ClimatePartner

Corporate Carbon Footprint 2019

KBR Inc.

December 2020

Summary

ClimatePartner has measured KBR's Corporate Carbon Footprint for 2019, based on the world's most widely used greenhouse gas accounting standards for companies: *Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (GHG Protocol*).

This report provides an overview of the CO_2 emissions generated by KBR's business activities in 2019, including heating and vehicles (Scope 1), electricity (Scope 2) as well as business travel (air and rail travel) (Scope 3).

The Corporate Carbon Footprint can be used to develop a holistic climate action strategy. It can help to identify carbon emissions hotspots, set carbon reduction targets and define climate action goals. We have provided some initial recommendations based on our findings and suggested next steps.

Total (t CO_2)
114,840

This amount corresponds to…

… the melting of
362,169 m²
of Artic ice in summertime

… the annual CO_2 footprint of
14,368
European citizens

… the amount of CO_2 sequestred by
9,657,840
beech trees per year

Methodology

Our aim was to provide an initial assessment of KBR's Corporate Carbon Footprint within a limited timeframe and thus it was decided to limit the calculations to Scope 1, Scope 2 and Scope 3 (Business Travel only).

We recommend expanding the Scope 3 categories such as Employee Commuting and Purchased Goods & Services in future reports, especially if KBR decides to set a *Science Based Target*.

System boundaries

In order to define which of KBR's businesses and operations should be included in the carbon footprint measurement ClimatePartner has established organisational boundaries following a Control approach. Under the Control approach, a company accounts for 100 percent of the GHG emissions from operations over which it has control, such as sites and vehicles (see Table 1 and Table 2 in the Appendix 2 for more information about the sites and vehicles that have been included in the assessment). ClimatePartner has not accounted for GHG emissions from operations in which it owns an interest but has no control. For clarity, ClimatePartner has not followed an equity-share approach.

At this stage KBR has chosen to account for Scope 1, Scope 2 and part of Scope 3 emissions. In order to categorize these emissions as direct and indirect, operational boundaries have been set and business operations have been classified as follows:

- Scope 1 (direct emissions): Company facilities (heating and cooling) and company vehicles
- Scope 2 (indirect emissions): Purchased electricity
- Scope 3 (indirect emissions): Business travel (air and rail travel)

Due to lack of data availability and unlikely materiality of the related emissions, hired cars and taxis have been excluded from the assessment. Thus, only train and air travel related emissions are included.

Further information on the methodology and process followed to calculate KBR's Corporate Carbon Footprint can be found in Appendix 1.

Limitations

Due to very short timeframes and the unavailability or provision of incomplete data many assumptions were made across Scope 1 and Scope 2 emissions as outlined below. Therefore, further refinement of the Corporate Carbon Footprint in terms of data input is recommended in order to use 2019 as a base year for carbon reduction target setting.

- **Scope 1: Vehicle fleet**
  Vehicle fleets included in the assessment are: Affinity, Aspire, Roads, FMSO and FTX. The following vehicle fleet data could not be provided and has not been included in the assessment:
  - Fuel consumption of 24 heavy equipment vehicles in the OSS fleet
  - Energy use of the electric vehicles operated by KBR in Djibouti

- **Scope 1: Heating**
  Energy use data has been provided for 4 sites out of 101. Energy consumption for the remaining 97 sites has been estimated following the methodology outlined on page 6.

- **Scope 1: Cooling**
  Cooling data (amounts of cooling agents/refrigerants used) has been provided for 3 sites out of 101. Due to lack of reliable public data on average cooling agents/refrigerants use in warehouses/office buildings we were unable to make a credible estimate, therefore the emissions from the cooling agents use in the remaining 98 sites have been excluded from the assessment.

- **Scope 2: Electricity**
  Electricity consumption data has been provided for 49 sites out of 101. Average electricity use in each of the remaining 52 sites has been extrapolated following the methodology outlined on page 6.

Assumptions

Due to the incomplete nature or unavailability of the data mentioned above ClimatePartner has made several assumptions with regards to the following categories.

- **Scope 1: Vehicle fleet**

  Fuel consumption data for 2 heavy machinery vehicles within the Affinity and FMSO fleets could not be provided, therefore it has been estimated using fuel use averages of a similar type of equipment.

- **Scope 1: Heating**

  A conservative assumption was made that the facilities use both heating oil and gas as the main heating source with a 50/50 percent split. Due to unavailability of data we have used average US energy use by square footage provided in *Commercial Buildings Energy Consumption Survey (CBECS) and published by the U.S. Energy Information Administration*. We have extrapolated this based on known square footage across all facilities.

- **Scope 2: Electricity**

  We have used average electricity use by square footage in 49 sites to estimate energy consumption in each of the 52 sites for which the data has not been provided. When applying electricity consumption rates by square footage we considered building type (office/warehouse/mixed) and site locations. In cases where these factors could not be applied, we have used country energy use averages from publicly available sources such as governmental agency surveys and scientific research papers.

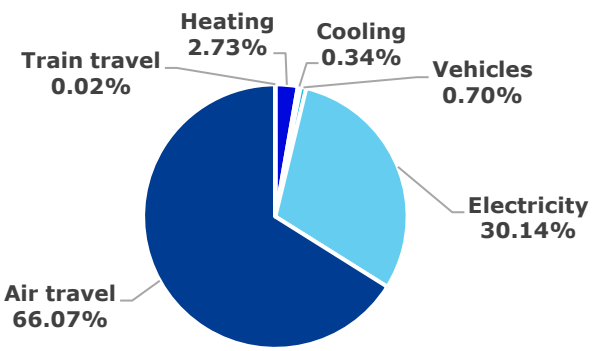
  No data was provided to specify energy sources (renewable/non-renewable); therefore we have assumed that non-renewable energy was used in all 101 sites.

In 2019 KBR's business activities generated a total of 114,840 tonnes of CO_2 , nearly 4% of which were Scope 1 emissions, 30% Scope 2 emissions and 66% Scope 3 emissions. Business travel (air travel in particular), was the most emission-intensive activity and represents the largest share of the company's carbon footprint.

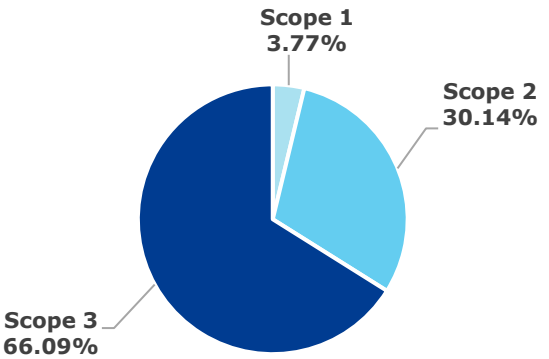
A safety margin of 10% is typically added to a Corporate Carbon Footprint to account for any discrepancies that might have resulted from assumptions and estimates taken. Due to the limitations outlined above and to ensure any claims of Carbon Neutrality are covered we have recommended a 20% safety margin.

Emmission source	Emissions [t CO_2]	Share, %
Scope 1	**4,324.3**	**3.77**
Heating	3,134.2	2.73
Cooling	389.4	0.34
Vehicles	800.7	0.70
Scope 2	**34,577.9**	**30.14**
Electricity	34,577.9	30.14
Scope 3	**75,812.4**	**66.09**
Air travel	75,794.3	66.07
Train travel	18.1	0.02
Total	**114,714.60**	**100.00**
Total incl. 20% safety margin	**137,657.52**	

Emissions per category



Emissions per scope



Recommendations

Based on our initial Corporate Carbon Footprint assessment, we recommend the following initiatives and actions to improve your footprint:

Scope 1

Heating

Further analysis is required to provide site-specific heating recommendations, however some of these general recommendations do apply. Implementing a lower average temperature in your offices could allow you to reduce emissions rapidly. On average you reduce 6 percent CO^2 emissions per degree. Pairing this policy with staff training on better behaviors, e.g. "windows open = heating off‟ can be effective. Installation of Smart thermostats and timers for your central heating system to regulate the heating during non-working hours.

Secondly, for owned buildings or where you have strong relationships with landlords, looking at retro-fitting and insulation of the buildings will be essential. Old buildings can be retrofitted by thermal renovation.

Thirdly, we recommend implementing lower carbon energy sources: for instance, natural gas, wood pellets and biogas all typically produce less CO_2 than oil – these options should be evaluated on a case-by-case basis. In locations where you already source renewable electricity, looking at air and water-source heat pumps can also drive substantial emission reductions.

Cooling (refrigerants)

Further analysis is required to provide site-specific cooling recommendations, however some of these general recommendations do apply.

Air conditioning systems almost always generate leakage of refrigerants through their operations. These are gases with a high greenhouse gas potential: only 1 kg of the refrigerant R-22, for example, corresponds to approximately 1,800 kg of CO_2.

The greenhouse gas effect of refrigerants varies greatly. Since 2020, an EC regulation stipulates that no refrigerants with a greenhouse effect of more than 2,500 times that of CO_2 may be used in larger systems. Information on efficiency and the use of refrigerants can be obtained from manufacturers or independent energy efficiency consultants.

In the first instance, we recommend reducing refrigerant leakage to a minimum and installing systems that are as closed as possible.

Secondly, we recommend using air conditioners as efficiently as possible and to adapt their usage in adequation with the outside temperature. Usage of blinds can also reduce the need for air conditioning and much like heating, educating employees on better behaviors (e.g. 'window closed before turning on the air conditioning') can be an important component to your strategy. Finally, when you install new air conditioners, consider the harmfulness of refrigerants to the climate and choose systems that use less harmful refrigerants.

Vehicles

For your vehicles we recommend providing eco-driving training for staff which can help you save money as well as reduce carbon emissions. As a second step, we would advise on transitioning your vehicle fleet to electric vehicles as fast as possible, where feasible to do so. Some analysis of the electricity grid in the region is worth noting however, as if the grid is powered by fossil fuels to a very large extent, the total lifecycle emissions of electric cars may outweigh that of combustion engine cars.

Scope 2

Energy emissions can be easily reduced by switching to a renewable energy service provider. If you procure 100 percent renewable electricity across your estate this would in fact reduce your Scope 2 emissions to zero, as it is considered to generate zero direct carbon emissions and therefore could help you to reduce your carbon footprint by 28%.

Secondly, implementing energy efficiency measures such as installing LED lighting, replacing old equipment, switching off appliances and lights completely, making energy saving settings a standard, e.g. for laptops and computers, use the power saving settings. Network printers can be automatically set to sleep mode when not in use. Sensors or an automatic light switch-off functions are most effective.

Thirdly, consider implanting a holistic renewable energy procurement strategy, especially key for the offices and facilities you own. This could mean investing directly in renewable energy projects, developing your own projects (e.g. solar panels on roof), entering into long-term Power Purchase agreements or buying Renewable Energy Credits (RECs). ClimatePartner provides green energy advisory and procurement services.

Recommendations

Scope 3 (Business Travel)

Air travel is by far the largest sub-category within Business Travel. Ultimately, the easiest way to reduce your footprint here is avoid travel in the first place as there are no sustainable options when it comes to flying. Covid-19 has shown the world that we are capable to conduct most business activities through video conferencing and calls.

Secondly, where possible, opt for train travel instead even if this means longer travel times. Travelling by train virtually always comes out better than by air, and often by a lot.

When flying cannot be avoided, consider choosing economy class over business or first class (for example, one passenger's flight on business class might have an impact that is 2-3 times higher than that of an economy class flight). Direct flights, even if more expensive, should be preferred over flights with many connections as these often have a much higher carbon footprint.

You can easily measure your business travel footprint to make better informed decisions with ClimatePartner's online calculator: https://www.climatepartner.com/en/carbon-calculator.

Finally, consider expanding your climate leadership by encouraging your employees to reduce air travel in their personal lives too. One way to do this is by implementing a policy to provide extra holidays to those travel by train instead of by plane - where travelling by train takes significantly more time.

Next Steps

Alongside becoming Climate Neutral (more on following page), we would advise that KBR Inc. considers the following next steps:

- Developing a sustainable Business Travel policy
- Implementation of ISO14001
- LEED certification and green energy procurement strategy for owned facilities and offices
- Setting a Science Based Target
- Setting a Net Zero commitment

Climate neutral company

ClimatePartner

Climate neutrality through carbon offset projects

By supporting internationally recognised carbon offset projects you can offset your carbon emissions and become a climate neutral company.

Hydropower, D.R. Kongo

Forest protection, Papua-New Guinea

Biomass, India

Clean cook stoves, Peru

Read more about these and other ClimatePartner projects on: www.climate-project.com

The "Climate neutral" label and ID-tracking

Every CO_2 offset in our system is assigned to a unique ID number and added to your climate neutral label. This number is used to create a personalized link which provides further information about your offset as well as the project that it supports. It also allows you to share the details about your carbon footprint reduction strategies. The offset information is regularly monitored and approved by TÜV Austria.

Climate neutral
Company
ClimatePartner.com/50040-1212-1001

Appendix 1

Climate action and climate neutrality

A holistic climate action approach is based on the following principle: avoid unnecessary emissions, reduce existing emissions, and offset unavoidable emissions. Therefore, a Corporate Carbon Footprint, updated on a yearly basis, is an important tool for companies and organizations that seek to identify their emission mitigation and reduction potentials as well as track the effectiveness of their climate action measures over time.

Companies, processes or products are considered as climate neutral when all their carbon emissions are measured and offset through international carbon offset projects. Since greenhouse gases are evenly distributed throughout the atmosphere, it is considered that their concentration across the world is the same. Therefore, those emissions that cannot be avoided locally, can mathematically be offset through emission reduction activities in another part of the world. This offset is rendered possible by carbon offset projects.

By offsetting the calculated emissions, KBR Inc. can become a climate neutral company.

Methodology

Reporting standard

The GHG Protocol is the internationally recognised standard for greenhouse gas accounting at the corporate level. It was developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).

It defines five fundamental principles for carbon footprint measurement:

- **Relevance.** The principle of relevance requires that all major emission sources are taken into consideration when measuring corporate carbon footprint. The report should be informative and useful in internal and external decision making.
- **Completeness.** The principle of completeness requires that all relevant emission sources within the boundaries are addressed and included.

- **Consistency.** To facilitate the comparison of the results over time, accounting methods and boundaries must be documented and kept for the record. Any changes in the methodology and/or boundaries must be reported, explained and justified.
- **Accuracy.** Discrepancies and uncertainties that may occur during the calculation and measurement process should be reduced as much as possible to make sure that the results are accurate and provide solid data for stakeholder decisions.
- **Transparency.** The results should be presented in a transparent and comprehensible manner.

Process

The following steps define the carbon footprint measurement process:

- Definition of goals
- Definition of boundaries
- Data collection
- Carbon footprint calculation
- Documentation of results

Goals. Corporate carbon footprint helps to identify the largest emission sources within the company and along the upstream and downstream value chain. Thus, it may form a basis when developing a climate action strategy in which targets, measures and responsibilities for the reduction of greenhouse gas emissions are defined. It is advised to track the progress regularly and revise (as well as adjust, if needed) the goals set.

Definition of boundaries. Carbon accounting requires a clear definition of the inventory boundaries, including both organisational and operational boundaries.

The organisational boundaries describe the organisational unit and the timeframe which the Corporate Carbon Footprint applies to. System boundaries can be defined based on the company's operational or financial control or according to its equity share (for most companies, the system boundaries based on either operational or financial control are identical).

Greenhouse Gas Protocol defined three categories ("Scopes") to classify various emission sources. They form the basis of every corporate carbon footprint:

- **Scope 1.** Scope 1 includes all carbon emissions that the company can control (direct carbon emissions): emissions generated by the combustion of fossil fuels (mobile and stationary), chemical and physical processes, and use of refrigerators and/or air conditioning equipment.
- **Scope 2.** Scope 2 represents indirect carbon emissions from purchased electricity, steam, district heating and cooling. All emissions that are generated by fossil fuel combustion controlled by external energy providers fall under this category as well. A separate category for these emissions allows us to avoid double counting when comparing CO_2 emissions from different companies.
- **Scope 3.** All remaining carbon emissions that cannot be directly managed by the company are included in Scope 3 (other indirect carbon emissions). These are all CO_2 emissions that are related to products and services used or processed by the company. The emissions directly generated through the use of sold products and services are also included in this scope.

According to the Greenhouse Gas Protocol, the calculation of carbon emissions is mandatory for Scope 1 and Scope 2 but voluntary for Scope 3.

Data collection and emission calculation

Generated emissions are calculated using scientifically determined emission factors. The data collected for carbon footprint measurement is classified as primary and secondary. Primary data is collected at the source and applies to a specific object researched. Secondary data is obtained by processing and modelling the primary data (e.g. using lifecycle analysis databases such as ecoinvent or GEMIS). For example, when calculating CO_2 emissions of energy consumption, both primary and secondary data is used.

Greenhouse Gases disclosure

Corporate Carbon Footprints report the emissions in CO_2 equivalents (CO_2e). It means that in addition to CO_2, the calculations also address the other six greenhouse gases regulated by the Kyoto Protocol: methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and nitrogen trifluoride (NF_3). These gases are converted to the global warming potential value of CO_2 and represent CO_2 equivalents (CO_2 e). These equivalents are usually referred to as carbon emissions or CO_2.

Appendix 2

Table 1. Overview: Sites by Region and primary use

	Region				
Primary use	**Americas**	**Asia Pacific**	**Europe**	**Middle East**	**Total**
Office buildings	46	18	5	15	84
Warehouses	4	0	1	0	5
Mixed	11	0	1	0	12
Total	61	18	7	15	**101**

Table 2. Overview: Vehicle fleets

No of vehicles reported
19
262
14
13
2
310

Improving lives

About ClimatePartner

ClimatePartner is a solution provider for climate action: it combines tailored consulting services with a software-as-a-service (SaaS) platform for company and product carbon footprints. ClimatePartner helps companies calculate and reduce their carbon emissions, as well as offset unavoidable emissions, enabling them to become climate neutral. This is then communicated through interactive digital labelling.

ClimatePartner was founded in Munich in 2006. Today, it has over 120 employees across offices in Munich, Berlin, Essen, Cologne, Vienna, Zürich, London, The Hague and Yerevan, and works with more than 2,700 companies in over 35 countries.

Publisher
ClimatePartner UK Ltd
25 Lavington Street,
London SE1 0NZ
United Kingdom

info@climatepartner.com
www.climatepartner.com

Customer
KBR Inc.
601 Jefferson Street,
Houston, TX 77002,
United States of America

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