OPERATIONAL AND VALUE CHAIN FOOTPRINT REPORT FINANCIAL YEAR 2015

Prepared for Core Laboratories N.V.

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INTRODUCTION

Core Laboratories N.V. ("Core Lab" hereafter) has engaged Trucost to assess its operational and value chain greenhouse gas (GHG) emissions in line with the WRI/WBCSD Corporate Standard (Scope 1 and 2) and Corporate Value Chain (Scope 3) Guidelines (GHG Protocol). The assessment allows Core Lab to report its Scope 1, 2 and 3 GHG emissions in annual accounts and to the CDP Climate Change Questionnaire.

Core Lab has already been reporting its company-wide Scope 1 and 2 GHG emissions to the CDP since 2014. Currently, Core Lab uses estimates of its company-wide emissions based on its sector of operation and revenue for reporting purposes. Engaging Trucost allows us to improve our operational (Scope 1 and 2) GHG emission quantification methodology by integrating primary data. Furthermore, Trucost quantified Scope 3 GHG emissions according to the fifteen Scope 3 categories outlined in the Guidelines to help understand and disclose its Scope 3 emissions for the first time. This operational and value chain GHG emission footprint will focus on six Advance Technology Centers (ATCs).

Finally, Trucost helped Core Lab set science based targets for its Scope 1 and 2 emissions. Science based targets aim to help companies to work towards limiting the increase in global average temperatures to below 2°C, a limit agreed upon by leading climate scientists and governments to ensure long-term sustainability and profitability. Science-based target setting can spur ambition and generate the innovations needed to transition to a low-carbon, sustainable economy. CDP also encourages companies to set and disclose science based targets through its Climate Change Questionnaire.

SCOPE

OPERATIONAL AND VALUE CHAIN GHG EMISSION FOOTPRINT

Trucost assessed Core Lab's Scope 1, 2 and 3 GHG emissions in alignment with the GHG Protocol for its six Advance Technology Centers (ATCs) in the financial year (FY) 2015. Please refer to the box on the right for further definitions on each Scope.

In 2015, dual reporting for Scope 2 GHG emissions (associated with purchased electricity) has been introduced and is required by the CDP in its 2016 CDP Climate Change Questionnaire. The dual reporting distinguishes between location based and market based Scope 2 emissions, which are further explained in the box to the right. The logic of dual reporting is to encourage consistency across reporting companies, but also to encourage a move towards renewable energy sources as 'business as usual' of market based Scope 2 GHG emissions will likely reflect an increasing emission factor as contractual obligations are gained for renewable energy types and the residual mix remains less 'green'. Trucost calculated both, market and location based Scope 2 GHG emissions.

Background

Greenhouse Gas Protocol, an international corporate accounting and reporting framework developed by the World Resources Institute and the World Business Council for Sustainable Development. The Greenhouse Gas Protocol differentiates between direct and indirect emissions using a classification system across 3 different Scopes:

- **Scope 1** includes direct emissions from sources which a company owns or controls. This includes direct emissions from fuel combustion and industrial processes.
- **Scope 2** covers indirect emissions relating solely to the generation of purchased electricity that is consumed by the owned or controlled equipment or operations of the company.
  - **Location based:** Emissions associated with purchased electricity based on the site location only – i.e grid emission factor. This does not reflect any reneable energy sourcing or supplier specific activity, but allows for recognition of efficiency improvements.
  - **Market based:** Emissions are calculated based on the contractual instruments used to procure electricity. This may include renewable tariffs, RECs, guarantees of origin or other such instruments. It does not only relate to renewables and can simply be a supplier disclosed emission factor.
- **Scope 3** covers other indirect emissions including third-party provided business travel.

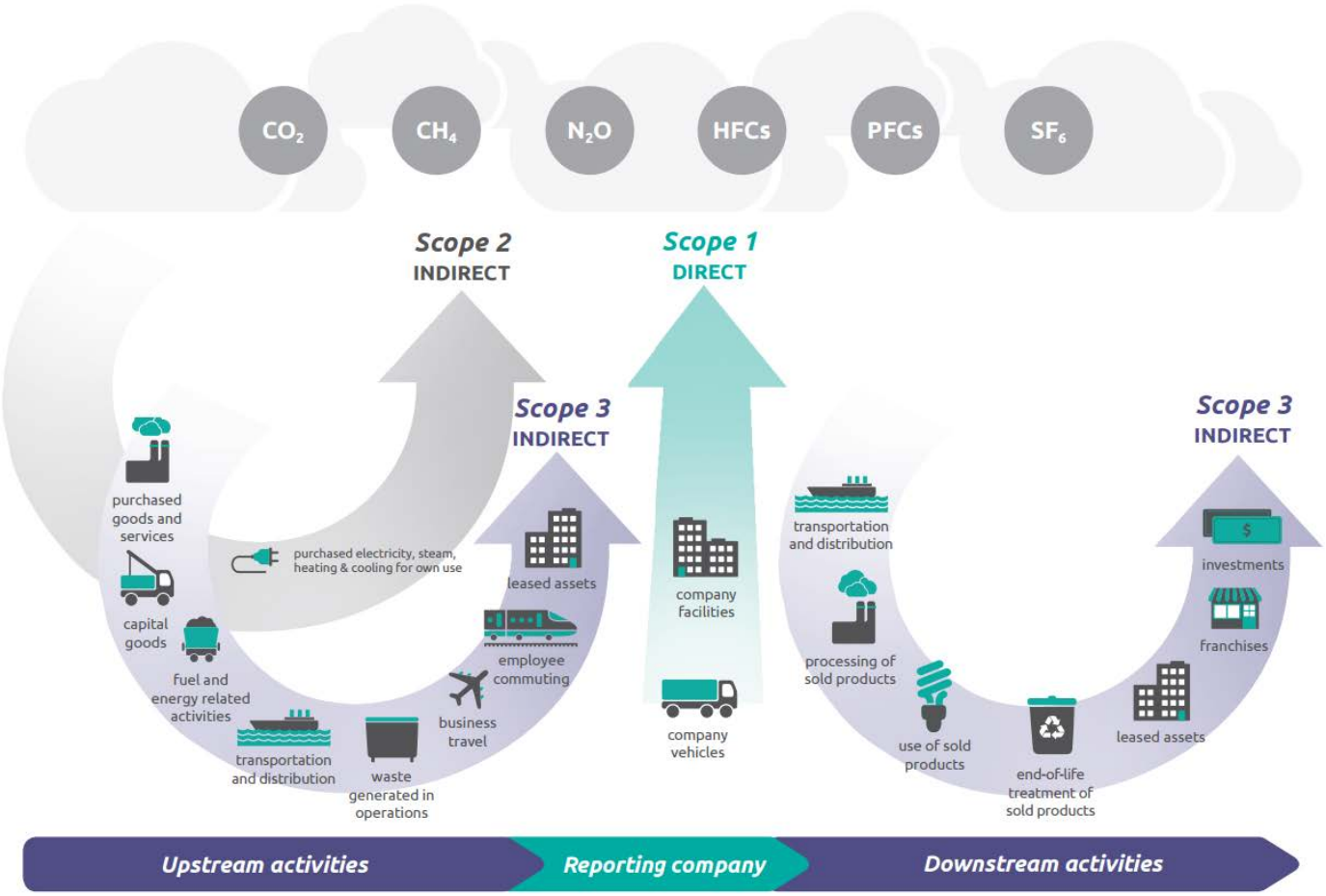
Each ATC collected and provided information regarding its stationary and mobile energy consumption and refrigerants (kg of refrigerant replacement was used as an approximation for the amount of gas leaked), required for the quantification of Scope 1 and 2 GHG emissions. Please refer to Appendix IV, Table 13 for an overview of the data provided by the ATC's.

Scope 3 GHG emissions refer to the emissions generated upstream and downstream from Core Lab's own operations. Figure 1 outlines the 15 upstream and downstream Scope 3 categories as described by the GHG Protocol. Trucost assessed the GHG emissions of each category using the Trucost Environmentally Extended Input-Output (EEI-O) model (Please see Appendix III for details on the EEI-O model) as well as primary data, where available, for all indirect upstream and downstream impact categories (Scope 3). Primary data refers

to, among others, Core Lab's spend data that was used in combination with the EEI-O model to estimate impacts, and employee count by country. Please refer to Appendix IV, tables 13-17 for a full list of primary data points provided by each ATC and to Appendix I for more details on the methodology used to calculate the GHG emissions associated with each of the 15 Scope 3 categories.

FIGURE 1: SCOPE OF VALUE CHAIN GHG EMISSIONS FOOTPRINT[2]

Figure [1.1] Overview of GHG Protocol scopes and emissions across the value chain



Different GHGs have different Global Warming Potentials (GWP) or abilities to contribute to rising temperatures. Trucost standardizes data by converting the different greenhouse gases into their carbon dioxide equivalent according to the GWP index published by the Intergovernmental Panel on Climate Change (IPCC). The index identifies the radiative effects of different GHGs in the atmosphere relative to an equal mass of CO_2 over a 100-year timeframe. GWP enables all the GHGs to be expressed in terms of CO_2 equivalents, or CO_2e.

SCIENCE BASED TARGETS

In a joint effort the World Wildlife Fund (WWF), World Resource Institute (WRI), the UN Global Compact (UNGC) and Carbon Disclosure Project (CDP) launched a project to set science-based targets to reduce greenhouse gas emissions in line with a 2°C de-carbonization pathway, as recommended by the Intergovernmental Panel on Climate Change (IPCC).

Several methodologies for setting science based GHG emissions reduction targets have emerged and their applicability depend on a company's particular circumstances. Given the sector of Core Lab, the base year and the desired time frame of the target, Trucost determined two appropriate methods to help set science based targets: the greenhouse gas emission per unit of value added (GEVA) method and the sectoral de-carbonization approach (SDA) method. For more information about these two methodologies, please see Appendix II.

KEY FINDINGS

The following sections present the results and findings of the Trucost assessment of operational and value chain GHG emissions for the 2015 financial year.

TABLE 1: SCOPES 1, 2, AND 3 GHG EMISSIONS

IMPACT	SCOPE	GREENHOUSE GAS EMISSIONS, TONNES CO_2E
DIRECT	Scope 1	5,643
INDIRECT	Scope 2[3]	7,211
VALUE CHAIN	Scope 3	31,820
TOTAL		44,674

The science based target to 2020 for Core Lab's Scope 1 and 2 GHG emissions as derived from GEVA and SDA are 15,585 tCO_2e and 15,806 tCO_2e respectively.

The following sections detail the approach, methodology, and calculations made by Trucost.

GHG EMISSION OPERATIONAL FOOTPRINT

The operational footprint covers Scope 1 and 2 GHG emissions and includes emissions from the following:

- Purchased Electricity
- Direct Fuel Use from Vehicles (Gasoline and Diesel)
- Direct Fuel Use from Operations/Buildings (Natural Gas)
- Refrigerants (R407C, R410A, R22)

The total operational GHG emissions (Scope 1 and 2 (location based)) are 12,853 tCO_2e. The table below shows the Scope 1 and 2 GHG emissions by source.

TABLE 2: SCOPE 1 AND 2 GHG EMISSIONS BY SOURCE

			3,631
INDIRECT			7,211
TOTAL			12,853

The majority of operational GHG emissions stem from electricity consumption (Scope 2 emissions), contributing 56% to the operational GHG emissions, while Scope 1 emissions contribute 44%, of which 64% originate from refrigerants breakdown of emissions per ATC as shown in the table below provides more insights of the emission sources across Core Lab's operations.

SCIENCE BASED TARGET

In FY 2015, Core Lab emitted 12,853 tCO_2e (Scope 1: 5,642 tCO_2e and Scope 2: 7,211 tCO_2e). The science based target for Core Lab's Scope 1 and 2 GHG emissions as derived from GEVA and SDA are 15,585 tCO_2e and 15,806 tCO_2e respectively, as illustrated in Table 5 and 6.

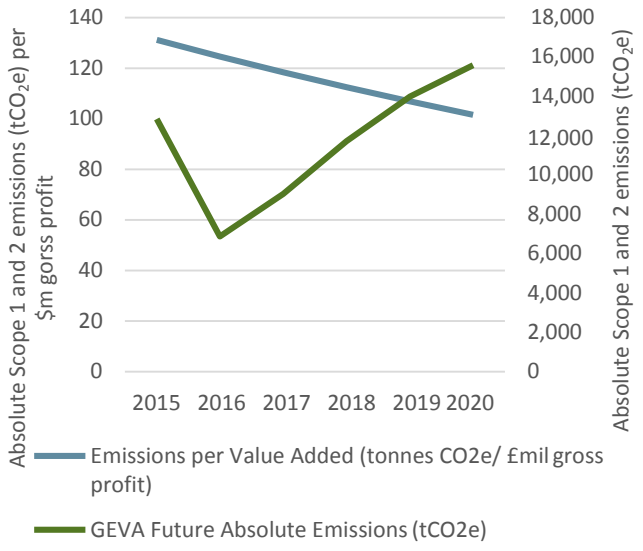
These estimates were determined using historical emissions and future gross profit projections, in line with the methodologies detailed in Appendix II.

TABLE 5: SCOPE 1 AND 2 SCIENCE BASED TARGETS (GEVA)

	2015	2016	2017	2018	2019	2020
Scope 1 and 2 GHG emissions (tCO_2e)	12,853					
Emissions per Value Added (tCO_2e / $m gross profit)	**131.23**	**125**	**118**	**113**	**107**	**102**
GEVA (1.7% reduction year-on-year)		-5.0%	-5.0%	-5.0%	-5.0%	-5.0%
GEVA Absolute Emission Reduction (tCO_2e)	**12,853**	**6,881.06**	**9,035**	**11,732**	**13,986**	**15,585**

According to GEVA, until 2020 Core Lab's Scope 1 and 2 emissions can increase by 21% to 15,585 tCO_2e. The figures below show that the intensity (GHG emissions per $m gross profit) consistently decreases over the 5-year period the emissions increase in line with the gross profit because the increase in gross profit is larger than the decline in emissions.

FIGURES 4 AND 5: GHG EMISSIONS (SCOPE 1 AND 2) AND GROSS PROFIT (GEVA, 2015 – 2020)



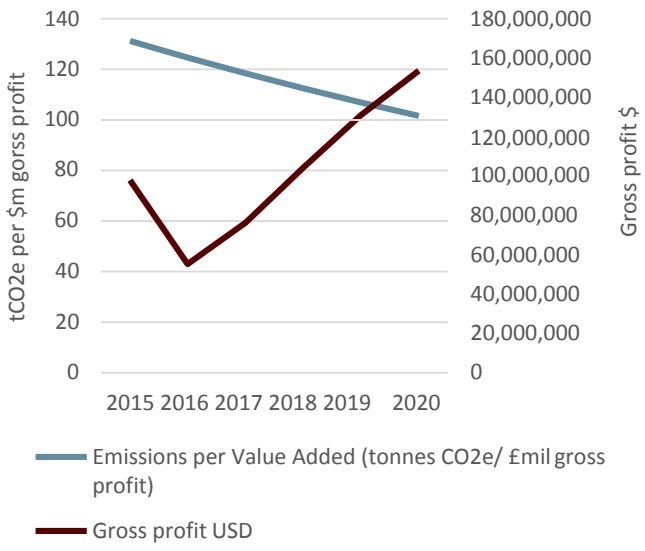
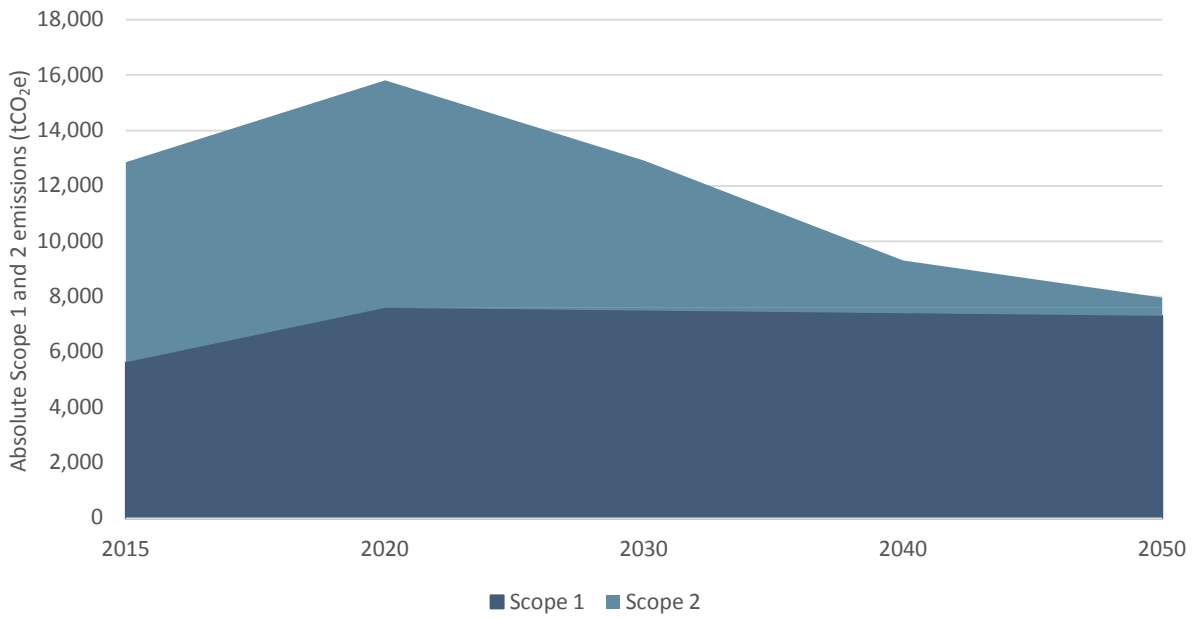


TABLE 6: SCOPE 1 AND 2 SCIENCE BASED TARGETS (SDA)

	BASE YEAR 2015	TARGET YEAR 2020	% INCREASE
Scope 1 emissions (tCO_2e)	5,642	7,598	35%
Scope 2 emissions (tCO_2e)	7,211	8,207	14%
Scope 1+2 emissions (tCO_2e)	12,853	15,806	23%

According to the SDA, Core Lab's Scope 1 and 2 GHG emissions can increase by 23% to 15,806 tCO_2e in 2020. However, when considering a longer timeframe to 2050, the emissions need to decrease by 38%. As the figure below shows, with an increase of emissions between 2015 and 2020 the decrease until 2050 must be larger, suggesting that gradually reducing the emissions from 2015 to 2050 would be a more efficient long term strategy.

FIGURES 6: GHG EMISSIONS (SCOPE 1 AND 2) (SDA, 2015 – 2050)



Both methods provide almost identical forecasts (with 1% difference) of absolute Scope 1 and 2 GHG emissions and show an increase in absolute Scope 1 and 2 emissions until 2020.

The box below summarizes the benefits of setting science based targets (as outlined by CDP), which go beyond meeting reporting requirements.

BENEFITS:

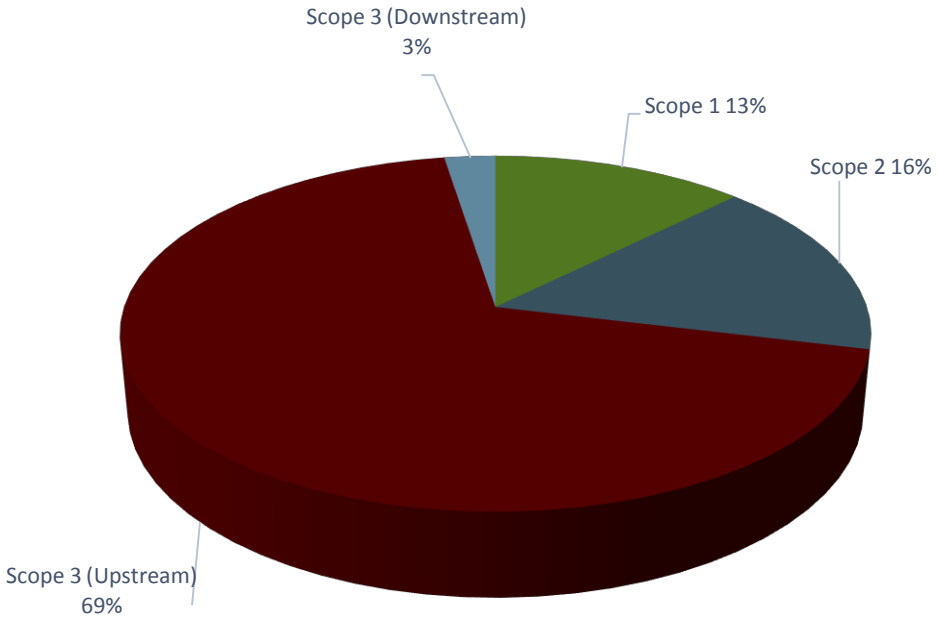
- This type of innovation can redefine companies' bottom lines by creating new business models and sources of value, and by disrupting currently unsustainable economic systems.
- Setting these targets in advance of carbon-related regulations will allow companies to be well equipped to respond to regulatory and policy changes.
- Companies can demonstrate their robust commitments to reduce emissions and help mitigate global warming to investors and clients.

GHG EMISSION VALUE CHAIN FOOTPRINT

In 2015, Core Lab's value chain (Scope 3) was responsible for the emissions of 31,820 metric tons of GHG emissions (tCO_2e), about 71% of its total GHG inventory. The majority of its value chain emissions came from upstream sources.

For purposes of setting science-based targets, the CDP and World Resources Institute (WRI) advise to consider setting targets for Scope 3 emissions when they represent more than 40% of the total GHG inventory of the company.

FIGURE 7: CORE LAB OPERATIONAL AND VALUE CHAIN GHG EMISSIONS BY SCOPE



Please see in the table below a detailed breakdown of Core Lab's full value chain GHG emissions per Scope 3 category, highlighting the most relevant categories for Core Lab.

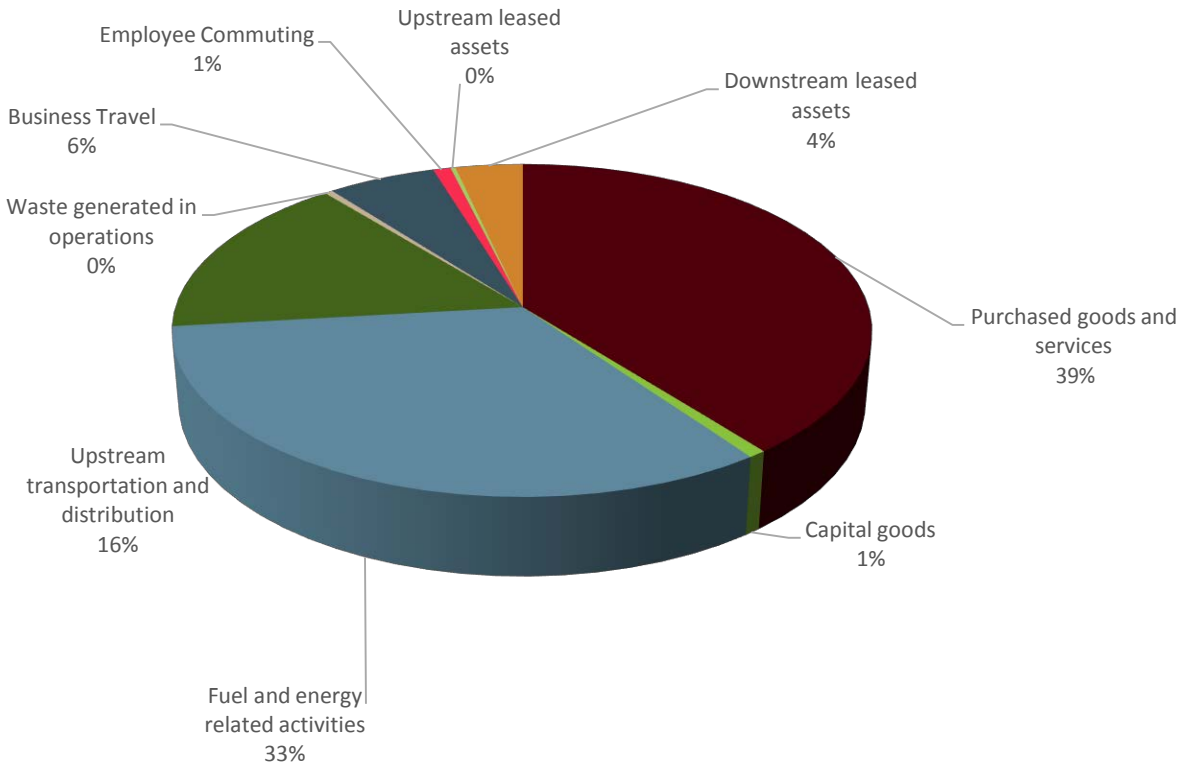
TABLE 7: VALUE CHAIN GHG EMISSIONS 2015

VALUE CHAIN (SCOPE 3) CATEGORY	GHG TOTAL tCO_2e	SHARE %	RELEVANCE[7]
1) Purchased goods and services	12,532	39%	Relevant
2) Capital goods	232	1%	Not relevant
3) Fuel- and energy-related activities	10,517	33%	Relevant
4) Upstream transportation and distribution	5,077	16%	Relevant
5) Waste generated in operations	136	0%	Not relevant
6) Business travel	1,821	6%	Relevant
7) Employee commuting	294	1%	Not relevant
8) Upstream leased assets	79	0%	Not relevant
9) Downstream transportation and distribution	NA	0%	Not relevant
10) Processing of sold products	NA	0%	Not relevant
11) Use of sold products	NA	0%	Not relevant
12) End-of-life treatment of sold products	NA	0%	Not relevant
13) Downstream leased assets	1,132	4%	Relevant
14) Franchises	NA	0%	Not relevant
15) Investment	NA	0%	Not relevant
TOTAL	31,820	100%	

Notes: The methodologies used for each emission category are provided in Appendix I. The colors indicate the ranking of category emissions from high (red) to low (green) within the value chain.

The majority of the value chain emissions occur upstream from purchased goods and fuel and energy related activities, accounting for the largest share with 72% of Scope 3 emissions and 52% of total emissions. Figure 3 below shows the breakdown of Scope 3 emissions by category.

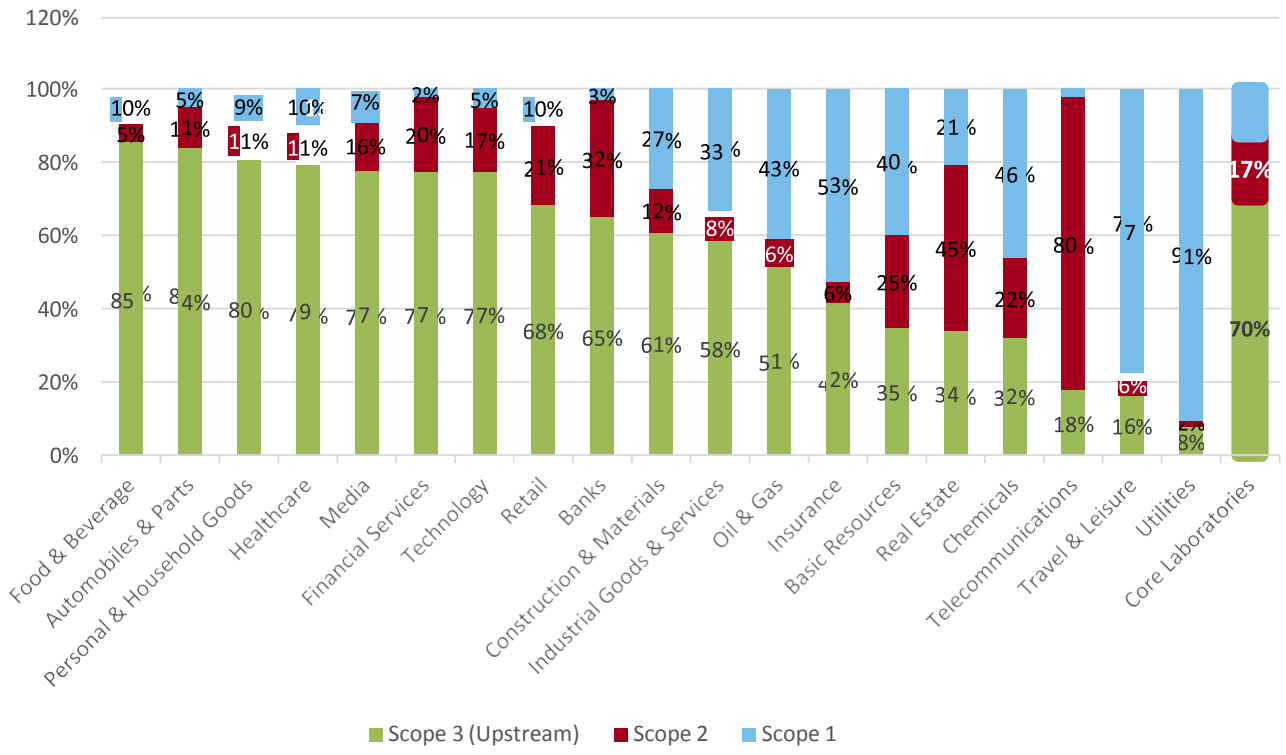
FIGURE 8: CORE LAB SCOPE 3 GHG EMISSIONS BY CATEGORY



BENCHMARK OF GHG EMISSIONS

To provide an overview of Core Lab's footprint against sector averages, Trucost consolidated average emissions for major sectors as well as Core Lab's sector of operation (Oil and Gas) based on S&P 500 companies in Trucost's database (Trucost assesses the environmental footprints of more than 6,000 publically listed companies and collects disclosed environmental information from public sources and through engagement). Trucost finds that the upstream Scope 3 GHG emissions across oil and gas on average are 51% of operational and upstream impacts, while upstream Scope 3 emissions take a larger portion (70%) of Core Lab's operational and upstream footprint. Please note that while Core Lab operates within the oil and gas sectors, the comparison of footprint should be interpreted with care. The oil and gas sector commonly includes companies such as oil refineries that emit large quantities of GHG emissions from their own operations. This means that in comparison, the sector's average indirect (upstream Scope 3) emissions are proportionally smaller and Core Lab's Scope 3 emissions are significantly higher.

FIGURE 9: COMPARISON OF CORE LAB'S GHG EMISSIONS WITH INDUSTRY AVERAGES[9]



APPENDIX I – METHODOLOGY BY EMISSION CATEGORY

TABLE 12: TRUCOST METHODOLOGY BY EMISSION CATEGORY

EMISSION SOURCE	METHODOLOGY	TRUCOST CALCULATION STEPS	REFERENCE	REMARKS
Scope 3, Category 1: Purchased goods	Calculated using Trucost EEI-O model.	Detailed methodology provided in Appendix III	Core Lab 2015 revenue and sector of operation	Core Lab was mapped to the Trucost sector *Scientific Research and Development*
Scope 3, Category 2: Capital goods	Calculated using Trucost EEI-O model.	Detailed methodology provided in Appendix III	Core Lab 2015 revenue and sector of operation	Core Lab was mapped to the Trucost sector *Scientific Research and Development*
Scope 3, Category 3 Fuel & Energy Related Activities	Applied FY 2015 actual spend data provided by Core Lab into Trucost EEI-O model	1. Categorized energy spend to the relevant sector within Trucost's EEIO. 2. Mapped spend on purchased electricity to the relevant sector with Trucost's EEI-O based on the primary energy source in the countries' grid mix 3. Calculated indirect emissions using the EEI-O	Core Lab's energy use and cost	Purchased electricity allocated based on primary energy source in the countries' grid mix (renewable and non-renewable) in Trucost's EEI-O model
Scope 3, Category 4 Upstream transportation and distribution	Applied FY 2015 actual spend data provided by Core Lab into Trucost EEI-O model	1. Consolidated Core Lab's spend on upstream transportation and distribution. 2. Applied the actual spend into Trucost's EEI-O model to estimate emissions	Core Lab's spend on various modes of transportation	
Scope 3, Category 5 Waste generated in operations	Applied FY 2015 actual spend data provided by Core Lab into Trucost EEI-O model	1. Consolidated Core Lab's spend on waste disposal and treatment 2. Applied the actual spend into Trucost's EEI-O model to estimate emissions	Core Lab's spend on waste management	

Scope 3, Category 6 Business Travel	Applied FY 2015 actual spend data provided by Core Lab into Trucost EEI-O model	1. Consolidated Core Lab's spend on business travel 2. Applied the actual spend into Trucost's EEI-O model to estimate emissions	Core Lab's spend on various modes of business travel	
EMISSION SOURCE	**METHODOLOGY**	**TRUCOST CALCULATION STEPS**	**REFERENCE**	**REMARKS**
Scope 3, Category 7 Employee commuting	Estimated based on employee head count	1. Based on OECD data and number of working days in each country, average commuting time spent in 2015 was calculated 2. Used information provided by Core Lab on number of employees by mode of transport; where unavailable, applied country-specific (if unavailable, average is applied) modal split to total commuting time of all employees in each country 3. Applied Defra emissions factors per transportation mode	- OECD statistics on commuting time; - Shanghai and Beijing transportation year reports; - U.S. American Community Survey; - TEMS, EPOMM Modal Split Tool; - Defra 2015	
Scope 3, Category 8 Upstream leased assets	Applied FY 2015 actual spend data provided by Core Lab into Trucost EEI-O model	Applied the actual spend on office rental and other leased assets into Trucost's EEI-O model to estimate emissions	Core Lab 2015 expenditure on leasing offices and other assets	
Scope 3, Category 10 Processing of sold products	N/A	N/A	N/A	
Scope 3, Category 13 Downstream leased assets	Applied FY 2015 actual revenue data provided by Core Lab into Trucost EEI-O model	Applied the actual revenue from leasing assets to other parties into Trucost's EEI-O model to estimate emissions	Core Lab 2015 revenue from leasing assets	
Scope 3, Category 14 Franchises	N/A	N/A	N/A	

Scope 3, Category 15 Investment	N/A	N/A	N/A	

APPENDIX II – SCIENCE BASED TARGETS METHODOLOGIES

GEVA

The GEVA method has been peer reviewed, is applicable to companies operating in any sector and does not define a baseline year. This method is based on the assumption that if all nations reduce their *GHG emissions per unit of GDP* by 5% per year, global GHG emissions will be 50% lower in 2050 than in 2010 as long as the global economy continues to grow at its historical rate of 3.5% per year. The 5% per year decline at a 3.5% growth rate was translated into a corporate resolution to reduce *corporate GHG emissions per unit of value added (GEVA)* by 5% per year (by 1.7% in absolute terms).

Core Lab provided Trucost with its 2015 gross profit ($) as well as its gross profit forecast per year until 2020. This is in line with the Science Based Targets initiative to set a target of at least 5 years. Gross profit is used as an approximation of its value added (the difference in economic value between the outputs and the inputs of a company) as recommended by the developer of GEVA.

SDA

This method was developed by the Science Based Targets Initiative itself (initiated by CDP, the United Nations Global Compact, the World Resources Institute (WRI), and the World Wide Fund for Nature (WWF)) and underwent a multi-stakeholder process. The SDA incorporates a subsector-level approach and its results and assumptions are based on mitigation potential and cost data from the International energy Agency's (IEA's) TIMES model 2°C scenario, which identifies the least-cost technology mix available to meet final demand for industry, transport, and buildings services. The SDA uses the IEA's scenarios to develop sector intensity pathways and hence no forecasted financial data is required for this tool. The assumption is that the carbon intensity of each company in a homogeneous sector will converge with the sector carbon intensity in 2050. Trucost assigned Core Lab to the sub sector *Chemical and Petrochemical Industry* to account for its wider business operations.

APPENDIX III – THE TRUCOST EEI-O MODEL

Since its founding in 2000, Trucost developed an environmental economic input output (EEI-O) life cycle based model for quantifying environmental impacts. The EEI-O model uses an economic modelling technique based on extensive government census data to analyze the products used and produced by over 464 business activities or sectors. The model also describes the economic interactions between each sector.

Trucost has improved upon standard EEI-O models in several ways, resulting in what we believe is a best in class model for analyzing environmental performance. These improvements include the following:

- Trucost has integrated the use and emissions of over 700 environmental resources. By applying a price to each environmental resource, based on the environmental impact of that resource, the model is able to analyze, in financial terms, the economic and environmental performance of each sector. This environmental performance measure incorporates the indirect, supply chain impacts by using the information on the interactions between sectors.
- Trucost maintains and updates its model annually to reflect market commodity flows. We annually update our sector revenue for all sectors, producer prices and annual production quantities for all primary sectors in our model.

Environmental intensities for all sectors are also reviewed annually against companies' public disclosures from our annual engagement programs. Trucost engages with more than 6,000 companies directly to obtain environmental performance metrics, which are then considered against sector environmental intensity.