Trucost
ESG Analysis

S&P Global

Core Laboratories Value Chain Footprint

Financial Year 2020

Credits

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About Trucost

Trucost is part of S&P Global. A leader in carbon and environmental data and risk analysis, Trucost assesses risks relating to climate change, natural resource constraints, and broader environmental, social, and governance factors. Companies and financial institutions use Trucost intelligence to understand their ESG exposure to these factors, inform resilience and identify transformative solutions for a more sustainable global economy. S&P Global's commitment to environmental analysis and product innovation allows us to deliver essential ESG investment-related information to the global marketplace. For more information, visit S&P Global - Trucost.

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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 FY2020, the operational and value chain GHG emissions analysis includes 12 mid-level ATCs and two manufacturing sites 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
	Vlaardingen	Netherlands
Mid-level ATC	Bogota PS	Colombia
	Jakarta PS	Indonesia
	Perth	Australia
	Antwerp	Belgium
	Novorossiysk	Russia
	St. Petersburg Saybolt	Russia
	Rotterdam	Netherlands
	Amsterdam	Netherlands
	Panama City	Panama
	Goteborg Saybolt	Sweden
	Broussard	United States
	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 2020 financial year.

Exhibit 2: Scope 1, 2 and 3 GHG emissions (tCO_2e)

IMPACT	SCOPE	FY2019	FY2020
Direct	Scope 1	4,795	3,420
Indirect	Scope 2 (location-based)	10,381	8,672
	Scope 2 (market-based)	11,904	10,563
Value Chain	Scope 3, upstream	30,798	23,546
	Scope 3, downstream	829	540
TOTAL (LOCATION-BASED)		**46,803**	**36,190**

In FY2020, Core Lab emitted 36,190 tCO_2e of GHG emissions throughout its value chain. This represents a decrease of 23% from FY2019 emissions. During FY2020 while the revenue remained constant, the full time employees (FTEs) decreased by 2%.

Emissions across both Scope 1 and 2 (location-based) have decreased due to the impact of COVID-19 on business operation across all the sites. A detailed analysis of each of the GHG Protocol scopes will be presented in the following sections.

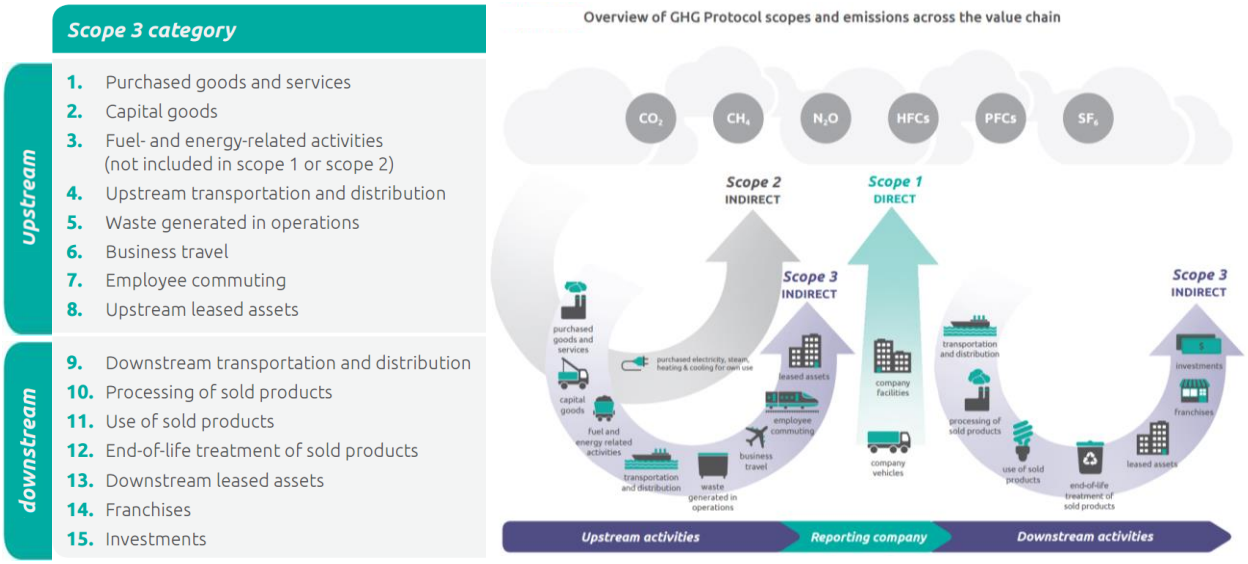
Scope of Analysis

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 FY2020 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 Potential (GWP) values or ability 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 CO2 over a 100-year timeframe. GWP enables all the GHGs to be expressed in terms of CO2 equivalents, or CO2e.

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

GHG Operational footprint

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 and diesel)
- Refrigerants (R407C, R410A, R22, R404A and M099)

The total operational GHG emissions (scope 1 and 2 location-based) for FY2020 are 12,092 tCO2e, approximately 54% of which is from the six ATCs. The exhibit below shows the Scope 1 and 2 GHG emissions by source

Exhibit 4: Scope 1 & 2 GHG emissions by source (tCO_2e)

IMPACT	SCOPE	SOURCE	FY2019	FY2020	GHG INTENSITY (TCO2E/MUSD)	GHG INTENSITY (TCO2E/FTE)
Direct	Scope 1	Natural gas heating (stationary energy)	1,357	1,693	6.13	0.83
		Vehicle fuel use (mobile transport)	1,520	1,289	4.67	0.63
		Refrigerants (fugitive emissions)	1,917	439	1.59	0.21
Indirect	Scope 2	Electricity (location-based)	10,381	8,672	31.40	4.25
		Electricity (market-based)	11,904	10,563	38.24	5.17
TOTAL OPERATIONAL FOOTPRINT (LOCATION-BASED)			**15,176**	**12,092**	**43.78**	**5.92**

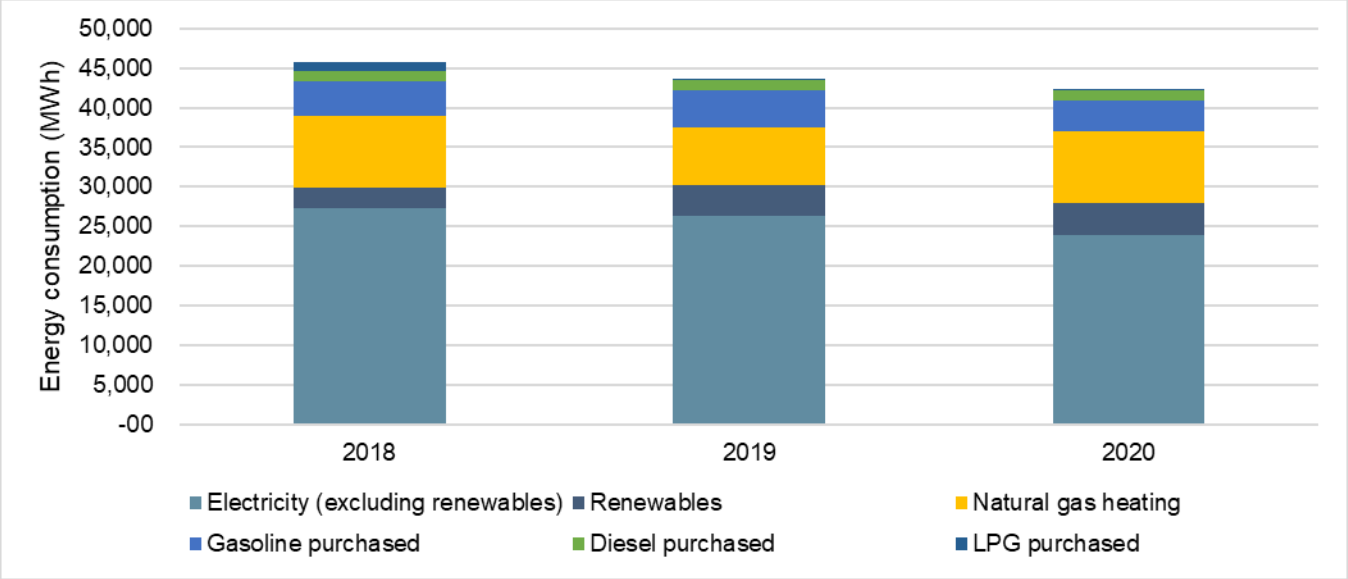
The majority of operational GHG emissions stem from electricity consumption (scope 2 emissions), contributing 72% to the operational GHG emissions. In FY2019, the total electricity sourced from renewable sources was approximately 15% whereas in FY2020 it increased to 17%. Scope 1 emissions contribute 38% to the total emission in FY2020 of which 11% is from vehicle fuel use, 4% from refrigerants (fugitive emissions) and remaining 14% from natural gas heating.

For FY2020, the market-based Scope 2 emissions are 10,563 tCO2e, a decrease of 11% from FY2019. For the market-based emission calculation the residual emission factors are used to determine the emissions of electricity sourced from the grid[2]. The 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.

Exhibit 5 summarizes the total energy consumption in FY2020 across all sites, which is 42,197 MWh. This has decreased approximately by 5% from the FY2019 consumption of 43,659 MWh. The energy use across scope 1 and 2 is dominated by non-renewable electricity use, which contributes to 57% of the total FY2020 energy consumption. The renewable electricity represents 10% of the total energy use in FY2020.

Exhibit 5: Energy use by fuel type



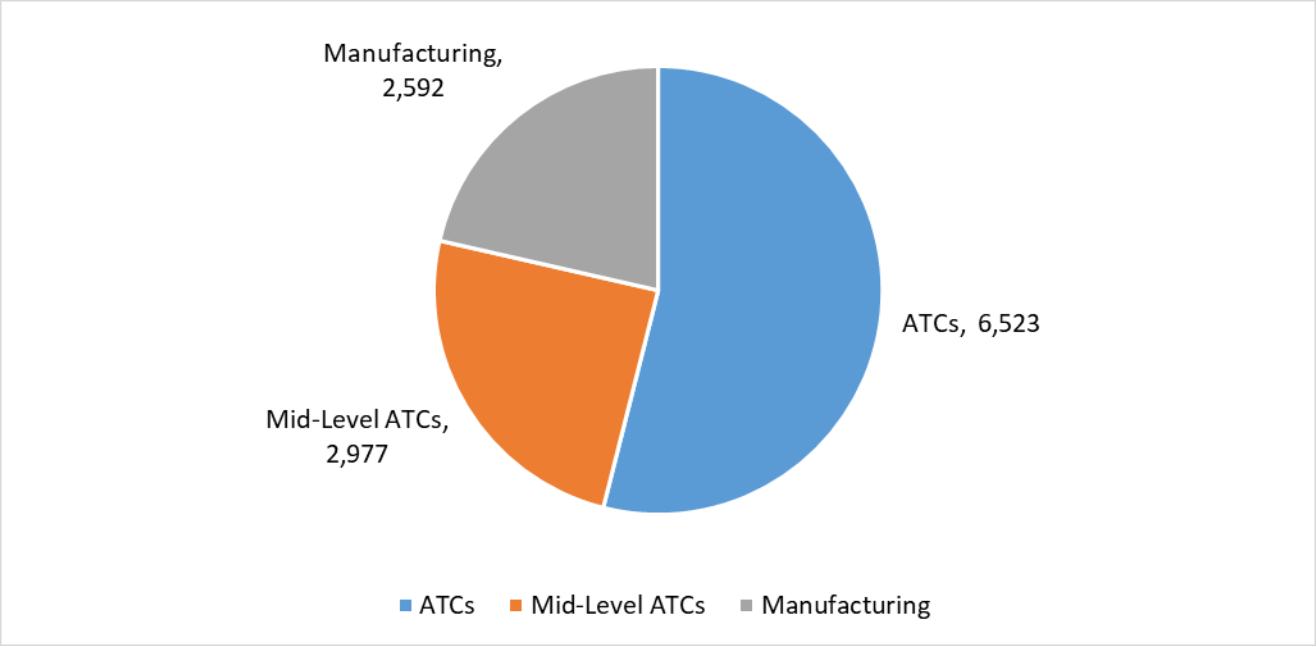
Emissions by Divisions

A breakdown of emissions per division as shown in the Exhibit 6 provides more insights into the emission sources across Core Lab's operations. Despite more in number, the mid-level ATCs are only associated with 25% of the total operational emissions. Manufacturing sites had only 21% of total operational emissions, with no fugitive emissions from refrigerant use at both the sites and low natural gas and vehicle fuel consumption values.

Exhibit 6: Scope 1 & 2 GHG emissions by division

IMPACT	SCOPE	SOURCE	GHG EMISSIONS (TCO_2E)			
			ATC	MID-LEVEL ATC	MANUFACTURING	TOTAL
Direct	Scope 1	Natural gas heating	1,493	84	115	1,693
		Vehicle fuel use	117	863	308	1,289
		Refrigerants	434	4	-	439
Indirect	Scope 2	Electricity (location-based)	4,478	2,025	2,169	8,672
		Electricity (market-based)	5,575	2,347	2,641	10,563
TOTAL OPERATIONAL FOOTPRINT (LOCATION BASED)			**6,523**	**2,977**	**2,592**	**12,092**
TOTAL OPERATIONAL FOOTPRINT (MARKET BASED)			**7,620**	**3,299**	**3,064**	**13,983**

Exhibit 7: Operational GHG emissions by division



*All quantities are expressed in tCO2e

Exhibit 8: Scope 1 & 2 GHG emissions intensities by division

SCOPE	GHG EMISSIONS PER EMPLOYEE (TCO_2E/FTE)*				GHG EMISSIONS PER REVENUE (TCO_2E/MUSD)*			
	ATCS	MID-LEVEL ATCS	MANU-FACTURING	ALL SITES	ATCS	MID-LEVEL ATCS	MANU-FACTURING	ALL SITES
Scope 1	2.07	1.21	1.57	1.68	24.37	11.42	3.88	12.38
Scope 2 (location-based)	4.54	2.58	8.06	4.25	53.37	24.30	19.90	31.40
Scope 2 (market-based)	5.65	2.98	9.82	5.17	66.44	28.16	24.24	38.24
Total Operational Intensity (Location-based)	**6.62**	**3.79**	**9.64**	**5.92**	**77.73**	**35.72**	**23.79**	**43.78**
Total Operational Intensity (Market-based)	**7.73**	**4.19**	**11.39**	**6.85**	**90.81**	**39.58**	**28.12**	**50.62**

*The intensities for individual business divisions is calculated using respective revenue and employee count. For all sites total Core Lab's revenue and employee count is considered.

GHG Value Chain Footprint

In FY 2020, Core Lab's value chain (scope 3) was responsible for approximately 22,966 metric tons of GHG emissions (tCO_2e), about 63% of its total GHG inventory. The majority of its value chain emissions came from upstream sources. Exhibit 9 shows the GHG contribution of each scope.

Exhibit 9: Operational and value chain GHG emissions by scope

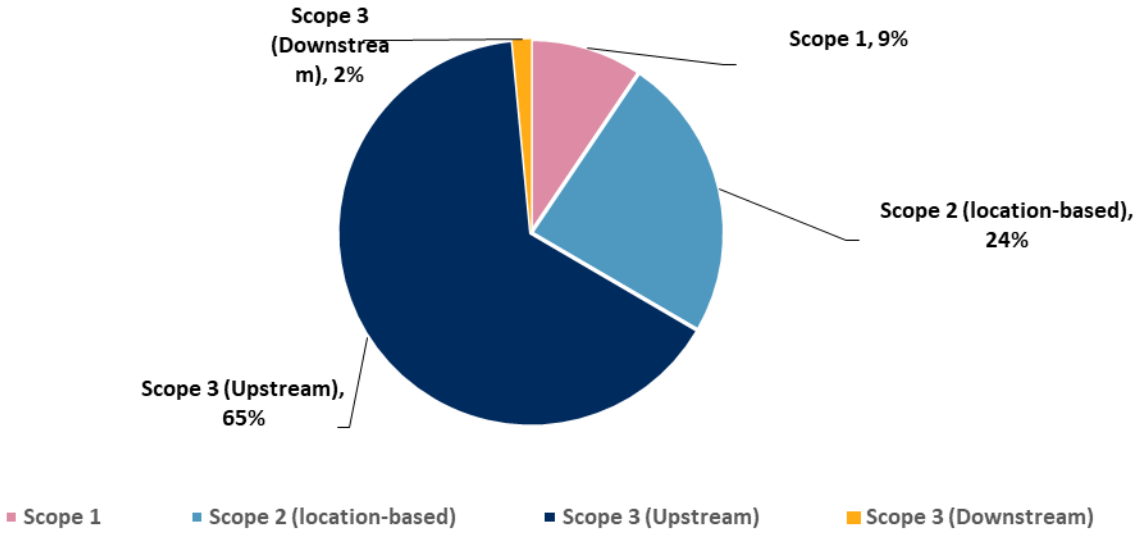


Exhibit 10 and 11 below breaks down Core Lab's full value chain GHG emissions per scope 3 category as well as division, highlighting the most relevant categories for Core Lab. The majority of the value chain emissions occur

upstream from purchased goods and services, accounting for the largest share with 51% of scope 3 emissions and 32% of total emissions.

Exhibit 10: Value chain GHG emissions for all sites

VALUE CHAIN (SCOPE 3) CATEGORY	GHG EMISSIONS (TCO2E)	SHARE %	RELEVANCE
1) Purchased goods and services	11,667	48%	Relevant, calculated
2) Capital goods	3,009	12%	Relevant, calculated
3) Fuel- and energy-related activities	2,064	9%	Relevant, calculated
4) Upstream transportation and distribution	4,364	18%	Relevant, calculated
5) Waste generated in operations	206	1%	Not relevant, calculated
6) Business travel	785	3%	Relevant, calculated
7) Employee commuting	1262	5%	Relevant, calculated
8) Upstream leased assets	188	1%	Relevant, calculated
9) Downstream transportation and distribution	NA	NA	Not relevant, explanation provided
10) Processing of sold products	NA	NA	Not relevant, explanation provided
11) Use of sold products	10	Trace	Not relevant, calculated
12) End-of-life treatment of sold products	3	Trace	Not relevant, calculated
13) Downstream leased assets	540	2%	Relevant, calculated
14) Franchises	NA	NA	Not relevant, explanation provided
15) Investment	NA	NA	Not relevant, explanation provided
TOTAL	**22,966**		

Exhibit 11: Value chain emissions (tCO2e) by division

SCOPE 3 CATEGORY	ATC	MID-LEVEL ATC	MANUFACTURING	TOTAL*
1) Purchased goods and services				11,667
2) Capital goods				3,009
3) Fuel- and energy-related activities	1,030	557	477	2,064
4) Upstream transportation and distribution	1,046	145	3,174	4,364
5) Waste generated in operations	30	129	47	206
6) Business travel	307	441	37	785
7) Employee commuting	818	395	49	1,262
8) Upstream leased assets	92	82	14	188
9) Downstream transportation and distribution	NA	NA	NA	NA
10) Processing of sold products	NA	NA	NA	NA
11) Use of sold products	0	0	10	10
12) End-of-life treatment of sold products	0	0	3	3
13) Downstream leased assets	120	416	5	540
14) Franchises	NA	NA	NA	NA
15) Investment	NA	NA	NA	NA
TOTAL	**3,443**	**2,163**	**3,816**	**24,098**

* Zero emissions indicates that the division either does not have any spend with the corresponding scope 3 category. NA represents that these categories are identified as not relevant.

For FY2020, Core Lab conducted a detailed value chain analysis based on expenditure with suppliers for ATCs, Mid-level ATCs and Manufacturing sites. For supply chain analysis i.e. category 1 and category 2 of scope 3, Core Lab conducted a high-level analysis based on company's total revenue in FY2020. For category 1 – purchased goods and services, the company level emission is calculated to be 11,667 tCO2e while the overall emission for category 2 – capital goods and services is calculated to be 3,009 tCO2e.

Recommendations and conclusions

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. While reduced operational activities and vehicular emission have resulted in significant decrease in operational footprint, Trucost recommends that 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 reduced from last year mostly due to reduced operation as a result of COVID-19. In a scenario, where Core Lab is operating at full capacity, switching of refrigerants can be explored further.
    - Scope 2 emissions (location-based) also account for a considerable share of Core Lab's total emissions (72%). Core Lab may consider tracking its electricity consumption as well as using more energy efficient devices to improve the robustness of assessment and to identify improvement opportunities.
    - The total Scope 2 emissions (location-based) accounts for 72% of the total emission. However, the electricity sourced from renewable sources is only 17% of the total electricity purchased in the reporting year. Trucost suggests that Core Lab should explore further opportunities to record supplier specific fuel mixes and emission factors as well as increase its share of electricity from renewable sources.

2. **Set measurable goals**: Trucost recommends that Core Lab should 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 updated in 2019 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. **Measure risks related to carbon price:** Trucost recommends that Core Lab conducts a carbon pricing risk analysis in order to understand the risk it may face as a result of its total emissions. There is a growing concern regarding industrial emissions and attaching a price to total emissions is seen as measure to regulate these emissions. Since Core Lab operates across various geographies, it should work on identifying which of its key geographies are at high carbon pricing risk.

Appendix I: Methodology by emission category

Exhibit 15: Methodology by emission category

EMISSION SOURCE	METHODOLOGY	TRUCOST CALCULATION STEPS	REFERENCE	REMARKS
Scope 3, Category 1: Purchased goods	Calculated using total revenue and Trucost EEI-O model.	Trucost has conducted a high-level supply chain analysis using Core Lab's total revenue for Fy2020 and Trucost's EEI-O model derived sector intensities.	Core Lab FY2020 revenue	
Scope 3, Category 2: Capital goods	Calculated using total revenue and Trucost EEI-O model.	Trucost has conducted a high-level supply chain analysis using Core Lab's total revenue for Fy2020 and Trucost's EEI-O model derived sector intensities.	Core Lab FY2020 revenue	
Scope 3, Category 3 Fuel & Energy Related Activities	Combined FY2020 actual electricity and energy consumption data and applied energy distribution and transmissions emission factors from Defra, 2020	1. Considered the consumption numbers for various fuels and electricity usage provided by Core Lab 2. Applied well-to-tank and transmission and distribution loses emission factors from Defra 2019.	Core Lab's energy and electricity use	
Scope 3, Category 4 Upstream transportation and distribution	Applied FY2020 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 FY2020 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	Combined Core Lab's FY2020 actual spend data on business travel and mileage by each mode with Trucost EEI-O model and DEFRA 2020 emission factors respectively. For certain sites emissions were provided by Core Lab data, thus they are considered as it is.	1. Calculations for those sites that have spent data: a. Consolidated Core Lab's spend on business travel b. Applied the actual spend into Trucost's EEI-O model to estimate emissions 2. Calculations for those sites that have distance travelled data: a. Considered information provided by Core Lab on annual distance travelled by mode of transport for each site. b. Applied Defra 2020 emissions factors per transportation mode 3. Considered provided emissions as it is and summed all emissions as calculated in above steps to arrive at final emissions.	Core Lab's spend and distance travel on various modes of business travel	
Scope 3, Category 7 Employee commuting	Combined FY2020 actual mileage data by each mode and applied respective DEFRA 2020 emission factors.	1. Considered information provided by Core Lab on annual distance travelled by mode of transport for each site. 2. Applied Defra 2020 emissions factors per transportation mode	Distance travelled by each mode of transport Defra 2020	
Scope 3, Category 8 Upstream leased assets	Applied FY2020 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 FY2020 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 2019 -Core Lab FY2020 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 Lab FY2020 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 FY2020 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 FY2020 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 16a: Data used for calculating operational and value chain emissions: ATCs

Emission Source	Units	Canada	Malaysia	Middle East	Netherlands	United Kingdom	United States
Scope 1							
Natural gas heating	kWh	5,332,226	-	-	587,512	737,065	1,463,597
Diesel	Litre	-	-	-	-	-	-
Heavy fuel oil	Litre	-	-	-	-	-	-
Propane	Litre	-	-	-	-	-	-
Gasoline purchased	Litre	30,243	100	2,733	-	-	16,349
Diesel purchased	Litre	-	180	-	-	592	-
LPG purchased	Litre	411	-	-	-	-	-
Refrigerant R407C	kg	-	-	-	-	-	5
Refrigerant R410A	kg	2	2	-	-	-	0
Refrigerant R22	kg	-	-	178	-	-	54
Refrigerant R404A	kg		-	-	-	-	
Refrigerant M099	kg		-	-	-	-	-
Scope 2							
Electricity	KWH	2,465,621	585,560	1,150,046	738,300	654,537	9,559,723
Electricity purchased from	KWH	-	-	-	-	200,943	2,456,849
District heating	KWH	-	-	-	-	-	-
District cooling	KWH	-	-	-	-	-	-
Scope 3							
Waste Management							
Spend	USD	35,227	65,383	15,613	28,791	30,778	-
Business Travel							
Air - domestic	USD	2	14,296	-	-		
Air - domestic	CO2e						60,732
Air - domestic	km					3,888	
Air - short haul	USD	-	-	-	-		
Air - short haul	CO2e						12,985
Air - short haul	km					39,151	
Air - long haul	USD	-	-	42,482	-		
Air - long haul	CO2e						142,823
Air - long haul	km					89,495	
Rail	USD	-	-	-	-	6,241	-
Car - Unknown Fuel	USD	-		3,336		7,129	-
Car - Unknown Fuel	km		1,156		-		
Water transportation	USD	-	-	-	-	-	-
Employee Commuting							
Passenger car	USD			158,447			
Passenger car	km	546,398	-		946,362	430,268	2,663,362
Bus, public transport	km	-	-	-	-	36,778	-
Private bus / coach	USD			24,441			
Private bus / coach	km	-	-		-	-	-
Upstream transportation							
Air - spend	USD	-	-	-	-	48,770	-
Rail - spend	USD	-	-	-	-	-	-
Truck - spend	USD	-	-	108,543	-	5,650	-
Other (please specify)	USD	-	819,658	-	93,315	1,543	-
Upstream leased asset							
Spend on renting asset	USD	227,067	-	509,365	-	79,842	-
Spend on renting asset	USD	5,691	-	13,446	-	28,220	-
Spend on renting asset	USD	-	206,505	-	-	10,958	-
Spend on renting asset	USD	-	-	-	-	-	-
Downstream leased asset							
Revenue from leasing d	USD	-	-	-	10,826	6,061,899	-
Revenue from leasing d	USD	-	-	-	7,766	-	-
Revenue from leasing d	USD	-	-	-	44,212	-	-

Exhibit 16b: Data used for calculating operational and value chain emissions: Mid-level ATCs

Emission Source	Units	Colombia, Bogota	Indonesia, Jakarta	Australia, Perth	Belgium, Antwerp	Russia, Novorossiysk	Russia, St. Petersburg	Netherlands, Rotterdam	Netherlands, Amsterdam	Panama, Panama City	Sweden, Goteborg	Broussard, LA USA	Deer Park, TX USA
Scope 1													
Natural gas heating	kWh	-	-	-	207,557	-	-	221,421	29,257	-	-	-	452
Diesel	Litre	-	-	-	-	-	-	-	-	-	-	-	-
Heavy fuel oil	Litre	-	-	-	-	-	-	-	-	-	-	-	-
Propane	Litre	-	-	-	-	-	-	-	-	-	-	-	-
Gasoline purchased	Litre	1,628	1,800	-	-	109,812	111,453	-	-	-	-	7,504	60,302
Diesel purchased	Litre	1,678	1,800	960	-	136	11,213	-	-	-	53,415	-	-
LPG purchased	Litre	-	-	-	-	-	-	-	-	-	-	246	-
Refrigerant R407C	kg	-	-	-	-	-	-	-	-	-	-	-	-
Refrigerant R410A	kg	-	-	-	-	-	-	-	-	-	2	-	-
Refrigerant R22	kg	-	-	-	-	-	-	-	-	-	-	-	-
Refrigerant R404A	kg	-	-	-	-	-	-	-	-	-	-	-	-
Refrigerant M099	kg	-	-	-	-	-	-	-	-	-	-	-	-
Scope 2													
Electricity	KWH	269,359	164,910	45,083	429,419	403,639	345,012	495,136	287,564	31,008	426,896	951,000	2,571,716
Electricity purchased from	KWH	-	-	-	-	-	-			279,072	426,896	-	660,931
District heating	KWH	-	-	-	-	-	-				-	-	
District cooling	KWH	-	-	-	-	-	-				-	-	
Scope 3													
Waste Management													
Spend	USD	5,514	982	3,614	64,292	14,459	18,422	416,650	120,632	-	28,000	34,791	37,297
Business Travel													
Air - domestic	USD	-	3,127	966	-	-	29,360	-	-	31,950	-		
Air - domestic	CO2e											11,879	21,226
Air - domestic	km												
Air - short haul	USD	7,970	-	-	7,383	-	-	-	-	-	3,200		
Air - short haul	CO2e											940	740
Air - short haul	km												
Air - long haul	USD	-	-	-	-	-	-	-	-	-	-		
Air - long haul	CO2e											-	-
Air - long haul	km												
Rail	USD	-	-	-	-	-	-	-	-	-	1,000	-	-
Car - Unknown Fuel	USD	71,430	3,783	-		-	-			64,322	-	-	-
Car - Unknown Fuel	km				2,640			-	-				
Water transportation	USD	-	-	-	-	-	-	-	-	247,973	-	-	-
Employee Commuting													
Passenger car	USD												
Passenger car	km	-	-	-	460	1,081	-	109,723	315,454	-	324,050	615,408	693,593
Bus, public transport	km	350,500	-	-	-	-	50,000	-	-	-	-	-	-
Private bus / coach	USD												
Private bus / coach	km	10,545	-	-	-	-	-	-	-	-	-	-	-
Upstream transportation													
Air - spend	USD	-	-	-	-	-	-	-	-	-	34,200	-	-
Rail - spend	USD	-	-	-	-	-	-	-	-	-	-	-	-
Truck - spend	USD	-	-	23,939	35,307	-	-	-	-	-	104,830	-	-
Other (please specify)	USD	-	26,926	1,938	-	-	55,110	266,404	45,847	48,205	-	-	-
Upstream leased asset													
Spend on renting asset	USD	305,470	-	132,467	128,446	20,600	40,920	-	-	-	14,850	-	-
Spend on renting asset	USD	-	-	97,378	-	-	370	-	-	2,160	-	-	-
Spend on renting asset	USD	-	-	-	-	-	-	-	-	-	164,300	-	-
Spend on renting asset	USD	-	-	-	-	-	-	-	-	-	-	-	-
Downstream leased asset													
Revenue from leasing d	USD	-	-	-	-	-	-	596,645	83,374	-	-	-	-
Revenue from leasing d	USD	-	-	-	-	-	-	51,843	6,808	-	-	-	-
Revenue from leasing d	USD	-	-	-	-	-	-	1,817,338	560,912	-	-	-	-

Exhibit 16c: Data used for calculating operational and value chain emissions: Manufacturing

Emission Source	Units	Owen Godley, TX USA	Owen Red Deer, Canada
Scope 1			
Natural gas heating	kWh	-	563,481
Diesel	Litre	-	4,279
Heavy fuel oil	Litre	-	-
Propane	Litre	-	-
Gasoline purchased	Litre	50,057	25,850
Diesel purchased	Litre	-	49,279
LPG purchased	Litre	-	-
Refrigerant R407C	kg	-	-
Refrigerant R410A	kg	-	-
Refrigerant R22	kg	-	-
Refrigerant R404A	kg	-	-
Refrigerant M099	kg	-	-
Scope 2			
Electricity	KWH	5,203,753	827,686
Electricity purchased from	KWH	-	-
District heating	KWH	-	-
District cooling	KWH	-	-
Scope 3			
Waste Management			
Spend	USD	274,830	-
Business Travel			
Air - domestic	USD		-
Air - domestic	CO2e		
Air - domestic	km	44,376	
Air - short haul	USD		
Air - short haul	CO2e		-
Air - short haul	km	22,354	
Air - long haul	USD		-
Air - long haul	CO2e		
Air - long haul	km	111,804	
Rail	USD	-	-
Car - Unknown Fuel	USD	-	
Car - Unknown Fuel	km		6,577
Water transportation	USD	-	-
Employee Commuting			
Passenger car	USD		
Passenger car	km	386	288,000
Bus, public transport	km	-	-
Private bus / coach	USD		
Private bus / coach	km	-	-
Upstream transportation			
Air - spend	USD	-	-
Rail - spend	USD	-	-
Truck - spend	USD	199,120,00	128,098
Other (please specify) -	USD	-	-
Upstream leased asset			
Spend on renting asset	USD	-	12,090
Spend on renting asset	USD	87,640	174,250
Spend on renting asset	USD	-	-
Spend on renting asset	USD	-	-
Downstream leased asset			
Revenue from leasing o	USD	-	69,140
Revenue from leasing o	USD	-	-
Revenue from leasing o	USD	-	-

Exhibit 17: Total headcount and revenue use per location

Type of location	Region	Site location	Total Count	Revenue $mn
ATCs	United Kingdom	Aberdeen	84	16
	Middle East	Abu Dhabi	61	9
	Canada	Calgary	62	7
	United States	Houston	326	44
	Malaysia	Kuala Lumpur	430	7
	Netherlands	Rotterdam	23	0
Mid-level ATCs	Colombia	Bogota PS	24	3
	Indonesia	Jakarta PS	20	1
	Australia	Perth	23	10
	Belgium	Antwerp	81	15
	Russia	Novorossiysk	134	9
	Russia	St. Petersburg Saybolt	171.8	9
	Netherlands	EuroPoort+Botlek	202	0
	Netherlands	Amsterdam	68	0
	Panama	Panama City	57	5
	Sweden	Goteborg Saybolt	63	8
	United States	Broussard	45	14
	United States	Deer Park	69	9
Manufacturing	United States	Godley Owen	219	103
	Canada	Owen Red Deer	50	6
		TOTAL	2,042	276

References

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