehicles operated or owned by the company, and emissions related to other life-cycle stages (production, waste management etc.) of the company and employee commuting passenger vehicles.*

In fiscal year 2006, office activity is responsible for more than half of the carbon footprint. In the office activities are included electricity consumption, gas consumption and computers. Vehicle operation including both gasoline and diesel cars, took a share of 25%, while business fights and business nights were responsible together for 80,57 tonnes CO_2 equivalent greenhouse gas emissions which means 5% of the company's carbon footprint.

1.2. Vision

- *Path to a liveable future*

SIVECO Romania's goal is to lead a business by developing IT products for efficient resource management and in the same time engages in activities which support various social and environmental campaigns. The company started writing annual sustainability reports since 2008 and every year succeeded to improve their reporting strategy. The carbon footprint reporting highlights even more the fact that transparency is one of the most important instrument used by the company.

- *Individual Decisions for a Common Future*

SIVECO Romania is convinced that each and every one of us will benefit from making low-carbon emissions and carbon-neutral lifestyles the best-practice global standard. SIVECO Romania's intention is to involve and educate an ever-growing number of businesses and individuals in the benefits and opportunities of Sustainable Development.

2. GOAL AND SCOPE OF THE ASSESSMENT

2.1. Introduction and goal definition

2.1.1. Commissioner of the study

SIVECO Romania S.A. is a company specialized in developing large and complex IT projects for education, health, agriculture, customs organizations, European institutions, private companies and public sector. The company's mission is to develop IT solutions that will generate a positive change, prosperity and access to progress for all its clients and beneficiaries. SIVECO Romania offices are located in Bucharest, along with its headquarters, Constanta and Brasov. The company has over 500 employees.

The varied software products developed by SIVECO Romania, such as: eLearning, eBusiness, eHealth, eAgriculture, eTraining, have helped countless beneficiaries, from millions of teachers and students, hundreds of organisations, to hundreds of thousands of farmers, and tens of thousands of physicians. Over the past 10 years, SIVECO has launched expansions in countries from Central and Eastern Europe, the European Union, the CIS area, the Middle East and Nord Africa. The company has implemented more than 3550 successful projects in 27 countries.

Since 2008, SIVECO Romania has proven its dedication to sustainability and social responsibility, by drafting every year an annual Sustainability Report. Among many other awards, in 2013, the project "SIVECO Academy", received "Project of the Year" award within "Corporate Social Responsibility" category.

2.1.2. Reasons to carry out the study

This assessment has been carried out to:

- Set priorities and make decisions regarding internal policy to improve the environmental performance of the company;
- Identify carbon intensive hot-spots among activities;
- Have a better understanding of the resources used internally;
- Include the carbon footprint in the "2016 Sustainability Report" as part of the environmental reporting component;

- Indicate an example of good practice for the employees, as well as for clients and beneficiaries.

2.1.3. Target audience

Firstly, the target audience of this report is the company management for decision support, and all other employees to raise awareness internally. Secondly, the report's purpose is to be disclosed to the public (except confidential data) including partners, beneficiaries and all other interested parties.

2.2. Scope

2.2.1. System boundaries by operations

The company is based on the following pillars: SIVECO Operations (SIVECO Applications, Project management), HR& QA (Quality Assurance, Quality Control Testing, Human Resources), Commercial Division (Presales, Sales, Marketing, European Funds, Structural Funds, International Accounts, Sales Administration) Financial, Administrative, and IT.

2.2.2. Cut-off criteria

All significant activities assigned to the analysed system were included in the system boundaries except for the quantitatively irrelevant ones that contribute less than 0.5% to the carbon footprint and the omitted activities do not account for more than 5% in total, meaning the system boundaries should cover at least 95% of the climate change impacts. This way, effort that would have been needed to collect the data could be used to focus on obtaining better data quality for the relevant processes and elementary flows. Based on the cut-off criteria, the following activities were excluded from the boundaries: water consumption, office cleaning, employees commuting, website operation, events and other office equipment (except computers).

2.2.3. Temporal and geographical scope

This assessment covers company operations during fiscal year 2016 that took place within the European Union.

2.2.4. Limitations of the study

This report assesses the carbon footprint of a business entity, meaning its scope is limited to only one environmental impact category, the global warming potential (GWP). Furthermore emissions are reported only in midpoint indicator level (in tCO_2 equivalents) directly, because data collection and estimation for the different specific GHGs were not possible for the direct (Scope 1) emissions and mostly not feasible for the indirect (Scope 2 and 3) emissions.

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3. BACKGROUND INFORMATION

3.1. Terms and Definitions

- *Greenhouse gases (GHGs)*

Greenhouse gases include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulphur hexafluoride (SF_6), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs). When determining the size of one's carbon footprint, one must examine the amount of greenhouse gases (GHGs) emitted "as a side effect" of the activity or activities in question. Of the ones listed above, carbon dioxide has the biggest impact on our environment, more significant even than that of methane.

- *Carbon dioxide (CO_2)*

Carbon dioxide, or CO_2 for short, is a colourless and odourless gas, which is virtually imperceptible to humans and partly it is these characteristics that make it so difficult to fight it. Basically, CO_2 is produced by burning fossil fuel, such as natural gas and petroleum, however it is also emitted "indirectly" when we use electricity as in the production of electricity the most common method is burning fossil fuel.

Approximately 30 billion tonnes of carbon dioxide is emitted into the atmosphere per year on planet Earth. This annual figure is very low compared to the emission resulting from natural phenomena, however, considering that carbon dioxide remains in the air for 100 to 200 years, when these excessive amounts accumulate, they can have a very significant impact on the environment, indeed.

Since the amount of CO_2 is the most important factor of all the other GHGs listed above from the standpoint of environmental changes or climate change, the size of carbon footprint is expressed as carbon dioxide equivalent (tCO_2e), equivalent to one tonne of carbon dioxide. When calculating carbon footprints, for the sake of simplicity and uniformity, the amounts of less important GHGs are determined in tCO_2e, thus converting their masses into CO_2 mass based on an index of how much they contribute to the greenhouse effect. The tCO_2e values, converted from masses of various GHGs, are then simply added up to get total emission figures.

- *Carbon footprint*

When determining the size of carbon footprint, the volume of greenhouse gas emissions produced by an activity or activities as 'side effect' needs to be examined. The backend database takes into account all greenhouse gas (GHG) emissions generated by such activities.

- *Unit of measure for calculating carbon footprint (tCO_2e)*

Due to the volume of carbon dioxide emissions, it is considered the most significant of the greenhouse gases mentioned above. The size of the carbon footprint is expressed as metric tonnes of CO_2 equivalent (tCO_2e). When assessing the size of one's carbon footprint, other kinds of greenhouse gas emissions are also converted into CO_2 equivalent, therefore their unit of measure will be tCO_2e, too. To determine the full size of carbon footprint, tCO_2e values for these GHGs must be added up.

- *The GHG Protocol*

Our calculation based on guidelines published in the GHG Protocol (www.ghgprotocol.org). The GHG Protocol is a three-level system which is divided into so-called Scopes. Scope 1 covers GHG emissions arising from burning energy carriers directly (e.g. fuel or natural gas). Scope 2 includes GHG emissions resulting from the indirect use of energy (e.g. electricity, district heating), whereas Scope 3 includes additional activities generating emissions indirectly. These may or may not be included when calculating the full size of carbon footprint.

3.2. Emission factors

We have compiled our backend database using the most trusted and respected international databases such as:

- the DEFRA database (Department for Environment, Food and Rural Affairs in the UK),
- the ICAO database (International Civil Aviation Organization)
- other international databases and studies.

The following section gives an overview of the factors for each activity type. Not all the factors were used in this assessment, because as it was already mentioned earlier only the most important

ones, from the GWP point of view, were analysed.

3.2.1. Company owned vehicles

Emission factors for different models can be easily obtained from the Carbon Solutions Ltd. carbon footprint calculator that we used to do this calculation.

3.2.2. Air business travel

DEFRA gives a very good overview (DEFRA, 2016) of the available methods to estimate emissions attributable to air travel. According to recent studies for air travel emissions a 10% uncertainty has to be taken into account (Chester & Horvath, High-speed Rail with Emerging Automobiles and Aircraft Can Reduce Environmental Impacts in California's Future, 2012).

3.2.3. Employee commuting

Source	**Emission factor (gCO2e km-1 passenger-1)**
Car (average) **(DEFRA, 2016)**	**224.6**
Bus **(DEFRA, 2016)**	**145.3**
Tram **(DEFRA, 2016)**	**61.68**
Metro **(DEFRA, 2016)**	**66.59**

3.2.4. Usage of company cars

Source	**Emission factor (kgCO2e/litre)**
Diesel (average blend) **(DEFRA, 2016)**	**3.166**

3.2.5. Business flights

Source	**Emission factor (kg CO_2e/pass.*km)**
International distance flight (average class) **(DEFRA, 2016)**	**0.198**

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3.2.6. IT

Source	**Emission factor (kg CO2e pcs-1)**
Computers (kg CO_2e pcs^{-1})	**175**
(DELL, 2010)	

3.2.7. Electricity

Source	**Emission factor (t CO_2e/ MWh)**
Romania **(Order 601/2012, National Institute of Statistic, 2013)**	**0.640**

3.2.8. Office heating

Source	**Emission factor (t CO_2e/Mwh)**
District heating – Romania **(Order 601/2012, National Institute of Statistic, 2013)**	**0.322**

3.3. Data Quality Assessment Pedigree Matrix

The Data Quality Assessment Pedigree Matrix (Chester, Life-cycle Environmental Inventory of Passenger Transportation in the United States, 2008) defines scores to the datasets according to the different aspects of data quality.

	Indicator score				
Criteria	**1**	**2**	**3**	**4**	**5**
Impact on Final Result (Importance)	Parameter is the top contributor to final result	Parameter is within the top 5 contributors to final result	Parameter is within the top 10 contributors to final result	Parameter is not likely to affect final results significantly	Parameter contribution is unknown
Acquisition Method	Measured data	Calculated data based on measurements	Calculated data partly based on assumptions	Qualified estimate (by industrial expert)	Nonqualified estimate
Independence of Data Supplier	Verified data, information from public or other independent source	Verified information from enterprise with interest in the study	Independent source, but based on non-verified information from industry	Non-verified information from industry	Non-verified information from the enterprise interested in the study
Representation	Representative data from sufficient sample of sites over and adequate period to even out normal fluctuations	Representative data from smaller number of sites but for adequate periods	Representative data from adequate number of sites, but from shorter periods	Data from adequate number of sites, but shorter periods	Representativeness unknown or incomplete data from smaller number of sites and/or from shorter periods
Temporal Correlation (Consistency)	Less than three years of difference to year of study	Less than five years of difference	Less than 10 years of difference	Less than 20 years of difference	Age unknown or more than 20 years of difference
Geographical Correlation (Accuracy)	Data from area under study	Average data from larger area in which the area of study is included	Data from area with similar production conditions	Data from area with slightly similar production conditions	Data from unknown area or area with very different production conditions
Technological Correlation (Relevance)	Data from enterprises, processes and materials	Data from processes and materials under study,	Data from processes and materials under study,	Data on related processes or materials,	Data on related processes or materials, but different

	under study	but from different enterprises	but from different technology	but same technology	technology
Range of Variation	Estimate is a fixed and deterministic number	Estimate is a fixed and deterministic number	Estimate is likely to vary within a 10% range	Estimate is likely to vary more than 10%	Estimate is likely to vary under unknown ranges

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4. INVENTORY

Emissions are reported in tCO$_2$ equivalents directly, because a data collection and estimation for the specific GHGs were not possible for the direct (Scope 1) emissions and mostly not feasible for the indirect (Scope 2 and 3) emissions.

4.1. Scope 1: Direct emissions

4.1.1. Emissions from vehicles owned or operated by the company

- *General information*

The company owns 138 vehicles that are using both diesel and gasoline fuel.

- *Temporal reference*

In accordance with the temporal scope of the study, data is collected for fiscal year 2016.

- *Acquisition method*

Emissions are estimated from total fuel costs in 2016. The fuel consumption of the company cars was both diesel and gasoline.

- *Assumptions*

Calculation of emissions are based on the distance travelled without considering variations of fuel usage due to different road surfaces, driving behaviour etc., because direct measurement is not realistic. The total distance travelled was calculated based on the amount of fuel used.

- *Range of variation*

Estimate is likely to vary within a 15% range.

- *Emission factors*

The source of the emission factors is the DEFRA database. Emissions associated with the extraction, processing and transport of the given fuel (well-to-tank emissions) are also included.

- *Data*

Fuel type	Quantity (litre)	Distance (km)	Emission (t CO_2e)
Diesel	76611.22	1094442	242.547
Gasoline	44993.89	642.757	119.604
Total			**362.151**

4.2. Scope 2: Indirect emissions from electricity usage

4.2.1. *Electricity usage*

- *General information*

The company is using electricity from the commercial property management company, who purchase it from the regional electricity provider. Also the building has electric meter installed and operated by the commercial property management company.

- *Temporal reference*

In accordance with the temporal scope of the study, data is collected for fiscal year 2016. Electricity consumption is subject to a slight variation over the year due to the seasonal changes in lighting and air conditioning needs.

- *Geographical location*

Electricity is only purchased at the headquarters, meaning that only one country's electricity grid mix had to be taken into account.

- *Technological information*

Electricity is used for office equipment (printer, computers, cell phones, and servers), air conditioning in the summer period, cleaning and maintenance, kitchen equipment and lighting.

- *Acquisition method*

The company-specific consumption is calculated indirectly from electricity bills.

- *Data supplier*

Verified information from Finance department.

- *Range of variation*

Data is partly estimated, and the estimate is likely to vary within a 5% range.

- *Emission factors*

See Section 3.2.7 for further information.

- *Data table*

Activity type	Quantity (kWh)	Emission factor (t/Mwh)	Emission (t CO_2e)
Electricity usage	1430.15	0.640	915.269

4.3. Scope 3 activities: Other indirect emissions

4.3.1. *Office heating*

- *General information*

The office is located in a four-storey building and occupies in total 5178 m^2. Heating system is operated by the commercial property management company thus the related emissions are reported under Scope 3 (Other indirect emissions) instead of Scope 1 (direct emissions). All emissions from the heating come from the burning of natural gas (which is purchased from the regional natural gas supplier).

- *Temporal reference*

In accordance with the temporal scope of the study, data is collected for fiscal year 2016. Heat consumption is subject to a substantial variation over the year due to the seasonal temperature changes. In general, from April 15th to October 15th there is no need to heat the office space at all.

- *Geographical location*

The company has all of its offices in one location at its headquarters.

- *Acquisition method*

The company-specific consumption is calculated indirectly from electricity bills, in the same way as the electricity consumption.

- *Range of variation*

Data is mostly estimated, and the estimate is likely to vary within a 5% range.

- *Data table*

Activity type	Quantity (Mwh)	Emission factor (t CO_2e/Mwh)	Emission (t CO_2e)
Office heating	568.81	0.322	183.156

4.3.2. Business travel (air travel)

- *General information*

The company has an extensive list of business air travels to various countries from different continents. In 2016, a number of 385 business flights were registered.

- *Temporal reference*

In accordance with the temporal scope of the study, data is collected for fiscal year 2016.

- *Geographical location*

The travels were taken place between the headquarters and various countries within EU, Asian, Africa and North American.

- *Technological information*

Since there is no information on the specific types of airplanes used for the travels, the travels were all taken into account as average class flights.

- *Acquisition method*

Calculation of mileage is based on the departure and destination airports. Data source was the invoices of the tickets.

- *Assumptions*

The travelled distance is assumed to be equal to the geographical distance between departure and destination airports. Unfortunately, the data regarding the departure and destination cities is missing, and has been calculated by selecting the airports with the most traffic. This lack of data can be attributed to the high number of flights , a fact which renders data centralization for each

flight as time-consuming and unnecessary, considering that the range variation is insignificant.

- *Data supplier*

Verified information from Finance department.

- *Range of variation*

Calculated data is based on measurements, and the estimate is likely to vary within a 35% range.

- *Emission factor*

The emission values per passenger*km were derived from the DEFRA database and emissions associated with the extraction, processing and transport of the given fuel (well-to-tank) are also included. Furthermore the influence of radiative forcing is also covered as it is recommended by DEFRA.

- *Data table*

Activity type	Country	Region	Emission (tCO_2e)
Business flights	Albania	South-Eastern Europe	0.19
Business flights	Bulgaria	South-Eastern Europe	0.07
Business flights	Greece	South-Eastern Europe	0.2
Business flights	Macedonia	South-Eastern Europe	0.14
Business flights	Moldavia	South-Eastern Europe	0.1
Business flights	Montenegro	South-Eastern Europe	0.19
Business flights	Serbia	South-Eastern Europe	0.14
Business flights	Belgium	Western Europe	0.827
Business flights	France	Western Europe	0.23
Business flights	Ireland	Western Europe	0.41
Business flights	Luxembourg	Western Europe	0.2
Business flights	Netherlands	Western Europe	0.27
Business flights	Switzerland	Western Europe	0.2
Business flights	Portugal	South-Western Europe	0.45

Business flights	Denmark	Northern Europe	0.32
Business flights	Norway	Northern Europe	0.43
Business flights	Sweden	Northern Europe	0.32
Business flights	Finland	Northern Europe	0.4
Business flights	Czech Republic	Central Europe	0.7
Business flights	Germany	Central Europe	0.3
Business flights	Poland	Central Europe	0.23
Business flights	Slovakia	Central Europe	0.2
Business flights	Italy	Southern Europe	0.2
Business flights	Algeria	North Africa	0.36
Business flights	Morocco	North Africa	0.4
Business flights	Congo	Central Africa	0.8
Business flights	Kenya	Eastern Africa	0.79
Business flights	Senegal	Western Africa	0.7
Business flights	Kazakhstan	Central Asia	0.36
Business flights	Tajikistan	Central Asia	0.54
Business flights	Uzbekistan	Central Asia	0.57
Business flights	United Arab Emirates	Western Asia	0.5
Business flights	Oman	Western Asia	0.57
Business flights	Turkey	Western Asia	0.14
Business flights	Azerbaijan	Southwest Asia	0.3
Business flights	USA	North America	1.3
Total (36 countries)			**14.63**

4.3.3. Waste

- *General information*

The company implemented a selective waste collection system for 3 categories: paper, plastic and mixed waste.

- *Temporal reference*

In accordance with the temporal scope of the study, data is collected for fiscal year 2016.

- *Geographical location*

The waste generation and collection took place in the office building of the headquarters.

- *Acquisition method*

Information is based on the report of the team responsible for the selective waste collection system.

- *Range of variation*

Calculated data partly based on assumptions, estimate is likely to vary less than 5%.

- *Emission factor*

The source of these emission factors is the DEFRA database. When calculating greenhouse gas emissions from waste it is assumed that such waste is landfilled.

- *Data table*

Waste type	Quantity (kg)	Emission (tCO_2e)
Paper	2565	0.054
Plastic	515	0.011
Mixed	1069	0.213
Total		**0.278**

4.3.4. Business accommodations

- *General information*

The company has reported a number of 2372 of business nights, spent both in and out Romania, where the headquarters is located.

- *Temporal reference*

In accordance with the temporal scope of the study, data is collected for fiscal year 2016.

- *Geographical location*

The business nights were registered both in and out Romania.

- *Acquisition method*

The number of business nights was centralized based on the invoices for the accommodation costs.

- *Assumptions*

Unfortunately, the data regarding the location for every accommodation is missing, and has been calculated using average emission associated with the use of standards hotels, mostly from Europe. This lack of data can be attributed to the high number of business, a fact which renders data centralization for each night as time-consuming and unnecessary in this particular

case.

- *Data supplier*

Verified information from Finance department with interest in the study.

- *Range of variation*

Calculated data is based on measurements, and the estimate is likely to vary within a 35% range.

- *Emission factor*

The calculation uses average emissions values associated with the use of standard hotels.

- *Data table*

Activity type	Quantity (nights)	Emission (t CO_2e)
Business nights	**2372**	**65.942**

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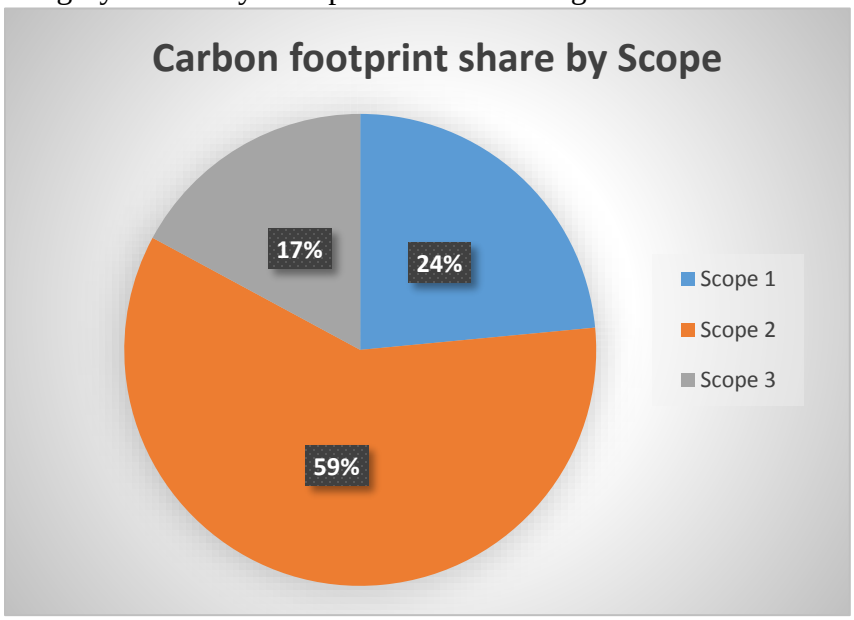
5. RESULTS

This concept of "scope" facilitates the delimitation of each emission type and sources. This classification helps the reporting activities and also helps to have a better understanding of which category of activity is responsible for the largest amount of emissions.



Indirect emissions from the electricity (Scope 2 emissions) consumption accounted for than half of the total emissions. Only a small portion of the greenhouse gases (17%) were emitted indirectly from the activities included in the Scope 3 category.

This emissions scheme is typical for a tech company, with a large number of employees (500), due to the number of computers and servers that are consuming electricity.

Scope	t CO_2e	percent of total carbon footprint
Scope 1: Direct GHG emissions	362.151	24%
Scope 2: Electricity indirect emissions	915.269	59%
Scope 3: Other indirect emissions	264.007	17%
SUM	**1541.454**	**100%**

5.1. Base year and emission profile over time

The company under study started its operation in Romania in 1992, and since 2008, SIVECO Romania published every year a Sustainability Report, thus 2016 is the first year to report GHG emissions. Also, for the Sustainability Report, over the years, SIVECO started collecting data about energy consumption, waste and other resources used in the company's activity.

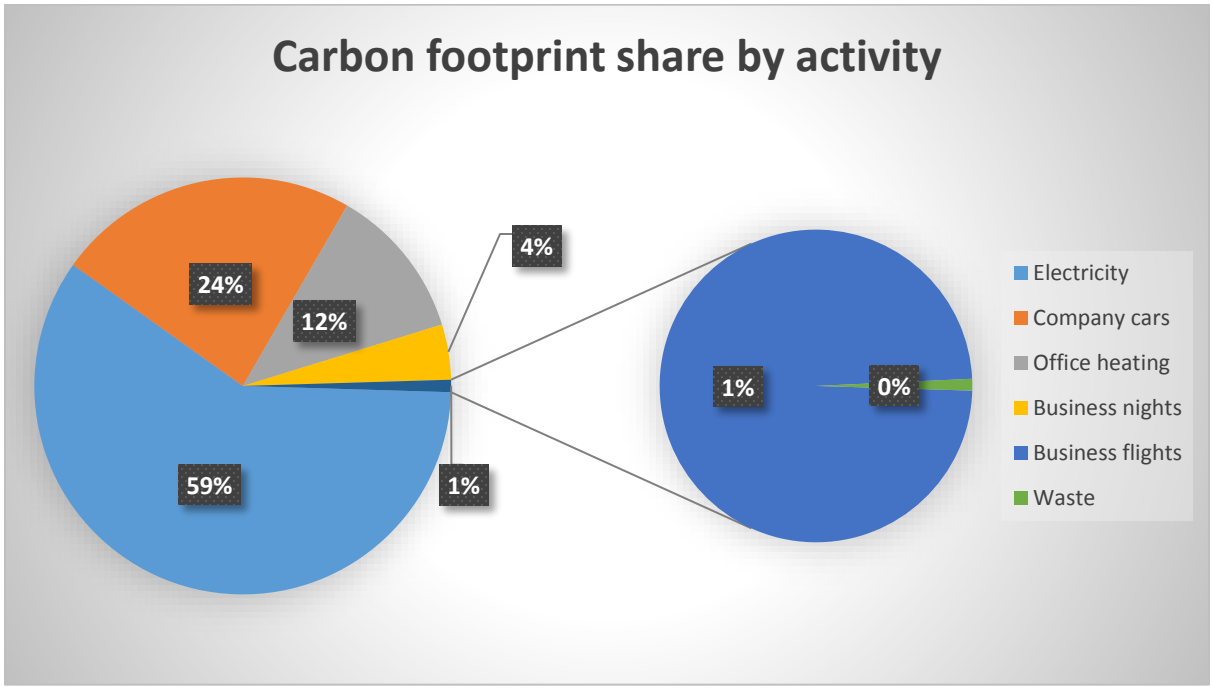
Therefore, the company under study has experience related to data selection and collection.

5.2. Emission data subdivision

5.2.1. *By activity type*

All the carbon calculations about SIVECO Romania's operational carbon footprint follow the methodology and guidelines provided by the World Business Council for Sustainable Development Greenhouse Gas Protocol.

The company submitted data for direct and indirect (Scope 1, 2 and 3 by GHG Protocol) greenhouse gas emissions from 1st January 2016 to 31st December 2016. The scope of the assessment includes: energy and material consumption of office, company vehicles, accommodations for business purposes, air business travels and waste. The total GHG emissions of SIVECO Romania are equivalent to **1541.454** tonnes of CO_2e in the examined period.



As previously mentioned, the electricity consumption is responsible for most emissions, with 915.296 tonnes of CO_2e. Although electricity consumption is the main source of emissions, this value is not considered high. This is because the company being studied has over 500

employees, and due to its activity profile (tech), there are a lot of energy consumers involved, such as: personal computers (385), monitors, peripherals, servers, and other devices.

Diesel and gasoline consumption from vehicle operation contributed with 362.151 tonnes of CO_2e which amount takes out 24% of the total GHG emissions of the company.

"Business nights" refers to the number of nights booked for business purposes and "business flights" means the data about business travels done by air. Business flights and business nights contributed together with 80.57 tonnes of CO_2e, which means 5% of the total carbon footprint. With regard to airplane travelling, the quantity of GHG emissions depends on the distance of travel. Thus, flights to African countries, such as Senegal, have a specific quantity of emissions, with an average of 0.7 tonnes of CO2e. The highest quantity of emissions results from flights that have USA as destination, namely an average carbon footprint of 1.3 tonnes of CO_2e. The carbon footprint for flights to European countries varies between 0.1t CO_2e and 0.3 t CO_2e.

The carbon footprint generated from waste was the lowest, 0.278 tonnes to be exact, which represents less than 1%. This low value was the outcome of the implementation of a selective waste collective system by the analysed company. This can be considered a perfect example of why a company should implement such a system. Also, it should be considered that in the absence of this system, with the same amount of waste, the carbon footprint would have been 0.72 tonnes of CO_2e. Consequently, SIVECO Romania reduced the carbon footprint resulted from waste collecting by 548 kg CO_2e (0.548 t CO_2e).

Activity	**tCO2e**	**Share**
Electricity	915.296	59%
Vehicle operation	362.151	24%
Office heating	183.156	12%
Business nights (accomodations)	65.942	4%
Business flights	14.631	1%
Waste	0.278	Less than 1%
SUM	**1541.454**	**100,0%**

6. INTERPRETATION AND RECOMMENDATIONS

6.1. Current Environmental Management Program, Sustainability Report and ISO 14001:2004

SIVECO Romania is a highly responsible company in terms of environmental protection activities, even if the company's activities don't impact the environment in a considerable way.
In 2012, the company has implemented an Environmental Management System, certified in accordance with the ISO 14001: 2004 standard. In terms of environmental protection, the implementation of this system implies: prevention of pollution, reduction of the quantity of waste and the preservation of natural resources (electricity, gas, and water), while at the same causing a reduction in costs.

Also, every year, since 2008, the company publishes a Sustainability Report, where it's explained in a transparent way all the initiative taken to reduce waste, energy consumption and resources. Also, SIVECO has embraced and acknowledged the UN Global Compact's ten principles in the areas of human rights, labour, the environmental and anti-corruption. Regarding the environmental protection activities, in the following section, we extracted some important examples:

- *Energy consumption*

- Purchase equipment with low-energy consumption: computers, servers, monitors, peripherals, lighting, electrical appliances. The cables network and air-conditioning systems installed in the company uses energy efficiently.
- Monitor and maintain the electricity consumption in some established range.
- The total expenditure for fuel and energy has decreased by 175.696 euro from 2014 to 2015.

- *Internal resources: paper, printer cartridges and other*

- Monitor and optimized specific consumption of materials and utilities in order to minimize losses.
- Decrease paper consumption below the average of 205000 sheets/month (by printing double-sided documents, when it is possible).

- Paper recycle.

➢ *Waste:*

- Implement a selective waste collection system: paper, plastic, mixed household waste. In 2016, SIVECO recycled 740 more kilograms of paper and 210 more kilograms of plastic than in 2015.

➢ *Environmental protection products*

- Launch products meant to improve environmental protection, such as: INOVAGRIA, Waste Management within the ERP SIVECO APPLICATIONS.

➢ *Electric equipment and internet*

- Switch off the PC before going home and plug it out.

➢ *Other*

- The employees are encouraged to turn off lights when they leave the room and to and reduce unnecessary water.
- The acquisition of the vehicles with low fuel consumption.
- Joined the Earth Hour campaign and turned-off the lights for one hour at the office, thus supporting the worldwide movement.

6.2. Recommendations

6.2.1. *Identification of important issues*

The most important activities are energy consumption and vehicle operation, where significant reductions could be achieved in the easiest way, but office heating, air travel and business nights also offer potential reduction possibilities. For the energy consumption it is recommended to increase the percentage of electricity produced by a renewable resource.

The following table, showcases a list of estimated reduction:

Action	**Estimated reduction in tCO_2e and in %**
10% of the electricity used, produced from renewable resources	91.5 (9.9%)
30% of the electricity used, produced from renewable resources	274.5 (29%)
50% of the electricity used, produced from renewable resources	457.648 (50%)

It is important to point out that SIVECO Romania has already taken action towards reducing the carbon footprint of its vehicle operations, by purchasing vehicles with low fuel consumption. It is difficult to reduce the entire carbon footprint, because for the most employees, cars are a real necessity, however it is recommended to take into consideration some advice. Hence, we can operate our cars and reduce the carbon footprint in the same time, just by applying some simple "eco-driving" rules. In the following section, there are some recommendations that can be included in the Environmental Management Program.

6.2.2. *Recommendations regarding Environmental Management Program*

To reduce the carbon intensity of the Company operations, the following recommendations could be considered to implement in the Internal Environmental Management Program.

- *Business Cars:*

- Using car more efficiently – The more people share a car, the less we emit per person.
- Emissions of the business cars could be reduced by better planning, time management and

using eco-driving techniques, such as: avoiding hilly route and heavy traffic, minimizing hard acceleration and braking, keeping the tires properly inflated, maintain the mechanical systems. "Eco-driving" can reduce emissions by 5% to 15%. In the long term it would be worthy to use only hybrid or electric cars.

- *Energy Consumption:*

- Keeping in mind to plug electric devices such as computers, TVs, DVD players, etc. into a power strip that can turn them all off at once when nothing used. Electrical appliances left on stand-by mode use up to 8% of a building's energy.
- Considering saving a file on a computer, in a flash drive or emailing it instead of printing.

- *Waste:* Recycle old electronic devices. Recycle or sell old blackberry, PDA, laptop, iPad or iPhone etc.

- *Events:*

- Electronic event registration.
- Lanyards made from recycled materials. Asking participants to return them after the event.
- Post-consumer recycled paper and vegetable-based inks for badges.
- Offering guests the choice to attend the event via videoconferencing.
- Providing guests with information about accommodations with environmental certification or with environmental policies and practices
- Negotiating room blocks with hotels that are within walking distance of the event venue and/or have green policies
- Asking guests to participate in linen reuse programs at their hotels. Asking them to shut off lights, televisions and air conditioners or heaters when they leave their rooms.
- Using alternative fuel vehicles in a guest shuttle service.

- *Transportation*

- No idling at the venue and major transportation hubs, such as airports
- Providing shuttle service drivers with training in environmentally responsible driving practices

- Alternatively, providing financially supported or free passes for public transport.

➢ *Business travels*

- During business air travel prefer direct flights between the departure and destination.

6.2.3. Other recommendations

- When booking business flights, choose to travel with companies that have an offsetting carbon footprint program (if it is possible). In 2016, The International Civil Aviation Organization, the international governance body for airlines, has drafted a plan in order to encourage airlines to offset their carbon footprint. This was determined by the fact that air travels are responsible for 7% of the global greenhouse gas emissions.
- Set priorities in the *Environmental Management Program*; focus on the activities where the biggest reductions can be achieved.
- Guideline and motivate employees to look at it to be more efficient in reducing GHGs.

6.3. GHG emission target programme

SIVECO Romania's aim is to have the smallest environmental impact amongst the competitors with similar business activity. To reach this goal the company is committed to reduce its annual carbon footprint, while maintaining its excellent performance of carbon intensity per annual income. SIVECO Romania increases its efforts to reduce energy and resource consumption, a fact that can be deducted from analysing the official data. For example, the total expenditure for fuel and energy has decreased by 175.696 euro from 2014 to 2015.

Annual carbon footprint reported hereby will be used as a base year emission data for the following years' reports.

6.4. Information on any contractual provisions addressing GHG-related risks and obligations

The company is not required to report or monitor its emissions.

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7. DATA QUALITY ASSESSMENT

7.1. Completeness

Although some activities are left out from the operational boundary - namely a remarkable part of the office equipment (printers, furniture, light bulbs etc.), office cleaning, catering and website operation - none of the excluded processes influence significantly the reported emission data as they are considered as representing less than 5% of the emission sources.

7.2. Uncertainty

To assess the parameter uncertainty of the study, the Data Quality Assessment Pedigree Matrix method has been used (for explanation see Section 3.3). For scientific and model uncertainty of the existing climate models and global warming potential calculations see the UN Intergovernmental Panel on Climate Change Synthesis Report. (IPCC, 2007).

7.2.1. Activity intensity data

The weighted average of uncertainty (range of variation) score for the company's own measured or estimated activity intensity parameters - using the relative contribution to the total emission as the weight - is 3.0, meaning the activity data's estimation is likely to vary within a 10% range.

7.2.2. Emission factor uncertainty

Although all emission factors used in this report were derived from other published sources mostly without providing uncertainty explicitly, uncertainty information is collected and estimated where it was possible. The resulting average uncertainty score - using the relative contribution to the total emission as the weight - is 2.8 for all of the emission factors, which is higher than that of the activity intensity parameters'. That means carbon footprint variation due to the uncertainty of emission factors is likely to vary within 10% of range, but this information is somewhat uncertain in itself.

7.2.3. Total uncertainty

All in all, the total footprint is likely to vary within a 10% range.

7.3. Representativeness

Data Quality Assessment Pedigree Matrix was applied to evaluate the representativeness of the dataset (see Section 3.3).

7.3.1. Technological correlation (Relevance)

The overall technological correlation of the data is very good, in most cases data is directly linked to the activities under study or from very similar processes and materials.

7.3.2. Temporal correlation (Consistency)

The temporal representativeness of the intensity parameters and the emission factors are both satisfactory. Activity intensity parameters are all relevant to the temporal scope of the study and most of the emission factors have less than three years of difference to year of study.

7.3.3. Geographical correlation (Accuracy)

All intensity parameters originate from the area under study, while for the emission factors most data is not available for the specific geographical location thus data from a different area with similar activity conditions was applied.

- *Data Quality Assessment Pedigree Matrix of intensity data*

Activity intensity variable	Acquisition method	Independence of Data supplier	Representation	Temporal correlation (Consistency)	Geographical correlation (Accuracy)	Technological correlation (Relevance)	Range of variation	Average
Scope 1 (Direct emissions)								
Company vehicles	2	2	1	1	1	1	3	1.5
Scope 2 (Emissions from electricity)								
Electricity	1	2	1	1	1	1	1	1.1
Scope 3 (Other indirect emissions)								
Office heating	1	2	1	1	1	1	1	1.1
Business nights	2	2	1	1	1	1	4	1.7
Air business travel	2	2	1	1	1	1	4	1.7
Waste	1	2	1	1	1	1	3	1.4

- *Data Quality Assessment Pedigree Matrix of emission factors*

Emission factors	**Acquisition method**	**Independence of Data supplier**	**Representation**	**Temporal correlation (Consistency)**	**Geographical correlation (Accuracy)**	**Technological correlation (Relevance)**	**Range of variation**	**Average**
Scope 1 (Direct emissions)								
Company vehicles	2	3	1	1	-	1	3	1.8
Scope 2 (Emissions from electricity)								
Electricity	2	3	1	1	1	2	3	1.8
Scope 3 (Other indirect emissions)								
Office heating	2	3	1	1	1	2	3	1.8
Business nights	4	4	5	1	4	4	4	3.7
Air business travel	4	3	3	1	4	4	3	3.1
Waste	2	3	3	1	2	4	3	2.5

7.4. Transparency

The acquisition method (calculations, sources assumptions etc.) of the supplied data is well-documented and emission factors were gathered from publicly available and clearly disclosed data sources.

7.5. List of assumptions

Activity	Description	Calculation
Direct emissions from vehicles	Emissions are based on mileage	see Section 4.1.1
Business nights	Emissions are calculated based on the number of booked nights, not the location	see Section 4.3.2
Air business travel	Mileage is based on geographical distance	see Section 4.3.4

7.6. Policies in place to improve inventory quality

In order to continuously improve inventory quality the following recommendations should be implemented:

- Calculation method for air business travel intensity (distance) needs to be refined.
- Data collection method should be more continuous and regular, making it easier to collect.
- Employees to report commuting distances and further improvement can be obtained by survey the exact type of vehicles they use.

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