Core Laboratories:

Value Chain Footprint

Financial Year 2017

S&P Dow Jones Indices
ESG Analysis

September 2018

CONTENTS

In FY2017, Core Lab emitted 49,837 tCO_2e of GHG emissions throughout its value chain

INTRODUCTION

Core Laboratories N.V. ("Core Lab" hereafter) 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 will allow 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 scope 1 and 2 GHG emissions for its six Advance Technology Centers (ATCs) to the CDP since 2014. In FY 2017, Core labs has extended its analysis to include thirteen mid-level ATCs and two manufacturing sites in addition to the six ATCs. This operational and value chain GHG emission footprint will focus on sites in the locations given in Exhibit 1.

EXHIBIT 1: SITES AND LOCATIONS INCLUDED IN ANALYSIS

DIVISION	LOCATION	REGION
ATC	Aberdeen	United Kingdom
	Abu Dhabi	Middle East
	Calgary	Canada
	Houston	United States
	Kuala Lumpur	Malaysia
	Rotterdam	Netherlands
Mid-level ATC	Bogota PS	Colombia
	Jakarta PS	Indonesia
	Perth	Australia
	Antwerp	Belgium
	Novorossiysk	Russia
	St. Petersburg Saybolt	Russia
	EuroPoort	Netherlands
	Panama City	Panama
	Singapore	Singapore
	Goteborg Saybolt	Sweden
	Broussard	United States
	Botlek	Netherlands
	Deer Park	United States
Manufacturing	Godley Owen	United States
	Owen Red Deer	Canada

The following sections present the results and findings of the assessment of Core Lab's operational and value chain GHG emissions for the 2017 financial year. As the scope has expanded for FY2017 in comparison to FY2016, data is reported as

2017a) and 2017b) where a) represents like-for-like comparison of six ATCs, while b) includes the expanded scope.

EXHIBIT 2: SCOPE 1, 2 AND 3 GHG EMISSIONS (TONNES CO_2E)

IMPACT	SCOPE	FY2016	FY2017a	FY2017b
Direct	Scope 1	2,122	2,277	3,800
Indirect	Scope 2 (location-based)	7,013	6,564	11,984
	Scope 2 (market-based)	8,060	7,593	13,481
Value Chain	Scope 3, upstream	9,716	11,516	33,409
	Scope 3, downstream	1,081	611	645
TOTAL (LOCATION-BASED)		**19,933**	**20,968**	**49,837**

In FY2017, Core Lab emitted 49,837 tCO_2e of GHG emissions throughout its value chain. When considering only the same sites as FY2016, the total emissions were 20,968, an increase of 5.2%. During this same year revenue increased by 2.8%.

The most significant increase is associated with scope 3 emissions upstream, and combined emission intensity for scope 1 & 2 has decreased by 5.88%. Detailed analysis on each scope will be presented in the following sections.

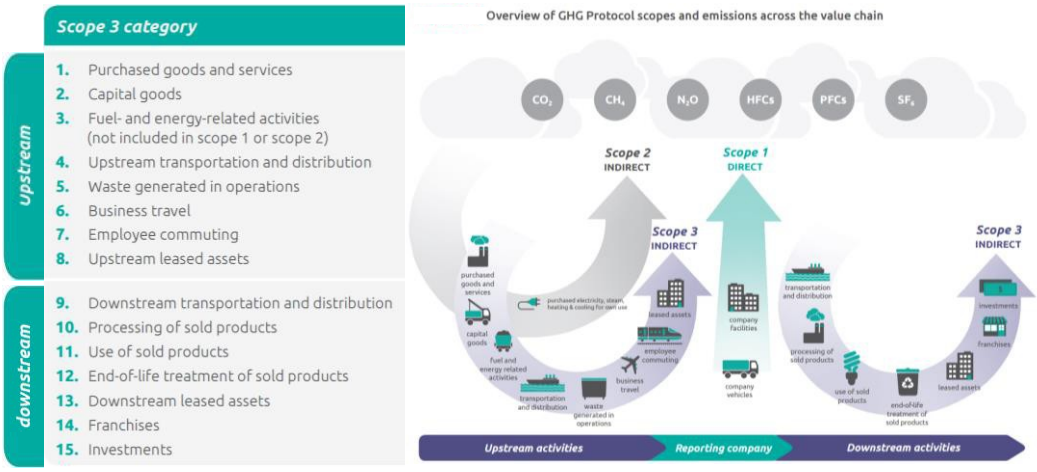
SCOPE

Every business sector is responsible for GHG emissions. Companies produce emissions directly as a result of their own operations (including the combustion of fossil fuel for utility boilers and vehicle fleets, refrigeration systems etc.) or indirectly via their supply chain (supplied electricity and steam, third-party provided business travel, etc.). Trucost identifies GHG emissions to air in line with the 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 three 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. Scope 2 emissions are reported in both location-based and market-based approach in alignment with the latest GHG Protocol guidance.
- **Scope 3** covers other indirect emissions including third-party provided business travel and purchased goods and services.

Trucost assessed Core Lab's value chain GHG emissions during FY2017 in alignment with the GHG Protocol. Exhibit 3 below outlines the fifteen upstream and downstream scope 3 categories as described by the GHG Protocol. Trucost estimated the GHG emissions of each category using the Trucost Environmentally Extended Input-Output (EEI-O) model (please see Appendix II for details on the EEI-O model) as well as primary data, where available, for all indirect upstream and downstream impact categories. Please refer to Appendix I for more details on the methodology used to calculate the GHG emissions associated with each of the fifteen scope 3 categories.

EXHIBIT 3: SCOPE OF VALUE CHAIN GHG EMISSIONS FOOTPRINT[1]



Each ATC, mid-level ATC and manufacturing site collected and submitted information regarding its stationary and mobile energy consumption, electricity use and source and refrigerant use - volume of refrigerant replacement was used as an approximation for the amount of gas leaked. This was used to quantify scope 1 and 2 GHG emissions. Scope 3 was calculated using either primary data such as distance travelled for business or employee commuting, waste arisings, and fuel or energy use in leased assets, or else spend in these categories alongside the Trucost EEI-O. Please refer to Appendix III for an overview of the data provided by each site.

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.

[1] Figure from the GHG Protocol's *Corporate Value Chain (Scope 3) Accounting and Reporting Standard*.

GHG OPERATIONAL FOOTPRINT

The total operational GHG emissions (Scope 1 and 2 location-based) are 15,784tCO_2e

The operational footprint covers Core Lab's scope 1 and 2 GHG emissions and includes emissions from the following:

- Purchased electricity
- Direct fuel use from vehicles (gasoline, diesel and LPG)
- Direct fuel use from operations/buildings (natural gas)
- Refrigerants (R407C, R410A and R22)

The total operational GHG emissions (scope 1 and 2 location-based) for FY2017 are 15,784 tCO_2e, approximately 56% of which is from the six ATCs. The exhibit below shows the Scope 1 and 2 GHG emissions by source.

EXHIBIT 4: SCOPE 1 AND 2 GHG EMISSIONS BY SOURCE (tCO_2E)

IMPACT	SCOPE	SOURCE	FY2016	FY2017a	FY2017b
Direct	Scope 1	Natural gas heating (stationary energy)	1,549	1,093	1,243
		Vehicle fuel use (mobile transport)	128	426	1,754
		Refrigerants (fugitive emissions)	445	758	804
Indirect	Scope 2	Electricity (location-based)	7,013	6,564	11,984
		Electricity (market-based)	8,060	7,593	13,481
TOTAL OPERATIONAL FOOTPRINT (LOCATION-BASED)			**9,135**	**8,841**	**15,784**

The majority of operational GHG emissions stem from electricity consumption (scope 2 emissions), contributing 76% to the operational GHG emissions. Scope 1 emissions contribute 24%, comprising 11% from vehicle fuel use, 5% from refrigerants (fugitive emissions) and remaining 8% from natural gas heating. Operational footprint of the six ATCs decreased by 3%, most significantly due to a reduction in natural gas use, though all sources of emissions were reduced with the exception of vehicle use and fugitive emissions from refrigerants.

EMISSIONS BY DIVISION

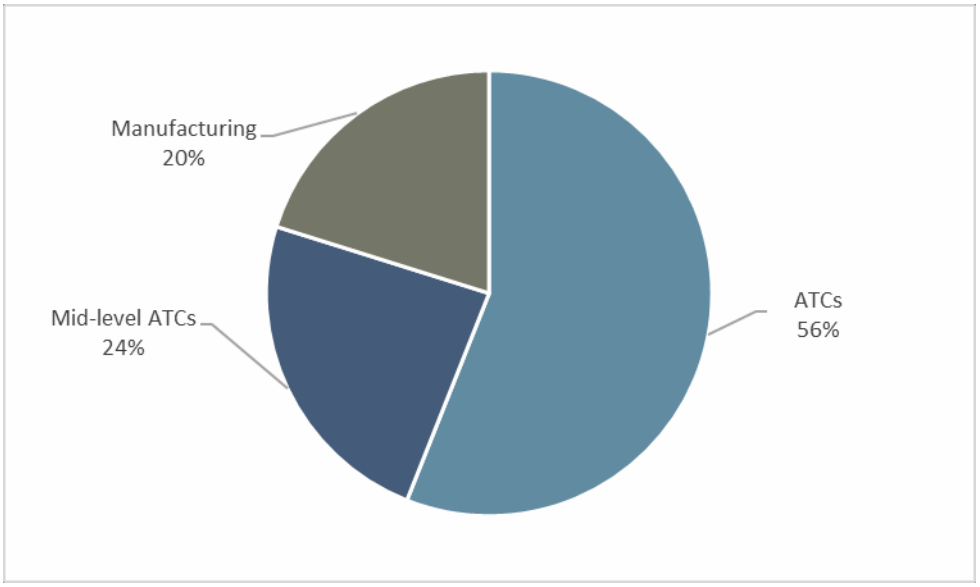
A breakdown of emissions per division as shown in the exhibit 5 provides more insights of the emission sources across Core Lab's operations. Though there are more mid-level ATCs than ATCs and manufacturing sites combined, they are only

associated with 24% of the total operational emissions, with only 26% of scope 1 due to low natural gas heating use. Manufacturing sites had only 14% of scope 1 emissions, with no fugitive emissions from refrigerant use at either site.

EXHIBIT 5: SCOPE 1 AND 2 GHG EMISSIONS BY DIVISION

IMPACT	SCOPE	SOURCE	GHG EMISSIONS (TCO_2E)		
			ATC	MID-LEVEL ATC	MANUFACTURING
Direct	Scope 1	Natural gas heating	1,093	42	108
		Vehicle fuel use	426	912	416
		Refrigerants	758	45	-00
Indirect	Scope 2	Electricity (location-based)	6,564	2,761	2,658
		Electricity (market-based)	7,593	2,903	2,985
TOTAL OPERATIONAL FOOTPRINT (LOCATION BASED)			**8,841**	**3,761**	**3,182**

EXHIBIT 6: OPERATIONAL GHG EMISSIONS BY DIVISION



In FY2016, only 1% of the electricity used in the ATCs was sourced from renewables – approximately 29% of Aberdeen's electricity. In FY2017, Aberdeen increased this to almost half of its electricity procured, and Houston started sourcing from renewables, resulting in 15% of the ATC's total combined electricity from renewable sources. Core Lab's transition towards renewable energy sourcing in FY2017 demonstrates significant contribution to emission reduction. While the ATC electricity consumption has increased by 21%, market-based scope 2 emissions have decreased by 5.8%. Across all sites, 11% of electricity is sourced from renewables.

EXHIBIT 7: SCOPE 1 AND 2 GHG EMISSIONS PER EMPLOYEE BY DIVISION

SCOPE	GHG EMISSIONS PER EMPLOYEE (TCO_2E/FTE)			
	ATCS	MID-LEVEL ATCS	MANU-FACTURING	ALL SITES
Scope 1	3.3	0.9	1.5	1.8
Scope 2 (location-based)	9.5	2.4	7.7	5.5
Scope 2 (market-based)[2]	10.9	2.6	8.7	6.2

Market-based emissions include the lower emission factor for calculation of the renewable proportion of electricity sourced, however it also uses the residual emission factor to determine the emissions of electricity sourced from the grid. Residual emission factors are often higher than average grid emissions as they account for contractual obligations - removing these from the grid mix of the national grid that the electricity is sourced from. For more information on residual emissions, see the GHG Protocol Scope 2 Guidance (WRI, 2015).

[2] Residual emission factors are only available for United States, Canada and Europe. Where residual emission factors are not available, grid emission factors are used for both location-based and market-based calculations.

GHG VALUE CHAIN FOOTPRINT

In 2017, Core Lab's value chain (scope 3) was responsible for approximately 34,053 metric tons of GHG emissions (tCO_2e), about 68% of its total GHG inventory.

In FY2017, Core Lab's value chain (scope 3) was responsible for approximately 34,053 metric tons of GHG emissions (tCO_2e), about 68% of its total GHG inventory. The majority of its value chain emissions came from upstream sources. The figure below shows the contribution of each scope.

EXHIBIT 8: OPERATIONAL AND VALUE CHAIN GHG EMISSIONS BY SCOPE

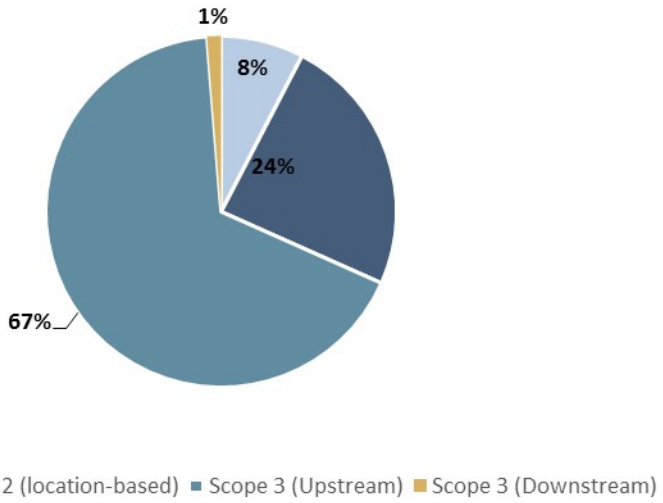


Exhibit 9 and 10 below breaks down Core Lab's full value chain GHG emissions per scope 3 category as well as division, highlighting the most relevant categories for Core Lab[3]. The majority of the value chain emissions occur upstream from purchased goods and services, accounting for the largest share with 37% of scope 3 emissions and 26% of total emissions.

[3] Relevance is assessed by calculating % of scope 3 GHG by category. Any category greater than 1% is considered relevant.

EXHIBIT 9: VALUE CHAIN GHG EMISSIONS 2017 (FOR ALL 21 SITES)

VALUE CHAIN (SCOPE 3) CATEGORY	GHG EMISSIONS (TCO2E)	SHARE %	RELEVANCE	GHG COST $MILLION
1) Purchased goods and services	12,733	37%	Relevant, calculated	2.0
2) Capital goods	686	2%	Relevant, calculated	0.1
3) Fuel- and energy-related activities	8,432	25%	Relevant, calculated	1.3
4) Upstream transportation and distribution	4,233	12%	Relevant, calculated	0.7
5) Waste generated in operations	375	1%	Not relevant, calculated	0.1
6) Business travel	3,231	9%	Relevant, calculated	0.5
7) Employee commuting	3,002	9%	Relevant, calculated	0.5
8) Upstream leased assets	716	2%	Relevant, calculated	0.1
9) Downstream transportation and distribution	N/A	0%	Not relevant, explanation provided	-
10) Processing of sold products	N/A	0%	Not relevant, explanation provided	-
11) Use of sold products	12	0%	Not relevant, calculated	0.0 -
12) End-of-life treatment of sold products	15	0%	Not relevant, calculated	0.0 -
13) Downstream leased assets	618	2%	Relevant, calculated	0.1
14) Franchises	N/A	0%	Not relevant, explanation provided	-
15) Investment	N/A	0%	Not relevant, explanation provided	-
TOTAL	**34,053**			**5.3**

The exhibit 10 shows scope 3 emissions by category broken out by ATC.

EXHIBIT 10: VALUE CHAIN GHG EMISSIONS BY DIVISION

SCOPE 3 CATEGORY	ATC	MID-LEVEL ATC	MANUFACTURING	TOTAL
1) Purchased goods and services	2,161	2,158	8,414	12,733
2) Capital goods	258	304	124	686
3) Fuel- and energy-related activities	3,615	3,151	1,666	8,432
4) Upstream transportation and distribution	2,867	1,098	268	4,233
5) Waste generated in operations	75	216	84	375
6) Business travel	2,016	1,003	212	3,231
7) Employee commuting	327	1,949	726	3,002
8) Upstream leased assets	157	535	24	716
9) Downstream transportation and distribution	-00	-00	-00	-00
10) Processing of sold products	-00	-00	-00	-00
11) Use of sold products	-00	-00	12	12
12) End-of-life treatment of sold products	-00	-00	15	15
13) Downstream leased assets	611	-00	7	618
14) Franchises	-00	-00	-00	-00
15) Investment	-00	-00	-00	-00
TOTAL	12,087	10,414	11,552	34,053

Zero emissions indicates that the division does not have any spend with the corresponding scope 3 category.

As seen from the exhibit above, Core Lab's ATC's contribute the largest share to the total value chain emissions with 35%.This is largely attributed to fuel and energy related activities and upstream transportation and distribution. Though only two manufacturing sites are included in the analysis, they are responsible for 34% of scope 3 emissions, most significantly in purchased goods and services with 66% of the GHG emissions for this category associated with them. This is likely due to the greater need for input materials to produce the manufactured goods sold.

RECOMMENDATIONS & CONCLUSIONS

Engagement enables a company to ensure suppliers fully understand the nature of their impacts and possible approaches to reducing them

The majority of Core Lab's value chain impacts are from the scope 3 upstream emissions, in particular category 1, purchased goods & services) accounted for the largest share of its upstream emissions. In addition, this analysis shows that a material amount of Core Lab's GHG emissions also stem from its own operations – mainly purchased energy consumption.

Trucost recommends the following:

1. **Reduce operational footprint**: Core Lab should actively invest in efforts to reduce it operational emissions. Core Lab has significantly reduced its natural gas consumption (29% reduction in the six ATCs reported in both years), and to further this effort, Core Lab should continue to explore opportunities to further reduce its operational footprint. Trucost recommends Core Lab should consider the following to further reduce its operational footprint:
    - Reduce travel: Vehicle fuel use is one of the key contributors to scope 1 emissions and it can be reduced by replacing travel with remote meetings where possible. If face to face meetings are necessary, Core Lab should consider moving to hybrid/electric vehicles where possible.
    - Refrigerant usage has significantly increased from last year and switching of refrigerants can be explored further.
    - Scope 2 emissions also account for a considerable share of Core Lab's total emissions (24 %). Core Lab may consider tracking its electricity consumption, recording supplier specific fuel mixes and emission factors as well as purchased more renewable

electricity in order to improve the robustness of assessment and to identify improvement opportunities.

2. **Set measurable goals**: Trucost recommends Core Lab establish measurable goals against the most material emissions, such as vehicle fuel use, refrigerants and scope 2 emissions. Trucost also encourages Core Lab to continue tracking its emissions against the science-based target developed by Trucost in 2015 and update periodically with latest information on growth and company development.
3. **Measure site performance over the year and set facility level targets**: Trucost recommends that Core Lab continue to track and monitor its material energy use and sources of emissions, but with periodic reporting at a site level to identify increases early on. This will allow site managers to try and identify causes of spikes and potentially adjust performance if possible. Core Lab should ensure to continually compare material impacts to the company's current sustainability strategy to identifying and evaluate where there are gaps that need to be addressed.
4. **Continue to expand coverage of analysis.** Core Lab has improved coverage of its GHG reporting over recent years -expanding scopes of analysis and the number of sites included in calculations. This is excellent and Trucost recommends that Core Lab continue on this trend to cover more sites to encompass a larger proportion of activity, with the aim to achieve 100% coverage. Current site coverage is associated with 56% of revenue, and therefore this leaves over 40% unaccounted for.
5. **Report to stakeholders**: Trucost recommends that Core Lab communicate the results of this assessment to its stakeholders to facilitate collaboration on key environmental issues, to demonstrate ongoing effort beyond CDP reporting.
6. **Consider findings of exposure to carbon pricing risk**: Measuring carbon footprint is an essential first step in understanding carbon efficiency of a company's past operations, and by using this information to evaluate future carbon pricing risk exposure, Core Lab is already setting itself apart as a leader in the sector. Increasing carbon regulation through taxes, emissions trading schemes, and fossil fuel extraction fees will feature prominently in global efforts to address climate change, with carbon prices already implemented in 40 countries and 20 cities and regions. The growing carbon price could affect companies directly with regulatory costs imposed on their

operations through energy and fuel price increases, or indirectly through costs passed on by suppliers, increasing operating costs and reducing profit

Trucost recommends that Core LAB understand its exposure to carbon pricing risks, and use the Carbon Pricing Tool provided by Trucost as a business tool to help manage future risk and improve decision making. The results of this risk analysis will inform business decisions and can be used to set internal prices on carbon. The costs provide a good proxy for potential exposure to carbon pricing risks from increasing climate regulation.

Expressing environmental impacts in financial terms enables comparing a company's external costs and traditional financial performance measures and can incentivize efficiency gains. This make it easier to gain the attention of a wider group of internal stakeholders, from executive boards to regional business managers, to comprehensively integrate carbon risk and other environmental factors in financial decision-making margins.

APPENDIX I – METHODOLOGY BY EMISSION CATEGORY

EXHIBIT 11: TRUCOST METHODOLOGY BY EMISSION CATEGORY

EMISSION SOURCE	METHODOLOGY	TRUCOST CALCULATION STEPS	REFERENCE	REMARKS
Scope 3, Category 1: Purchased goods	Calculated using spend data, disclosed emission data and Trucost EEI-O model.	Trucost have used last year's granular supply chain analysis conducted using supplier expenditure and Trucost's EEI-O and assumed similar intensity of emissions and modelled based on spend this year	Core Lab FY 2017 spend data	
Scope 3, Category 2: Capital goods	Calculated using spend data, disclosed emission data and Trucost EEI-O model.	Trucost have used last year's granular supply chain analysis conducted using supplier expenditure and Trucost's EEI-O and assumed similar intensity of emissions and modelled based on spend this year	Core Lab FY 2017 spend data	
Scope 3, Category 3 Fuel & Energy Related Activities	Applied FY 2017 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 2017 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 2017 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 2017 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	
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 2016 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; - U.S. American Community Survey; - TEMS, EPOMM Modal Split Tool; - Defra 2017	
Scope 3, Category 8 Upstream leased assets	Applied FY 2017 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 FY 2017 expenditure on leasing offices and other assets	
Scope 3, Category 11 Use of sold products	Secondary life cycle analysis (LCA) used to calculate emissions of relevant products	Trucost reviewed the range of products manufactured - identifying which had material emissions during use. Impacts were determined to be most associated with explosive charges. Emissions calculated based on size and type of munition, and number of units sold	EPA 2016 Core Labs product sales in revenue and units EcoInvent (2017)	Most charges are detonated underground, and none of the reviewed products (manufactured at included sites) require energy for use, therefore emissions are immaterial.

Scope 3, Category 12 End of life treatment of sold products	Secondary life cycle analysis (LCA) used to calculate emissions of relevant products	Trucost reviewed the range of products manufactured. Emissions calculated based on size and type of munition, and number of units sold	Core Labs product sales in revenue and units EcoInvent (2017)	Most products are either inert or are destroyed in use (such as explosive charges) therefore end of life impacts are immaterial.
Scope 3, Category 13 Downstream leased assets	Applied FY 2017 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 FY 2017 revenue from leasing assets	

APPENDIX II – 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.

APPENDIX III – PRIMARY INFORMATION PROVIDED BY CORE LAB FOR EMISSION CALCULATIONS

EXHIBIT 12A: DATA USED FOR CALCULTING OPERATIONAL AND VALUE CHAIN GHG EMISSIONS: ATCS

Emission Source	Units	Aberdeen	Abu Dhabi	Calgary	Houston	Kuala Lumpur	Rotterdam
Scope 2							
Electricity	kwh	632,943	121,545	3,017,280	13,625,540	663,920	726,328
Electricity purchased from rene	kwh	304,445	-00	-00	2,479,848	-00	-00
Scope 1							
Natural gas heating	kwh	808,432	-00	5,073,718	4,081	-00	47,200
Gasoline purchased	litre	-00	3,914	37,339	45,311	-00	-00
Diesel purchased	litre	541	-00	-00	-00	1,950	-00
LPG purchased	litre	-00	-00	450	-00	151,739	-00
Refrigerant R407C	kg	-00	-00	-00	0	-00	-00
Refrigerant R410A	kg	-00	-00	-00	0	0	-00
Refrigerant R22	kg	-00	-00	-00	0	0	-00
Scope 3							
Business travel							
Air - domestic	USD	8,292	-00	-00	175,899	88,357	-00
Air - short haul	USD	16,042	-00	-00	91,270	-00	2,028
Air - long haul	USD	136,619	94,883	-00	888,805	-00	-00
Rail	USD	6,201	-00	-00	-00	-00	-00
Car - diesel	USD	11,331	17,397	-00	-00	7,972	-00
Water transportation	USD	-00	-00	-00	-00	-00	-00
Employee commuting							
Passenger car	km	946,983	-00	591,709	17,815	19,704	-00
Bus, public transport	km	67,329	-00	-00	-00	-00	-00
Private bus / coach	km	-00	-00	-00	-00	-00	-00
Upstream transportation	USD	49,831	221,944	115,132	-00	304,011	-00
Downstream transportation	USD	43,554	-00	101,126	-00	-00	-00
Upstream leased assets	USD	88,277	940,528	-00	-00	267,328	-00
Downstream leased assets	USD	3,615,957	-00	-00	-00	-00	-00

EXHIBIT 12B: DATA USED FOR CALCULTING OPERATIONAL AND VALUE CHAIN GHG EMISSIONS: MID-LEVEL ATCS

Emission Source	Units	Bogota PS	Jakarta PS	Perth	Antwerp	Novorossiysk	St. Petersburg Saybolt	EuroPoort	Panama City	Singapore	Goteborg Saybolt	Broussard	Botlek	Deer Park
Scope 2														
Electricity	kwh	314,780	1,481	75,258	406,438	480,000	338,289	138,040	348,120	539,319	436,921	1,087,800	1,029,058	2,261,869
Electricity purchased from rene	kwh	-00	-00	-00	-00	-00	-00	-00	257,942	-00	176,516	-00	-00	503,252
Scope 1														
Natural gas heating	kwh	-00	-00	-00	222,756	-00	-00	3,787	-00	-00	-00	-00	-00	4,081
Gasoline purchased	litre	2,858	1,850	-00	-00	138,143	171,964	-00	-00	-00	-00	13,465	-00	7,501
Diesel purchased	litre	13,771	1,880	321	-00	-00	5,196	-00	-00	-00	42,187	3,195	-00	-00
LPG purchased	litre	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	270	-00	-00
Refrigerant R407C	kg	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00
Refrigerant R410A	kg	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00
Refrigerant R22	kg	0	0	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00
Scope 3														
Business travel														
Air - domestic	USD	-00	14,067	5,531	-00	12,427	35	-00	-00	-00	4,074	15,845	-00	41,772
Air - short haul	USD	32,578	1,913	-00	4,312	-00	-00	7,020	-00	3,990	16,490	8,222	14,880	1,292
Air - long haul	USD	712	-00	7,678	-00	-00	-00	-00	-00	5,480	-00	80,063	-00	25,663
Rail	USD	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00
Car - diesel	USD	54,000	-00	-00	5,280	-00	-00	-00	117,310	294,850	-00	-00	-00	-00
Water transportation	USD	-00	-00	-00	-00	-00	-00	-00	314,907	-00	10,624	-00	-00	-00
Employee commuting														
Passenger car	km	-00	11,688	201,600	-00	-00	1,359,220	28,200	-00	134,250	550,240	664,595	634,500	5,938
Bus, public transport	km	18,176,986	1,350	-00	-00	-00	-00	-00	-00	375,000	16,507	-00	-00	-00
Private bus / coach	km	-00	-00	-00	1,475	-00	-00	-00	-00	-00	-00	-00	-00	-00
Upstream transportation	USD	-00	28,180	31,724	12,639	-00	26	66,800	41,175	28,180	-00	-00	169,390	-00
Downstream transportation	USD	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00
Upstream leased assets	USD	-00	315,570	317,563	114,792	159,598	311	560,790	6,101	315,570	-00	-00	1,026,930	-00
Downstream leased assets	USD	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00	-00

EXHIBIT 12B: DATA USED FOR CALCULTING OPERATIONAL AND VALUE CHAIN GHG EMISSIONS: MANUFACTURING

Emission Source	Units	Godley Owen	Owen Red Deer
Scope 2			
Electricity	kwh	5,534,794	775,956
Electricity purchased from rene	kwh	-00	-00
Scope 1			
Natural gas heating	kwh	-00	585,795
Gasoline purchased	litre	16,807	12,625
Diesel purchased	litre	6,897	113,625
LPG purchased	litre	25,059	-00
Refrigerant R407C	kg	-00	-00
Refrigerant R410A	kg	-00	-00
Refrigerant R22	kg	-00	-00
Scope 3			
Business travel			
Air - domestic	USD	38,886	-00
Air - short haul	USD	1,768	6,942
Air - long haul	USD	86,706	3,227
Rail	USD	-00	-00
Car - diesel	USD	98,938	1,790
Water transportation	USD	-00	-00
Employee commuting			
Passenger car	km	4,264,751	-00
Bus, public transport	km	-00	-00
Private bus / coach	km	-00	-00
Upstream transportation	USD	3,521,643	-00
Downstream transportation	USD	-00	-00
Upstream leased assets	USD	-00	215,214
Downstream leased assets	USD	-00	65,191

EXHIBIT 13: TOTAL HEADCOUNT AND REVENUE PER LOCATION

Type of location	Region	Site location	Total Count	Revenue $mn
ATCs	United Kingdom	Aberdeen	99	16
	Middle East	Abu Dhabi	85	24
	Canada	Calgary	69	9
	United States	Houston	369	91
	Malaysia	Kuala Lumpur	42	10
	Netherlands	Rotterdam	30	1
Mid-level ATCs	Colombia	Bogota PS	21	5
	Indonesia	Jakarta PS	32	2
	Australia	Perth	29	7
	Belgium	Antwerp	82	12
	Russia	Novorossiysk	190	10
	Russia	St. Petersburg Saybolt	194	12
	Netherlands	EuroPoort	79	12
	Panama	Panama City	51	5
	Singapore	Singapore	65	7
	Sweden	Goteborg Saybolt	65	11
	United States	Broussard	44	17
	Netherlands	Botlek	156	19
	United States	Deer Park	123	17
Manufacturing	United States	Godley Owen	265	12
	Canada	Owen Red Deer	79	12
		TOTAL	**2,169**	**311**

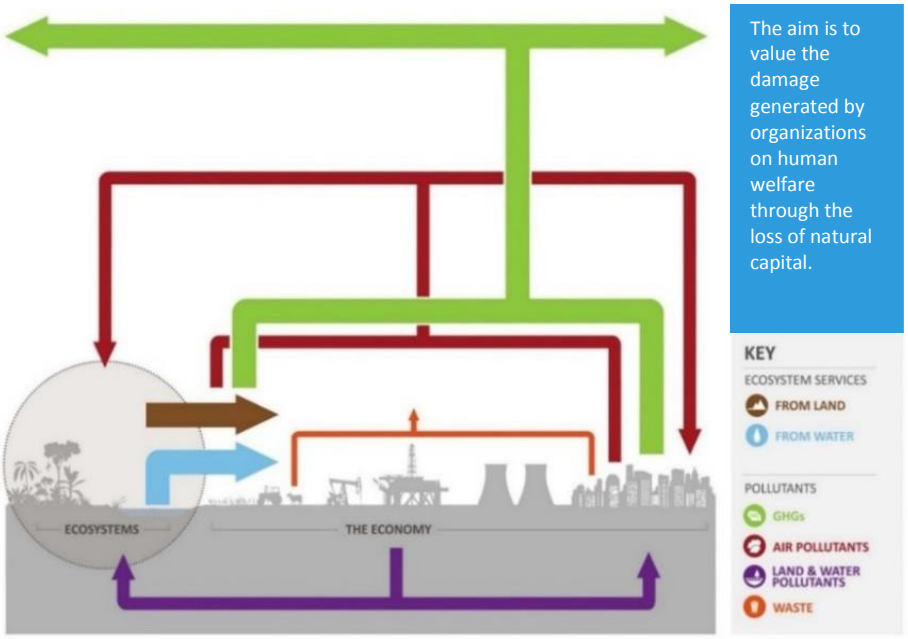
APPENDIX IV – NATURAL CAPITAL VALUATION

Natural capital can be defined as the world's stocks of natural resources which make human life possible. Organizations rely on this natural capital to produce goods and deliver services. They depend on natural non-renewable resources (for example, fossil fuels and minerals) as well as natural renewable ecosystem goods and services (for example, freshwater and pollination). Organizations also rely on natural capital for its ability to absorb by-products of production, such as pollution and waste. This ability is finite and has already shown its limits, with climate change caused by GHG emissions. The interrelationship between impacts and dependencies is described in the figure below.

Business extraction and production activities can damage natural capital with long term economic and social consequences, which are more often paid by those affected rather than those responsible. The cost of natural capital is impacting organizations directly and through their supply chains. Organizations that fail to adapt in a world of increasingly scarce but historically free resources will lose competitiveness as their value is realized through tighter regulation.

Trucost relies on over 1,000 environmental valuations identified in peer-reviewed journals, as well as government studies to estimate the global average valuation of the six key performance indicator (KPIs) – GHG emissions, air pollution, water use, land and water pollution, and land use changes.

EXHIBIT 14: NATURAL CAPITAL INFOGRAPHIC



Source: Trucost, 2012

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