ACT

SECTOR METHODOLOGY

Assessing low-Carbon Transition

Oil & Gas

VERSION 2.0 | February 2021

ACKNOWLEDGMENTS

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Content

Introduction

The 2015 United Nations Climate Change Conference (COP21) in Paris further strengthened the global recognition of limiting dangerous climate change. Political agreement was reached on limiting warming to well below 2 degrees above pre-industrial levels. The project 'Assessing low Carbon Transition' (ACT) measures a company's alignment with a future low carbon world. The goal is to drive action by companies and encourage businesses to move to a low carbon pathway in terms of their climate strategy, business model, investments, operations and greenhouse gas (GHG) emissions management. The general approach of ACT is described in the ACT Methodological Framework document.[i] It uses the Sectoral Decarbonization Approach (SDA) developed by the Science Base Target initiative (SBTi), to compare the level of ambition publicly expressed by the company with a specified low carbon transition scenario. The public expression of a short, mid and long-term targets, is considered as a demonstration of a "willingness" (or commitment) to transition. This is then further assessed through a range of detailed indicators which the Framework provides and sector methodologies should detail. The ACT methodology is not explicitly aligned with the Task-Force on Climate-related Financial Disclosure (TCFD) guidelines [1], but they are complementary and have a common goal: help companies to manage their risks related to climate change and support them to identify opportunities provided by the shift towards a low carbon model[ii].

Fossil fuel combustion releases carbon dioxide (CO_2) and is the principal source of anthropogenic GHG emissions worldwide [2]. These emissions result primarily from the use of coal, oil and gas products, with petroleum (oil) products and natural gas representing approximately 56% (fuel combustion induced) of CO_2 emissions worldwide (35% for Oil and 21% for Gas) in 2018 [3]. The large majority of the GHG emissions induced by oil and gas companies take place in the downstream segment during the combustion of sold products for final energy use (around 80% of total GHG emissions along the Oil & Gas (O&G) value chain[iii]) and are to be reported as Scope 3 by O&G companies. Although sold products combustion is the major source of GHG emissions induced by companies in the sector, direct emissions (Scope 1 and Scope 2) happening along the O&G value chains (e.g. extraction, transformation such as refining, transportation, etc.) are also significant and shall be taken into consideration by climate mitigation strategies and targets.

O&G companies face a two-fold challenge. Firstly, energy demand growth is foreseen to slow down and eventually stagnate by almost all low carbon scenarios thanks to strong energy efficiency measures. Secondly, a big shift from fossil fuels to combustible renewable energy sources and low carbon electricity is also expected and necessary for a global low carbon transition. Therefore, there is no single path to a low carbon transition of actors in the energy sector and all of them imply significant transformations in business models, making the task of taking consensual strategic decisions more difficult. All of these diverse views of the O&G sector transition will be addressed by the ACT assessment methodology.

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[i] Sectoral Decarbonization Approach (SDA): A method for setting corporate emission reduction targets in line with climate science (2015)

[ii] ACT and TCFD alignment: Even though the ACT methodology is not explicitly aligned with the TCFD guidelines, the two frameworks have notable points in common. Indeed, in terms of philosophy, they both apprehend the company as a whole (governance of the organization, financial planning as well as climate performance). For instance, the module Management presents similar criteria than the ones proposed in the Governance pillar of the TCFD Guidelines (role of the Board in climate strategy, etc.) and in the Strategy pillar (low carbon transition plan, use of low-carbon scenario, etc.). TCFD Annex document display global recommendations and specific ones dedicated to O&G companies (within the Energy Group), that correspond to the nearly all data that is requested for an ACT O&G assessment.

[iii] ARC Energy Research Institute, using input data from the US Department of Energy National Energy Technology Laboratory to define the US Refined Average (2014))

The transition to a low carbon model for players in the oil and gas sector takes place in a long-term historical energy development and in a framework that remains defined by specific technical and economic characteristics.

Since the beginning of the 20th century, the petroleum era has succeeded the coal era, gas did not really begin to play a role until the 1970s. The secular trend is the rise of energy vectors in final energy (electricity first but also gas and hydrogen) and the diversification of primary energy sources. The concept of "energy transition" is in fact inherent, over a long period, in the exploitation of energy resources and technical progress.

The oil and gas sector is exposed, over the long term, to the trend of scarce fossil resources and rising production costs. The most readily available, least costly and most energy efficient reserves were exploited first. The world's oil industry reached the beginning of the decline in reserves (proven and probable reserves) in the early 1990s. There is thus a secular trend towards a decline in oil exploitable reserves by field and an increase in operating costs, offset by the positive effects of technical progress. It is in this context that O&G companies undertook a rebalancing towards gas at the end of the 1990s. This strategic movement towards gas allows, on the one hand, to overcome the beginning of the decline in oil resources, and on the other hand, to seize the opportunity of energy balances increasingly geared towards electricity, which is particularly rapid in Asian emerging countries, through the development of liquefied natural gas (LNG) as a combustible fuel. The movement towards gas over the last 2 decades constitutes a transition phase from the model of the oil company which prevailed in the 20th century, with the effect of reducing the carbon intensity of energy supply.

Although players in the oil and gas industry have a capacity for strategic action to support major changes in the energy system, they do not control several essential variables in the evolution of markets. First, oil and gas companies have very small market shares worldwide, particularly in the upstream segment of the supply chain (exploration / production). In a global cartelized oil market, their market power is zero and they have no influence on the formation of the wholesale price. However, the price of oil and energy in general remains the dominant element that determines the level of profitability of assets and the allocation of capital. Secondly, the oil and gas companies respond to a "demand" split into specific markets marked by dynamics largely independent from each other. The demand on each market is determined by factors that the O&G companies do not control:
- tax level;
- national or even supranational regulations on energy use and efficiency;
- changes in the economic structure of consuming countries (industrialization versus tertiarization)
- R&D in equipment and technologies related to energy consumption;
- political commitments in the fight against climate change, for example, which are always national, supranational in certain cases (European Union for example) but not global.

Some oil markets have almost disappeared over the past 30 years (electricity generation, heavy industry), some markets are facing energy and technological competition which announces their disappearance in the medium term (residential sector, light industry, even petrochemicals to a certain extent) and some segments still constitute markets which are hardly or not substitutable (essentially fuels for transportation). Markets for refined petroleum products are not immune to the historical long-term trend of substitution under the combined effects of technology, price and the electrification of energy services. The transition to a low carbon model of the various players in the oil and gas sector is therefore part of a historic movement and a technical and economic framework that must be taken into account.

It is important to consider the particular position of the O&G industry in the economy as well as its diversity. Indeed, the sector covers different activities (exploration, production of O&G transformation, transport, retail, engineering, etc.) operated by different types of companies (Exploration & Production (E&P) specialists, O&G integrated companies, logistics pure players, O&G Equipment & Services, etc.). Besides, the transition of O&G companies is dependent on the shift of the global energy demand towards electrification and low carbon alternatives as well as levers of decarbonization at each step of the energy value chain (from extraction to final use). Therefore, assessing the climate impact of an O&G company requires both a life-cycle approach,

(integrating all steps of the supply chain) and an enlarged scope embracing all sources of energy. The fact that the GHG emissions related to energy consumption and the volumes of energy consumed are already tracked by the companies of the O&G sector makes the O&G sector suitable for analysis via a SDA and enables the ACT methodology to use quantitative indicators that assess the carbon content of each unit of energy supplied. Nevertheless, due to the complexity of the sector and the variety of the transition levers, other qualitative indicators (e.g. climate management, new business models assessment…), are also highly significant when considering the alignment with a low carbon future and should not be neglected or underweighted.

This present document introduces the **ACT O&G methodology**. It is a combination of all the issues addressed in the Upstream, Midstream and Downstream segments of O&G operations. GHG emissions from assets operated all along the value chain, such as extraction or transformation assets will be considered closely, but GHG released by the use of the products sold (combustion of various fuels) will be also considered as they represent the highest share of GHG emissions (84% of the total life-cycle assessment (LCA) in terms of tCO_2e/TJ for oil products – energy use – come from the use of these products by the final users for example) on the whole life cycle of the energy supplied. The assessment methodology is composed of 9 modules, with quantitative indicators (GHG emissions, etc.) and qualitative ones (supplier engagement, R&D expenses, etc.). This information will feed simplified assessment models that aim to quantify the implications of initiatives such as the sales of sustainable biofuels or energy efficiency services for instance. In addition to business model considerations, other qualitative indicators included are the company's stance on climate change regulations and engagement with the supply chain.

1. Principles

The selection of principles to be used for the methodology development and implementation is explained in the ACT Framework [4]. Table 1 recaps the adopted principles that were adhered to when developing the methodology.

TABLE 1: PRINCIPLES FOR IMPLEMENTATION

Principles
▪ **RELEVANCE** - Select the most relevant information (core business and stakeholders) to assess low carbon transition.
▪ **VERIFIABILITY** - The data required for the assessment shall be verified or verifiable.
▪ **CONSERVATIVENESS** - Whenever the use of assumptions is required, the assumption shall err on the side of achieving a 2 degrees maximum temperature rise.
▪ **CONSISTENCY** - Whenever time series data is used, it should be comparable over time.
▪ **LONG-TERM ORIENTATION** - Enable the evaluation of the long-term performance of a company while simultaneously providing insights into short- and medium-term outcomes in alignment with the long-term.

2. Scope

2.1. SCOPE OF THE DOCUMENT

This document presents the ACT assessment methodology for the Oil &Gas companies. It includes rationales, definitions, indicators and guidance for performance, narrative and trend scorings. It focuses on the specific considerations and constraints that need to be taken into account when assessing the low carbon alignment of the O&G companies.

The performance indicators are similar for Integrated O&G, pure Upstream, pure Midstream or pure Downstream companies (and combinations) but the weightings differ, to reflect the specific levers of each type of company.

2.2. SCOPE OF THE SECTOR

2.2.1. SCOPE OF THE ACTIVITIES

The activities of the O&G sector can be divided into the three main steps of the value chain: Upstream, Midstream and Downstream. Even though Oil and Gas value chains have quite similar upstream activities, their midstream and downstream activities are significantly different. Therefore, the types of activities in the midstream and downstream segments are analyzed separately for Oil and for Gas. In addition to the traditional value chains of Oil and Gas, **Carbon sink** activities (CCS, CCUS, artificial and natural carbon dioxide removal activities) and **Renewable and Electricity related activities** have been included in the scope of the activities, as they represent a key part of the solution for the O&G industry to shift towards a low carbon model.

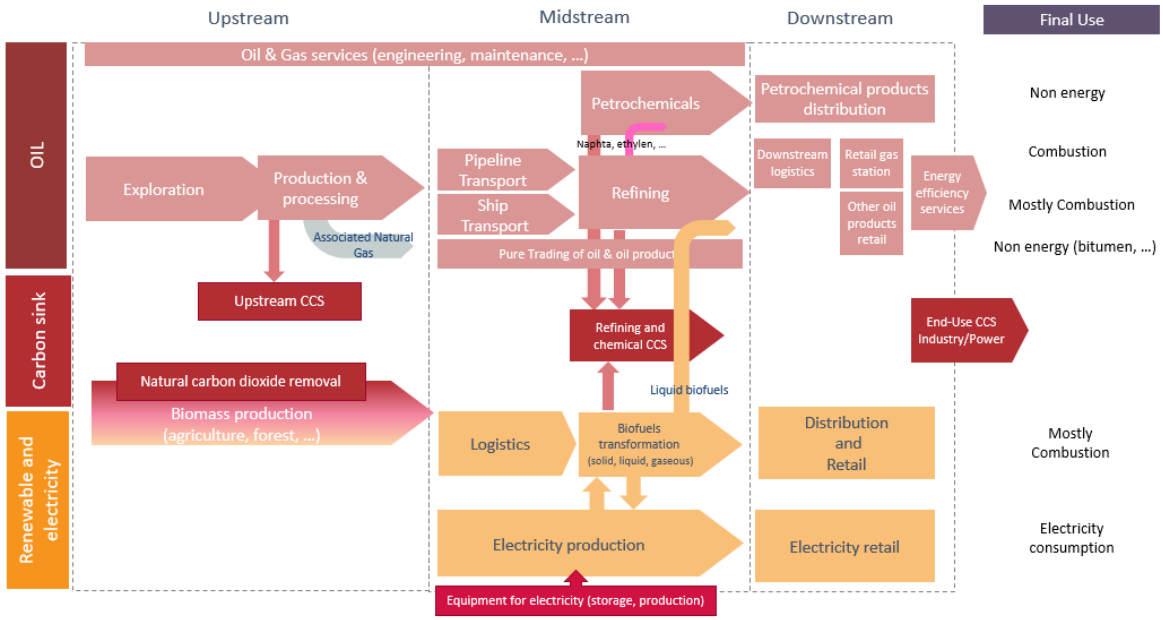


FIGURE 1 – ACTIVITIES OF THE OIL VALUE CHAIN

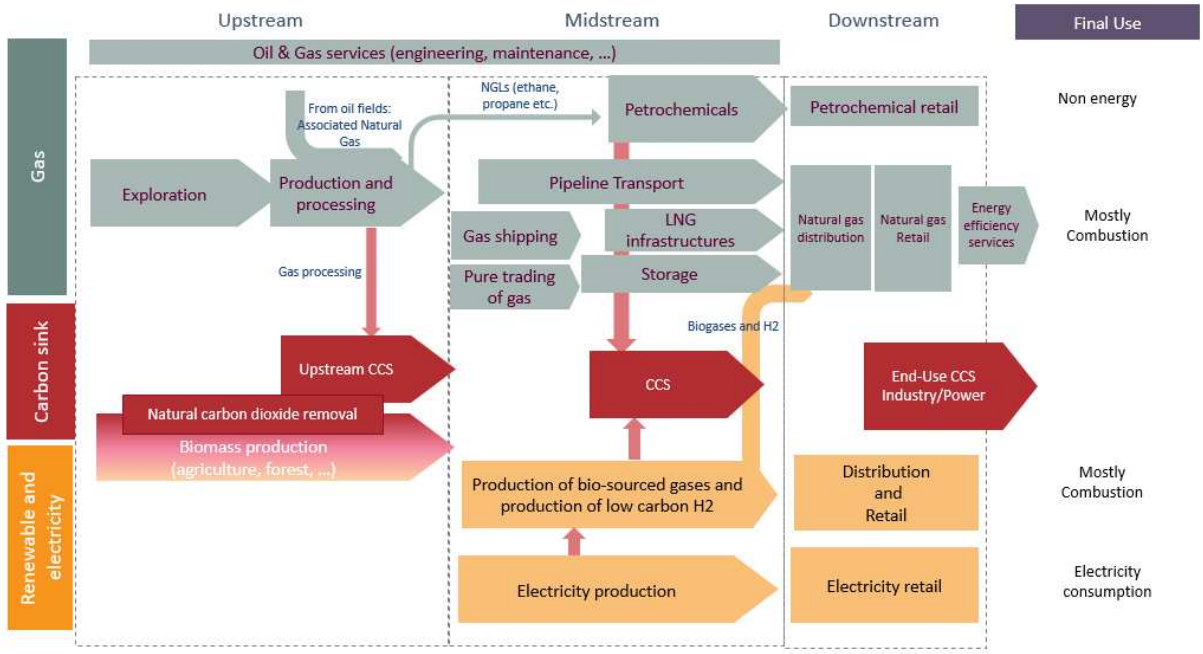


FIGURE 2 - ACTIVITIES OF THE GAS VALUE CHAIN

The activities of the **O&G Upstream segment** included within the ACT scope are the following:

1. Oil & Gas Exploration [NACE - 09.10]
2. Oil & Gas Production [NACE Rev2 – 06]
3. Biomass production (agriculture, forest, …) [NACE A]

Oil and Gas equipment and services activities (engineering, maintenance, etc.) [NACE 09.10] are excluded from the ACT O&G scope of activities because although they play an enabling role they do not hold the final decision on climate impacting investments.

The activities of the **O&G Midstream segment** included in the ACT scope are listed in Table 2.

TABLE 2: ACTIVITES INCLUDED IN O&G MIDSTREAM SEGMENT

Oil value chain	Gas value chain
▪ Oil transport (mainly ship and pipeline) [NACE 50.20 (transport) / 49.50 (pipeline)] ▪ Oil Refining [NACE 19.20] ▪ Biofuel production and blending (solid, liquid, gaseous) [NACE 19.20] ▪ Production of bio-sourced gases and production of low carbon hydrogen [NACE 35.21]	▪ Pipeline transport [NACE 49.50] ▪ Gas shipping (LNG) [NACE 35.22] ▪ Gas storage [NACE 25.29] ▪ LNG infrastructure [NACE 25.29] ▪ Production of bio-sourced gases and production of low carbon hydrogen [NACE 35.21]
▪ Electricity production [NACE 35.11]	

Petrochemicals activities [NACE 19.20] are excluded from the ACT O&G scope of activities because they cover processes and products with no final combustion use and have therefore different issues than those relating to the O&G transition. Most petrochemical activities produce “raw materials” (e.g. like plastics) instead of "energy carriers": only energy related products are part of the scope. Petrochemical activities will be treated in separate ACT and SBT methodologies.

Pure trading activities [NACE 35.23 (gas) / 35.14 (electricity)] are also excluded from the ACT O&G scope of activities. “Pure trading” activities are defined as buying and selling products without transforming them. These sales are not to end consumers. Indeed, these are short-term activities with limited levers on the low carbon transition as well as few locked-in assets.

The activities of the **O&G Downstream segment** included in the ACT scope are listed in Table 3.

TABLE 3: ACTIVITES INCLUDED IN O&G DOWNSTREAM SEGMENT

Oil value chain	Gas value chain
▪ Downstream oil products logistics [NACE 50.20] ▪ Retail automotive fuels stations [NACE 46.71] ▪ Marketing and distribution of other oil products [NACE 46.71] ▪ Distribution and retail of biofuels [NACE 46.71] ▪ Distribution and Retail of bio-sourced gases and low carbon Hydrogen [NACE 35.23]	▪ Gas distribution & logistics (pipeline, trucks) [NACE 35.22] ▪ Gas retail (Natural Gas, LPG) [NACE 35.23] ▪ Distribution and Retail of bio-sourced gases and low carbon Hydrogen [NACE 35.23]
▪ Energy efficiency services [NACE 84.13] ▪ Electricity retail [NACE 35.14]	

2.2.2. SCOPE OF THE ACTORS

The ACT methodology relies on the principle of relevance and therefore only companies that have both significant climate impact and significant mitigation levers are covered.

The companies that are covered by the **ACT O&G methodology** are the following:

1. Integrated O&G companies
2. Integrated Gas Utilities
3. Exploration and Production pure players
4. Oil Refining & Marketing pure players
5. Service stations pure players
6. Oil products Marketing pure players
7. Gas Retail pure players

Companies are considered as:

- Semi-integrated if they cover two segments of the O&G value chain
- Integrated if they cover all segments of the O&G value chain.

The companies that are NOT covered by the **ACT O&G methodology** are the following:

1. Pure actor/player companies in O&G equipment and services
2. Petrochemical or O&G trading
3. Exploration pure players (limited levers and scope of action)
4. Oil and Gas storage and transportation pure players (limited levers on the O&G transition)

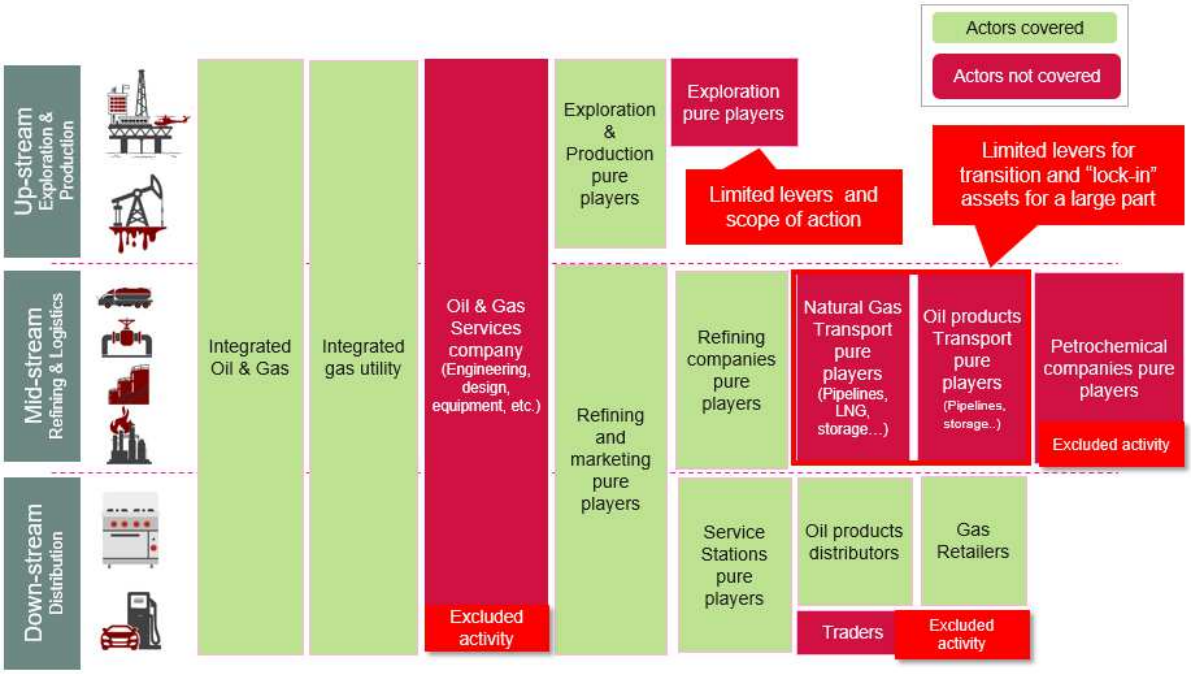


FIGURE 3 - COMPANIES THAT CAN BE ASSESSED BY THE ACT O&G METHODOLOGY

3. Boundaries

Based on the principle of relevance and to facilitate the data collection on the companies' side, the ACT methodology focuses on the main sources of GHG emissions throughout the value chain.

3.1. REPORTING BOUNDARIES

Upstream activities of O&G companies - exploration and production - are significant GHG emitting activities and represent around 10% of the total GHG emissions[iv] of the Oil value chain. The two main sources are **methane emissions** caused by venting, flaring and leakage (17% of the CO_2e emissions for crude oil Scope 1+2 along the whole value chain come from methane for example) and the **energy intensity of the extraction processes**, which highly depends on the extraction technology and the type of fossil reservoir. Therefore Scope 1+2 GHG emissions of the upstream activities will be closely looked at.

The **midstream activities** of O&G companies are carbon intensive activities but are very different from oil value chain to gas value chain. Refining process represents 7% of total GHG emissions in the Oil value chain [5]. The fossil energy combustion in refineries is the principal source of emissions of the segment representing around 2/3 of all GHG emissions. However, process emissions as those coming from catalytic cracking and reforming units (around ¼ of GHG emission) and flaring (around 3% of GHG emissions) are also relevant. Therefore Scope 1+2 GHG emissions of midstream activities will be closely assessed. Upstream Scope 3 GHG emissions related to the supply of oil or gas of the midstream activities will also have to be considered. Transportation of oil and gas represents a non-negligible part of the life cycle emissions especially for natural gas transport in its liquefied form (LNG) because of the energy required to liquefy/re-gasify the gas. Methane leakages throughout the transport & distribution chain is also a global issue for natural gas value chain.

Regarding the **downstream activities** of O&G companies, Scope 1+2 GHG emissions are relatively low compared to the total GHG emissions of the value chain. **Combustion of O&G products sold** (Scope 3 downstream) is by far the largest source of emissions, representing more than 80% of total GHG emissions of the oil value chain [6]. As the different energy products (coal, gas, oil products) have different carbon intensity per energy supplied, the **mix of products sold** is crucial to analyze the climate impact of companies in the sector. The development of an offer of energy efficiency services to the final client is also a key lever to reduce the GHG emissions related to the use of products sold.

Renewable fuels (bio-based fuels or gases, low carbon hydrogen) are a key lever to reduce the emissions of Scope 3 downstream but their LCA GHG emissions must be closely looked at (especially Scope 3 upstream related to the agriculture phase) to ensure the global GHG benefits of their use.

[iv] ARC Energy Research Institute, using input data from the US Department of Energy National Energy Technology Laboratory to define the US Refined Average (2014)

Regarding **electricity activities** throughout the value chain (sourcing or production, retail), Scope 1 emissions related to the electricity production will of course be closely looked at but LCA GHG emissions on the full life cycle will have to be considered to evaluate the climate performance of these activities.

GHG emissions from investments and joint ventures (JVs) will have to be taken into account within ACT framework according to the reporting approaches chosen of the company. Whether the company has chosen operational control approach, financial control approach or equity share approach, the related GHG emissions will have to be reported accordingly in the Scope 1+2 or in the Scope 3.[v]

The graph below provides an overview of the GHG reporting boundaries for the different activities of the O&G sector:

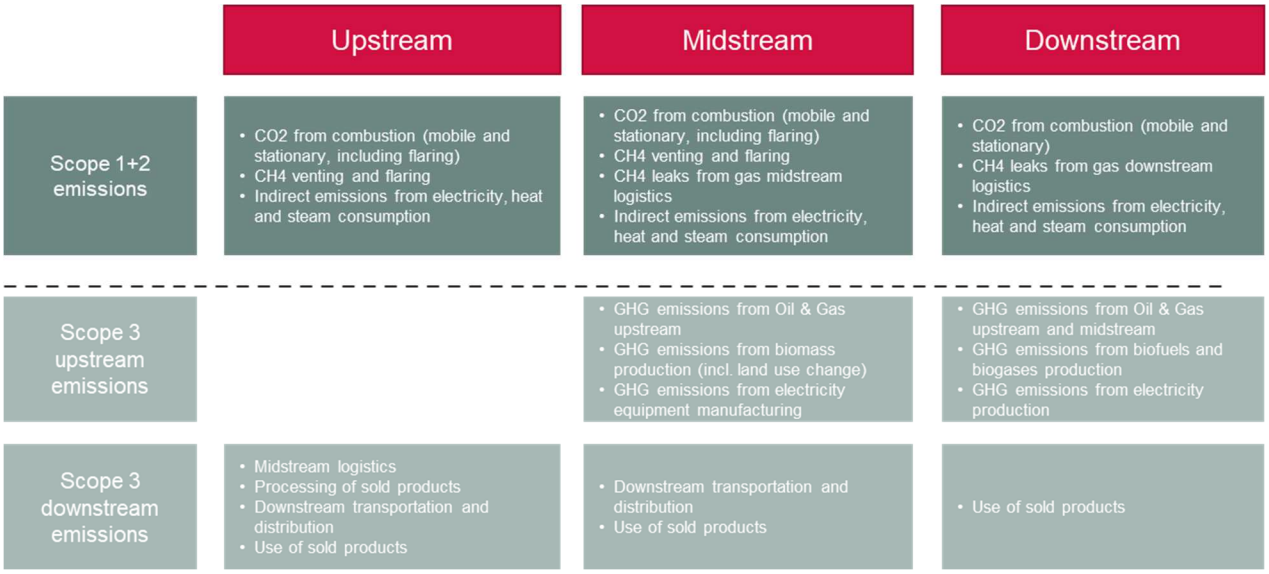


FIGURE 4 - GHG BOUNDARIES FOR THE DIFFERENT ACTIVITIES OF O&G SECTOR

3.2. BOUNDARIES OF ASSESSED PRODUCTS

It is important to clearly define which products of the O&G value chain are to be considered for the calculation of companies' emissions intensity. In alignment with the Transition Initiative Pathway (TPI), only products that are externally sold and dedicated to energetic uses, all along the value chain, are to be considered [7], which encompass:

- Unrefined, refined, and finished products (extraction, refining, blending steps being operated by the company)
- Physically traded products (for cases where companies are selling products they bought but not produced)
- Electricity

[v] Equity share shall be favored since it takes into account the % of company's share in all its own activities (See GHG protocol).

Heat (part of Scope 2 calculations) is not considered in the ACT O&G methodology since companies within this sector do not integrate it to their business model. Indeed generated heat is always consumed on site to ensure the own needs of companies.

Products that are dedicated to non-energetic uses are excluded from the ACT O&G methodology scope (petrochemicals are considered in the ACT Chemicals methodology).

3.3. RATIONALE

Because of the key role of O&G sector in the climate transition, it has been proposed to include almost all GHG sources in the reporting boundaries, from Scope 1 to Scope 3 upstream and Scope 3 Combustion of sold products:

- Scope 1+2 GHG emissions are relevant at every step of the value chain, and are under the control of the O&G company,
- Scope 3 upstream GHG emissions are key for midstream and downstream activities, in order to integrate efforts of companies to source low carbon feedstock and products,
- Scope 3 Combustion of sold products is the major stake in the climate transition and is dependent of the product mix brought to the market by the O&G companies.

4. Construction of the data

4.1. DATA SOURCES

In order to carry out a company level assessment, many data points need to be gathered which can be sourced from various sources. Principally, ACT relies on the voluntary provision of data by participating companies. These data points can concern volume of energy processed, emissions intensities at a particular step of the value chain and for a particular energy type, low carbon and mitigation technologies CAPEX etc.

Next to this however, external data sources (like Rystad[vi], WoodMckenzie[vii], etc.) might be consulted where this would streamline the process, ensure fairness, and provide additional value for verification and validation. In addition to data collection from companies, the World Benchmarking Alliance (WBA) is using publicly available information to generate benchmarks of ACT assessed companies.

The low carbon scenarios used as benchmark for the quantitative indicators come from external sources and are detailed in the Section 5.1. They may need to be updated in the future, according to the latest methodological developments of the scenarios.

4.2. COMPANY DATA REQUEST

The data request is presented to companies in a comprehensive data collection format.

4.3. GHG EMISSIONS INTENSITY REPORTING TOOL

What is this tool for?

According to IPIECA recommendations [8] and to voluntary disclosures of some O&G companies, ACT O&G proposes using a carbon intensity indicator per unit of supplied energy. This emissions intensity metric encompasses all scopes of emissions: Scope 1+2 and Scope 3 (upstream, downstream, combustion/use) over the whole life cycle of the supplied energy (see Figure 4). It uses as a denominator the supplied energy at the different steps of the value chain, expressed in primary energy (TJ).

[vi] https://www.rystadenergy.com/

[vii] https://www.woodmac.com/

Why a specific ACT – GHG intensity reporting tool?

GHG emissions reporting, already used for a number of years, is quite well known and many dedicated tools are already available. However, considering carbon intensity metric scope and calculation rules, methodologies are not identical. Furthermore, each methodology shows large room to manoeuvre.

As an illustration, IPIECA recommendations are based on “should” phrases regarding: the type of GHG to be considered, the business activities causing GHG emissions, the contribution of stationery and mobiles sources of emissions, and so on. Under such circumstances, one can see that GHG emissions reporting results (starting from the same configuration) may vary between users.

Consequently, it would not be possible to compare companies that are assessed by ACT if they do not calculate their carbon intensity metric in the same way. Hence the motivation to develop a dedicated LCA tool integrated into the ACT O&G methodology.

Which data?

This performance metric is to be calculated with a dedicated tool provided to support the ACT O&G sector methodology, and presented in a spreadsheet format. It is based on specific inputs from the company, at the following times:

- Reporting year
- Reporting year – 5 (trends)
- Reporting year + X (targets for the longest time horizon available)

Two categories are distinguished: fossil and bio-fuels, and electricity. For both categories, volumes of supplied energy shall be listed by energy type (oil, natural gas, coal, wind, etc). Scope 1+2 emissions intensity are to be completed, distinction being made between the companies, joint-ventures and suppliers’ one.

What results are obtained from the tool?

Here is a preliminary view of the results (expressed in gCO_2e/TJ of primary energy) that are obtained:

TABLE 4: ILLUSTRATION OF ACT O&G EXCEL TOOL

		Scope 1+2	Scope 3	Scope 1+2+3
Fossil & Biofuels	Upstream	4,6	0,8	**5,4**
	Midstream	9,5	3,2	**12,6**
	Downstream	1,6	0,4	**2,0**
	Use		50,6	**50,6**
Electricity		0,0	0,0	**0,0**
Global emissions intensity		15,7	54,9	**70,6**

"Fossil & Biofuels" concerns the Upstream, Midstream, Downstream and Use steps of the value chain of fossil energies and biofuels when the company does not produce or sell electricity.

"Electricity" concerns the Generation and Transmission & Distribution of electricity. For example, if the company produces gas used to generate electricity, this gas will be accounted in the "Electricity" section.

Which indicators are based on these calculations?

This carbon intensity metric is used in different performance indicators of the framework, listed in Table 5.

TABLE 5: O&G INDICATORS BASED ON GHG EMISSIONS INTENSITY CALCULATIONS

Number	Indicator
OG 1.1	Alignment of Scope 1+2 emissions reduction targets
OG 1.2	Alignment of Scope 1+2+3 emissions reduction targets
OG 2.1	Trend in past Scope 1+2 emissions intensity
OG 2.3	Trend in future Scope 1+2 emissions intensity
OG 4.1	Trend in past Scope 1+2+3 emissions intensity
OG 4.2	Trend in future Scope 1+2+3 emissions intensity

4.4. PERFORMANCE INDICATORS

The performance indicators have been conceived following the main principles described in Chapter 2.

Overview of the Key Performance Indicators used in the ACT O&G methodology

TABLE 6: KEY PERFORMANCE INDICATORS USED BY O&G COMPANIES IN ACT SECTOR ASSESSMENT

		Integrated Oil & Gas		
		Past	**Present**	**Future**
1.Targets		IOG 1.4 Historic Target Ambition and Company Performance		IOG 1.1 Alignment of Scope 1+2 emissions reduction targets IOG 1.2 Alignment of Scope 1+2+3 emissions reduction targets IOG 1.3 Time horizon of targets
Core business performance	**2. Material Investment**	IOG 2.1 Trend in past Scope 1+2 emissions intensity		IOG 2.2 Emissions lock-in IOG 2.3 Trend in future Scope 1+2 emissions intensity IOG 2.4 Share of unsanctioned projects within carbon budget IOG 2.5 Low carbon and mitigation technologies CAPEX share IOG 2.6 Carbon removal technologies (CDR) and carbon capture, use and storage technologies (CCS, CCUS) CAPEX share
	3. Intangible investment		IOG 3.1 R&D in Low carbon and mitigation technologies IOG 3.2 R&D in Carbon removal technologies (CCS, CCUS, CDR)	
	4. Sold product performance	IOG 4.1 Trend in past Scope 1+2+3 emissions intensity	IOG 4.4 Energy efficiency services share	IOG 4.2 Trend in future Scope 1+2+3 emissions intensity IOG 4.3 Trend in future low-carbon products share
	5. Management		IOG 5.1 Oversight of climate change issues IOG 5.2 Climate change oversight capability IOG 5.4 Climate change management incentives	IOG 5.3 Low carbon transition plan IOG 5.5 Climate change scenario testing
Influence	**6. Supplier**	IOG 6.2 Activities to influence suppliers to reduce their GHG emissions		IOG 6.1 Strategy to influence suppliers to reduce their GHG emissions
	7. Client	IOG 7.2 Activities to influence consumer behaviour to reduce their GHG emissions		IOG 7.1 Strategy to influence customer behaviour to reduce their GHG emissions
	8. Policy engagement		IOG 8.1 Company policy on engagement with trade associations IOG 8.2 Trade associations supported do not have climate-negative activities or positions IOG 8.3 Position on significant climate policies	
9. Business model			IOG 9.1 Business activities that drive the energy mix to low-carbon energy IOG 9.2 Business activities that contribute to the reduction of the energy demand IOG 9.3 Business activities that develop CCS, CCUS technologies and negative emissions	

Refer to the Appendix for more details on the specific performance metric – Scope 1+2 and Scope 1+2+3 emissions intensity per supplied energy (tCO_2e/TJ of primary energy

TARGET INDICATORS (WEIGHTING: 15%)

OG 1.1 ALIGNMENT OF SCOPE 1+2 EMISSIONS REDUCTION TARGETS (WEIGHTING: 2-8%)

Description & Requirements

OG 1.1 Alignment of Scope 1+2 emissions reduction targets

Short description of indicator

This metric assesses using a compound approach, the company's Scope 1+2 emissions reduction targets with their decarbonization pathway. It will assess the alignment of the different Scope 1+2 intensity targets at the different steps of the value chain (mainly upstream and midstream).

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A1: Emissions intensity targets (reporting year Y and longest time horizon available) for each step of the value chain and for oil products and natural gas (Scope 1+2):
  - Steps of the value chain to be considered when relevant: Upstream, Midstream and Downstream according to the definition laid down earlier in this document.
  - Only oil products and natural gas are considered for this indicator

CDP Questionnaire mapping to this indicator:

- C4.1c
- C6.1
- C6.3
- C6.5
- C6.10
- C-OG6.12
- C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

- C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7
- C8.2
- C8.2d
- C-OG9.2a
- C-OG9.3a
- C-OG9.3d
- C-OG9.8b

External sources of data used for the analysis of this indicator are:

- Low carbon scenario - background scenario data (IEA WEO SDS O&G report [6] used to date)
- ADEME, Base carbone [9] – default modelling parameters

The benchmark indicators involved are:

TARGET TYPE	PARAMETER	INTENSITY METRIC	BENCHMARK
Scope 1+2 intensity	CB_{SC1+2}	tCO_2e/TJ	Low carbon scenario (IEA WEO SDS used to date)

Emissions intensities are expressed in tCO_2e/TJ of supplied energy:

- tCO_2e corresponds to the emission of CO_2 equivalent emissions related to the Scope 1+2 of the O&G company. The emissions are gross emissions, except in cases where CCS is implemented within operating scope (e.g. refining of oil products) and thus reduces emissions released to the atmosphere.
- TJ corresponds to the quantity of primary energy that has been supplied at the end of each of the three steps in the O&G value chain: O&G extracted (step Upstream), processed (step Midstream) and sold to final users (step Downstream).

If the CO_2e emissions from operated Joint-Ventures (JVs) are reported in the Scope 1+2 by the company, they shall be reported in this indicator as well.

Refer to the Appendix for more details on how the tool works.

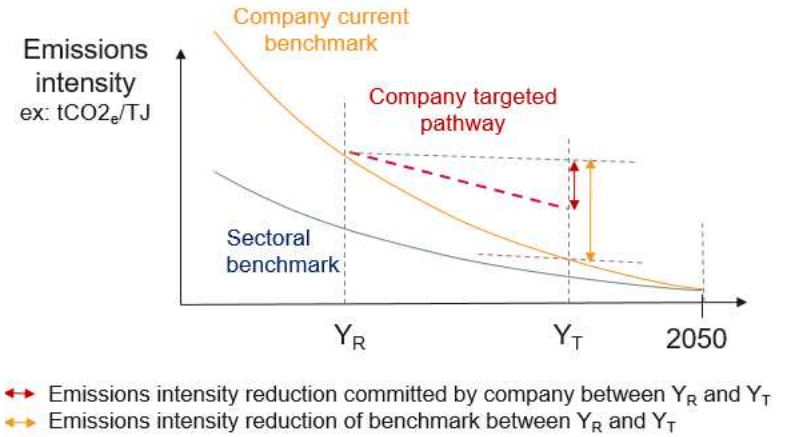
How the assessment will be done

The score is calculated by dividing the company intensity reduction engagement by the specific benchmark emission intensity reduction between the reporting year and the target year through the commitment gap.

Calculation of score

$$Commitment\ Gap = \frac{EI_C(Y_T) - EI_C(Y_R)}{EI_B(Y_T) - EI_B(Y_R)}$$

$$Score = 1 - Commitment\ gap$$



Where:

- $EI_C(Y_T)$ is the company Scope 1+2 emissions intensity at target year
- $EI_C(Y_R)$ is the company Scope 1+2 emissions intensity at reporting year
- $EI_B(Y_T)$ is the benchmark Scope 1+2 emissions intensity at target year
- $EI_B(Y_R)$ is the benchmark Scope 1+2 emissions intensity at reporting year

The score shall lie between 0 and 1, thus:

- If commitment gap < 0 then score = 0
- If commitment gap ≥ 1 then score = 1

If the target coverage of total company emissions at reporting year C(Y_R) represents less than 95%, then the score is multiplied by this target coverage.

If the company has set several targets, the consolidation of the scores assigned to each target will be based on the share of emissions covered by the targets. The pathways are expressed in tons of CO_2e/TJ (intensity measure). Where necessary, targets will be normalized to this unit to enable the comparison.

Rationale

OG 1.1 Alignment of Scope 1+2 GHG intensity reduction targets

Rationale of the indicator

Relevance of the indicator:

Emissions reduction targets related to the Scope 1+2 are included in the ACT O&G assessment for the following reasons:

1. Targets are an indicator of corporate commitment to reduce emissions and are a meaningful metric of the company's internal planning towards the transition.
2. Targets are one of the few metrics that can predict a company's long-term plans beyond that which can be projected in the short-term, satisfying ACT's need for indicators that can provide information on the long-term future of a company.
3. For example, Scope 1+2 - Upstream, Midstream and Downstream steps of the value chain - emissions represent 19% of total GHG emissions for oil products along the value chain and therefore represent a significant source of emissions which should be considered. The remaining 81% come from the Use step of the value chain (see Section 3.1).

Scoring rationale

The emission intensity targets from the low carbon scenario have been divided into categories such as "Methane reductions" or "Use of CCUS in refining", amongst others. They do not distinguish between gas and oil products. These reduction targets have been allocated to each step of the value chain of Scope 1+2 (Upstream, Midstream, Downstream), and by gas energy or oil products.

Targets are quantitatively interpreted and directly compared to the low carbon benchmarks for the sector, using the low carbon benchmark, which is further explained in Section 5.1.

Targets are compared to the benchmark directly, and the relative gap is calculated compared to the business-as-usual pathway. The gap method was chosen for its relative simplicity in interpretation and powerful message, which aligns with the UNEP's narrative of the global commitment gap of the UNFCCC Climate Agreements [10]. The simple percentage score also needs no further computation to become meaningful on its own, as well as be useable for aggregation in the performance score.

OG 1.2 ALIGNMENT OF SCOPE 1+2+3 EMISSIONS REDUCTION TARGET (WEIGHTING: 4-10%)

Description & Requirements

OG 1.2 Alignment of Scope 1+2+3 emissions reduction targets

Short description of indicator

A measure of the alignment of the company's Scope 1+2+3 emissions reduction targets with their decarbonization pathway. The indicator will identify the gap between the company's targets and the decarbonization pathway as a percentage, which is expressed as the company's commitment gap.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A2: Scope 1+2+3 emissions intensity target (reporting year Y and longest time horizon available) for each step of the value chain and for all energy types. Here the company can fill the emissions intensities of its suppliers and of its JVs which are not reported in the Scope 1+2 (e.g. not operated JVs).

CDP Questionnaire mapping to this indicator:

- C4.1c
- C6.1
- C6.3
- C6.5
- C6.10

- C-OG6.12
- C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4
- C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7
- C8.2
- C8.2d
- C-OG9.2a
- C-OG9.3a
- C-OG9.3d
- C-OG9.8b

External sources of data used for the analysis of this indicator are:

- Low carbon scenario - background scenario data (IEA ETP 2020 SDS [11] used to date)
- ADEME, Base carbone [9] – default modelling parameters

The benchmark indicators involved are:

TARGET TYPE	PARAMETER	INTENSITY METRIC	BENCHMARK
Scope 1+2+3 intensity	$CB_{SC1+2+3}$	tCO_2e/TJ	Low carbon scenario (IEA ETP SDS used to date)

A calculated emissions intensity is expressed in tCO_2e/TJ. Several energy types can be selected (e.g. natural gas, oil products, bio-methane, etc.) and the company selects those it processes. The GHG emissions include emissions from all 3 steps of the value chain (Upstream, Midstream and Downstream) as well as the Combustion /Use step.

Refer to the Appendix for more details on how the tool works.

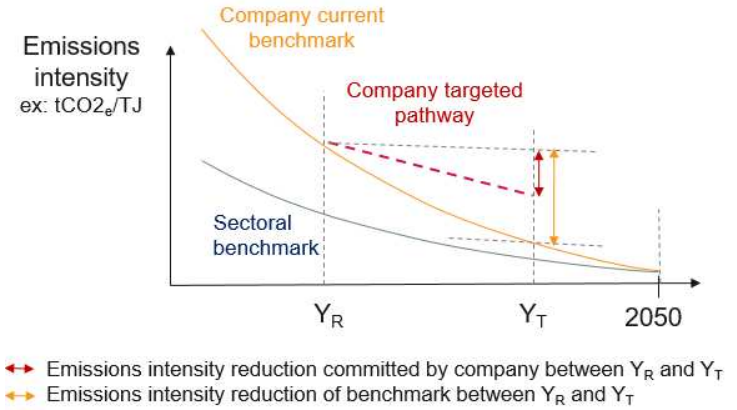
How the assessment will be done

The score is calculated by dividing the company intensity reduction engagement by the specific benchmark emission intensity reduction between the reporting year and the target year through the commitment gap.

Calculation of score

$$Commitment\ Gap = \frac{EI_C(Y_T) - EI_C(Y_R)}{EI_B(Y_T) - EI_B(Y_R)}$$

$$Score = 1 - Commitment\ gap$$



Where:

- $EI_C(Y_T)$ is the company Scope 1+2+3 emissions intensity at target year
- $EI_C(Y_R)$ is the company Scope 1+2+3 emissions intensity at reporting year
- $EI_B(Y_T)$ is the company benchmark Scope 1+2+3 emission intensity at target year
- $EI_B(Y_R)$ is the company benchmark Scope 1+2+3 emission intensity at reporting year

The score shall lie between 0 and 1, thus:

- If commitment gap < 0 then score = 0
- If commitment gap ≥ 1 then score = 1

If the target coverage of total company emissions at reporting year C(Y_R) represents less than 95%, then the score is multiplied by this target coverage.

If the company has set several targets, the consolidation of the scores assigned to each target will be based on the share of emissions covered by the targets. The pathways are expressed in tons of CO_2e/TJ (intensity measure). Where necessary, targets will be normalized to this unit to enable the comparison.

Rationale

OG 1.2 Alignment of Scope 1+2+3 carbon intensity per supplied energy reduction targets

Rationale of the indicator

Relevance of the indicator:

Emissions reduction targets related to the Scope 1+2+3 emissions per supplied energy are included in the ACT O&G assessment for the following reasons:

1. Targets are an indicator of corporate commitment to reduce emissions and are a meaningful metric of the company's internal planning towards the transition.
2. Targets are one of the few metrics that can predict a company's long-term plans beyond that which can be projected in the short-term, satisfying ACT's need for indicators that can provide information on the long-term future of a company.
3. The O&G companies cover a large range of activities in the sector, they take responsibility of the climate impact of O&G products at several points in the economic chain. The Life Cycle Analysis of the O&G products, on all the GHG Scopes, is therefore a relevant tool to be used in order to embrace the diverse sources of emissions caused by O&G business models.
4. Even if the indicator is a GHG intensity indicator which is compared to a GHG intensity pathway in the low carbon scenario, it has to be kept in mind that this GHG intensity pathway has been calculated to be consistent with a decline of absolute GHG emissions required in the low carbon scenario taken as a benchmark.

Scoring rationale

Targets are quantitatively interpreted and directly compared to the low carbon benchmarks for the sector, using the low carbon benchmark, which is further explained in Section 5.1.

Targets are compared to the benchmark directly, and the relative gap is calculated compared to the business-as-usual pathway. The gap method was chosen for its relative simplicity in interpretation and powerful message, which aligns with the UNEP's narrative of the global commitment gap of the UNFCCC Climate Agreements [10]. The simple percentage score also needs no further computation to become meaningful on its own, as well as be useable for aggregation in the performance score.

Intensity Metric Rationale

The indicator is calculated as the Scope 1+2+3 CO_2e emissions divided by the primary energy supplied by the company. This means that for the numerator all the emissions from the/caused by the product along the value chain shall be considered in the calculation. For example, if a retail station company is selling motor gasoline and diesel, the calculation shall consider all the CO_2e emissions due to:

- the extraction of the crude,
- the primary transportation and logistics,
- the refining of the crude into the final products,
- the secondary transportation and logistics,
- the combustion of the sold motor gasoline and diesel.

The same approach can be applied for an Exploration and Production company, for which all the downstream emissions are to be taken into account in addition to the extraction related emissions.

OG 1.3 TIME HORIZON OF FUTURE TARGETS (WEIGHTING: 2%)

Description & Requirements	OG 1.3 Time horizon of future targets
Short description of indicator	A measure of the time horizon of company future targets. The ideal set of targets is forward looking enough to include a long-time horizon that includes the majority of a company's asset lifetimes, but also includes short-term targets that incentivize action in the present.
Data requirements	The question comprising the information request that are relevant to this indicator are: ♦ A3: All emissions intensity targets for each step of the value chain, precising energy types and endpoints

CDP Questionnaire mapping to this indicator:

- C4.3
- C4.3a
- C4.3b

External sources of data used for the analysis of this indicator are:

- Lifetime of Upstream assets – IEA WEO, 2008 edition [12]

How the assessment will be done

The analysis has two dimensions:

1. A comparison of: (a) the longest time horizon of the company's targets, and (b) the long-term point fixed by ACT assessment methodology.
2. The company has interval targets that ensure both short and long-term targets are in place to incentivize short-term action and communicate long-term commitments.

Dimension 1: Target endpoint

The company's target endpoint (T_e) is compared to the long-term point (LT), which is defined as 2050 minus the reporting year, aligned with the low carbon scenario. Setting 2050 as the horizon is consistent with a low carbon scenario timeline and with the fact that the average lifetime of upstream portfolio assets is usually more than 30 years.

$$LT = 2050 - reporting\ year$$

The company's target endpoint (T_e) is equal to the longest time horizon among the company's targets, minus the reporting year:

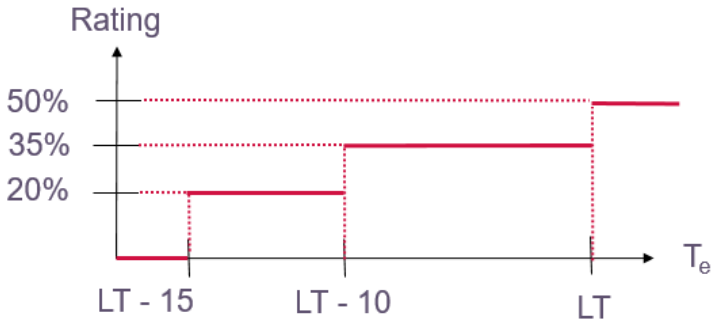
$$T_e = Longest\ target\ time\ horizon - reporting\ year$$

The horizon gap is equal to:

$$Horizon\ gap = LT - T_e$$

The company's target endpoint is compared according the following scoring table:

Horizon gap	Score
LT - $T_e \leq 0$	50 %
LT - $T_e \leq 10$	35 %
LT - $T_e \leq 15$	20 %
LT - $T_e > 15$	0 %



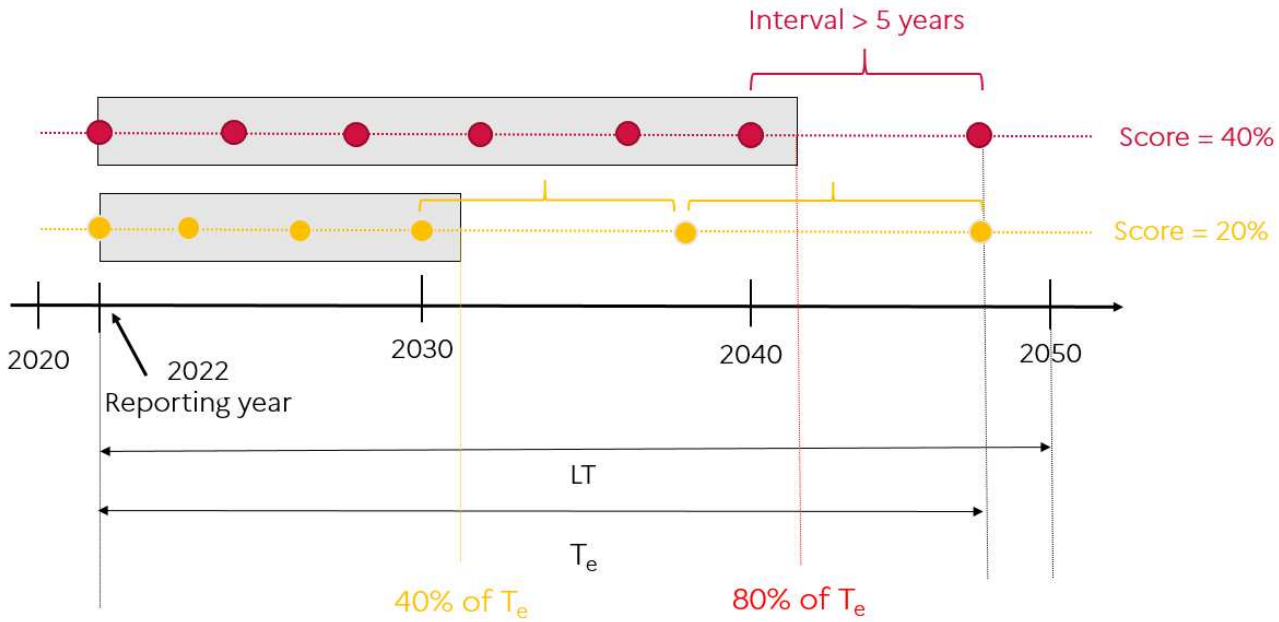
Dimension 2: Intermediate horizons

All company targets and their endpoints are calculated and plotted. The ideal scoring company does not have intervals between target endpoints larger than 5 years from the reporting year. Measurements are done in five-year intervals between the reporting year and 2050.

The company's targets are compared according to the following scoring table:

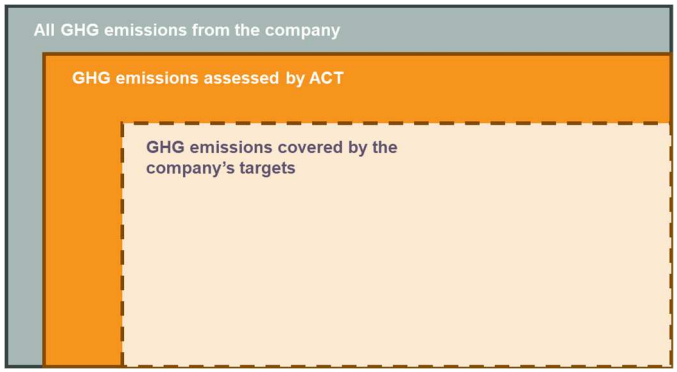
Intermediate target gaps	Score
All the gaps during T_e are equal or less than 5 years	50%
All the gaps until 80% of T_e are equal or less than 5 years	40%
All the gaps until 60% of T_e are equal or less than 5 years	30%
All the gaps until 40% of T_e are equal or less than 5 years	20%
All the gaps until 20% of T_e are equal or less than 5 years	10%
All the gaps of 5 years or less do not reach 20% of T_e or there is no such gaps disclosed by the company	0%

An example is shown below:



For all calculations:

Targets covering > 95% of generation emissions are preferred in the calculations. If no such targets are available, then the score will be adjusted downwards equal to the % coverage that is missing. Below is an illustration of emissions covered by targets that are considered for calculation:



Aggregate score: Dimension 1: 50%, Dimension 2: 50%.

Rationale

OG 1.3 Time horizons of targets

Rationale of the indicator

Relevance of the indicator:

The time horizon of targets is included in the ACT OG assessment for the following reasons:

1. The target endpoint is an indicator of how forward looking the company's transition strategy is.
2. The very long expected lifetime of O&G infrastructure means that O&G companies 'commit' a large amount of carbon emissions into the future through the assets owned today, which requires targets that have time horizons which align with this reality.
3. Aside from communicating long-term commitments, short-term action needs to be incentivized. This is why short time intervals between targets are needed and weight for 60% of the indicator's score.

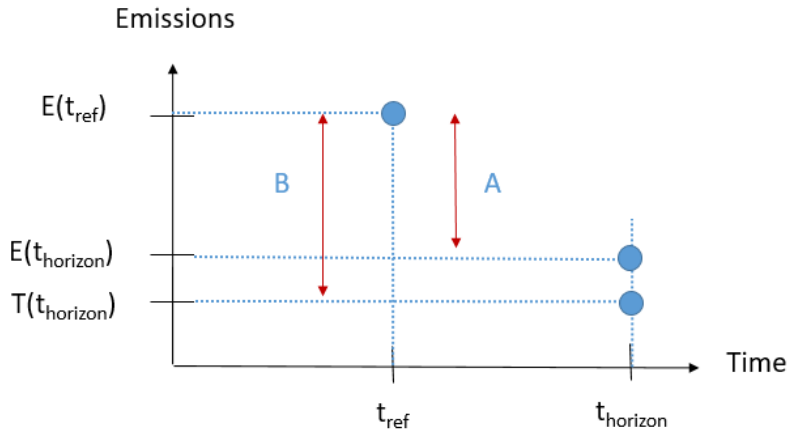
Scoring rationale.

The score of this indicator is tied to how the target timeline compares to the lifetimes of the company's owned assets. The company has a 'horizon gap' if its targets do not include a significant portion of the products sold. It is however recognized that some assets may have lifetimes that extend beyond meaningful target endpoints.

OG 1.4 HISTORIC TARGET AMBITION AND COMPANY PERFORMANCE (WEIGHTING: 1%)

Description & Requirements	OG 1.4 Historic Target Ambition and Company Performance
Short description of indicator	A measure of the company's historic target achievements and current progress towards active emission reduction targets. All the scopes of the company are considered. The ambition of the target is qualitatively assessed and is not included in the performance indicators.
Data requirements	The questions comprising the information request that are relevant to this indicator are: ♦ A4: Past internal targets set on carbon performance, either expressed as absolute (tCO_2e) or intensity (tCO_2e/TJ of primary energy) targets CDP Questionnaire mapping to this indicator: - C4.1 - C4.1b
How the assessment will be done	For the performance score, this will assess on two dimensions and companies achieve the maximum score if: **Dimension 1:** The company has achieved all previous emissions reduction targets with a target year in the past 10 years. If all past targets are achieved, the highest score is obtained. If not, the achievement ratio a is computed as follows:

$$a = \frac{E(t_{ref}) - E(t_{horizon})}{E(t_{ref}) - T(t_{horizon})} = \frac{A}{B}$$



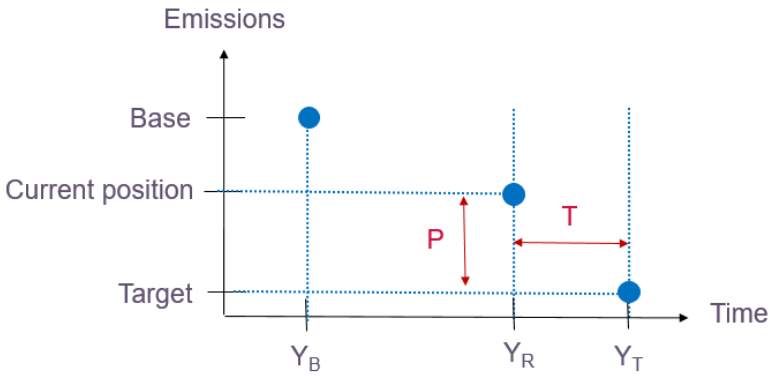
Where:

- $E(t_{ref})$ is the level of emissions of the company in the year the target was set
- $T(t_{horizon})$ is the target the company set (a given level of emissions at a given horizon year, now past)
- $E(t_{horizon})$ is the effective level of emissions reached by the company in the target horizon year.

A threshold is set for scoring at 0.5: if the company has achieved less than 50% of its own historic target, it receives a score of zero. If the company has several historic targets over the last 10 years, the ratio a shall be computed for each target, and the average of all a ratio shall be used for scoring.

Dimension 2: The company is currently on track to meet an existing emissions reduction target, where the ratio between the remaining time period and the level remaining to target achievement (Progress Ratio *p*) is not lower than 0.5:

$$p = \frac{1 - \%\ time}{1 - \%\ complete} = \frac{T}{P}$$



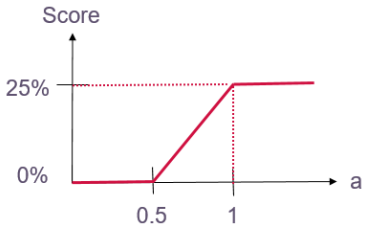
Where:

- *(1 - %time)* is the percentage of time remaining
- *(1 - %complete)* is the percentage of reductions remaining to achieve the target

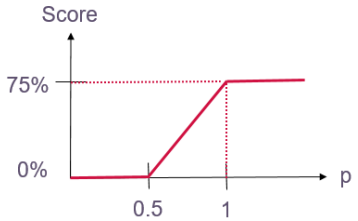
A threshold is set for scoring at 0.5. The highest score is attained if *p* is ≥ 1. A percentage score is assigned if 0.5 ≤ *p* < 1.

Aggregate score of the indicator

Dimension 1: 25%



Dimension 2: 75%



For all calculations:

- Companies who do not have targets with target years in the past but only with target years in the future are not assessed on dimension 1, but only on dimension 2.
- If the company has multiple targets in different scopes that can be assessed according to the above criteria, then the score will be an average based on the progress ratios of all targets assessed.

The performance score does not assess the ambition level of previous targets, and therefore dimension 1 only has a low weight in the final performance score. This information is also qualitatively assessed in the assessment narrative, which considers the following dimensions:

1. Achievement level: To what extent has the company achieved its previously set emissions reduction targets.
2. Progress level: To what degree is the company on track to meet its currently active emissions reduction targets?
3. Ambition level: What level of ambition do the previously achieved emissions reduction targets represent?

Rationale

OG 1.4 Historic target ambition and company performance

Rationale of the indicator

Relevance of the indicator

The historic target ambition and company performance is included in the ACT OG assessment for the following reasons:

- The ACT assessment looks only to the past to the extent that it can inform the future. This indicator is future-relevant by providing information on the organizational capability to set and meet emissions reduction targets. Dimension 1 of this indicator adds credibility to any company claim to commit to a science-based reduction pathway.
- Indicators 1.1 – 1.2 look at targets in a vacuum. Dimension 2 of this indicator adds value to the assessment by comparing the company's performance with respect to their targets in the reporting year.

Scoring rationale

Previous target achievement is not straightforward to interpret quantitatively. Therefore, the performance score makes no judgement of previous target ambition and leaves it to the assessment narrative for a meaningful judgement on the ambition level of past targets.

- Dimension 1 of the performance score will penalize companies who have not met previous targets in the past 10 years, as this means the company has lower credibility when setting ambitious science-based targets.
- Dimension 2 uses a simple ratio sourced from existing CDP data points (CC 3.1e) in order to compare targets. The threshold 0.5 was chosen as it allows companies some flexibility with respect to the implementation of the target, while retaining the ability to flag companies who are definitely not on track towards achieving their targets. When $p < 0.5$, the company needs to reduce emissions at twice the rate of the original target.

MATERIAL INVESTMENT (WEIGHTING: 5-40%)

OG 2.1 TREND IN PAST SCOPE 1+2 EMISSIONS INTENSITY (WEIGHTING: 2-5%)

Description & Requirements

OG 2.1 Trend in past Scope 1+2 emissions intensity

Short description of indicator

A measure of the alignment of the company's recent emissions intensity for Scope 1+2, with that of their decarbonization pathway. The indicator will compare the gradient of this trend over a 5-year period to the reporting year (reporting year minus 5 years) with the decarbonization pathway trend over a 5-year period after the reporting year.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A5: Emissions intensity for the years Y-5 prior to the reporting year and the reporting year Y for each step of the value chain and for oil products and natural gas (Scope 1+2):
  - Steps of the value chain to be considered when relevant: Upstream, Midstream and Downstream according to the definition laid down earlier in this document.
  - Only oil products and natural gas are considered for this indicator

CDP Questionnaire mapping to this indicator:

- C6.1
- C6.3
- C6.5
- C6.10
- C-OG6.12
- C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4
- C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7
- C8.2
- C8.2d

- C-OG9.2a
- C-OG9.3a
- C-OG9.3d
- C-OG9.8b
- C7.9

External sources of data used for the analysis of this indicator are:

- Low carbon scenario - background scenario data (IEA WEO SDS O&G report [6] used to date)
- ADEME, Base carbone [9] – default modelling parameters

The benchmark indicators involved are:

TARGET TYPE	PARAMETER	INTENSITY METRIC	BENCHMARK
Scope 1+2 intensity	CB_{SC1+2}	tCO_2e/TJ	Low carbon scenario (IEA WEO SDS used to date)

Emissions intensities are expressed in tCO_2e/TJ of supplied energy:

- tCO_2e corresponds to the emission of CO_2 equivalent emissions related to the Scope 1+2 of the O&G company. The emissions are gross emissions, except for the case where CCS are implemented within operation scope (e.g. refining of oil products) and reduce therefore the emissions released to the atmosphere.
- TJ corresponds to the quantity of primary energy that has been supplied at the end of each of the 3 steps in the O&G value chain: O&G extracted (step Upstream), processed (step Midstream) and sold to final users (step Downstream).

If the CO_2e emissions from operated JVs are reported in the Scope 1+2 by the company, they shall be reported in this indicator as well.

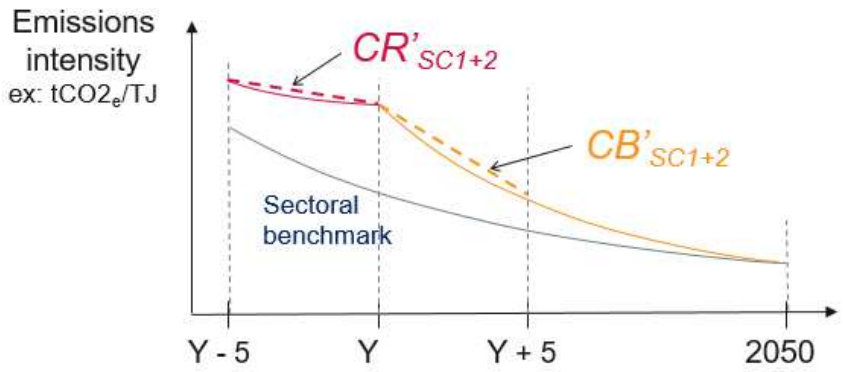
Refer to the Appendix for more details on how the tool works.

How the assessment will be done

The analysis is based on the difference, for Scope 1+2, between the company's recent generation emissions intensity trend gradient (CR'_{SC1+2}) and the company's decarbonization pathway trend gradient (CB'_{SC1+2}) in the short-term.

The 'Transition ratio' is calculated by the following equation:

$$r_{SC1+2} = \frac{CR'_{SC1+2}}{CB'_{SC1+2}}$$



Where:

- CR'_{SC1+2} is the gradient of the linear trend-line of the company's recent generation emissions intensity over time (reporting year minus 5 years).
- CB'_{SC1+2} is the gradient of the linear trend-line of the company benchmark pathway in the short-term (reporting year plus 5 years). Refer to the ACT Framework and the SDA methodology for details on the computation of the company specific decarbonization pathway and its trend line.

If the transition ratio is a negative number, it means the company's recent emissions intensity has increased (positive CR'_{SC1+2}) and a 0 score is awarded by default. If the company's recent emissions intensity has decreased, the transition ratio will be a number between 0 and 1. A score is assigned as a percentage value equal to the value of r_{SC1+2} (1 = 100%).

Rationale

OG 2.1 Trend in past Scope 1+2 emissions intensity

Rationale of the indicator

Relevance of the indicator

Trend in past emissions intensity is included in the ACT assessment for the following reasons:

1. The trend shows the speed at which the company has been reducing its emissions intensity over the recent past. Comparing this to the decarbonization pathway gives an indication of the scale of the change that needs to be made within the company to bring it onto a low carbon pathway.
2. While ACT aims to be future-oriented it does not want to rely solely on projections of the future as this would make the analysis too vulnerable to the uncertainty of the projections. Therefore, this particular measure, along with projected emissions intensity and absolute emissions, forms part of a holistic view of company emissions performance in the past, present, and future.
3. For example, Scope 1+2 - Upstream, Midstream and Downstream steps of the value chain - emissions represent 19% of total GHG emissions for oil products along the value chain and therefore represent a significant source of emissions which should be considered. The 81% left come from the Use step of the value chain (see Section 3.1).

Scoring rationale

While ‘gap type’ scoring is preferred for any indicator where possible, this indicator only looks at past emissions, and would therefore require a different baseline in order to generate a gap method. Consequently, ‘trend type’ scoring is preferred here. Another advantage of the trend analysis is that it does not require the use of a ‘business as usual’ pathway to anchor the data points and aid interpretation, as trends can be compared directly, and a score can be generated from the resulting ratio.

OG 2.2 EMISSIONS LOCK-IN (WEIGHTING: 0-8%)

Description & Requirements

OG 2.2 Emissions lock-in

Short description of indicator

A measure of the company’s cumulative emissions from the reporting year up to 2050 from currently producing and under development O&G upstream assets of the company. The indicator will compare this to the emissions budget from the company’s energy production

intensity decarbonization pathway as defined in a low carbon scenario. The indicator characterizes the extent to which the company, through its O&G locked-in production, will overshoot its carbon budget.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A6: Upstream: yearly production of currently producing and under development assets of fossil primary fuels (aggregated by fuel: oil, gas and coal) as from the date of reporting and projected up to 2050

CDP Questionnaire mapping to this indicator:

- No match

In case of difficulty obtaining this information, the ACT framework may use 3rd party databases to provide an estimate of the production data series, aggregated by fuel and company.

Midstream assets such as refineries, LNG plants and pipelines are excluded.

External sources of data used for the analysis of this indicator are:

- Low carbon scenario – background scenario data (IEA ETP 2020 - SDS [11] used to date)

The benchmark indicators involved are:

TARGET TYPE	PARAMETER	INTENSITY METRIC	BENCHMARK
Scope 3 use/combustion emissions	B_G	tCO_2e	Low carbon scenario (IEA ETP SDS used to date)

How the assessment will be done

The analysis is based on the ratio between the GHG emissions (limited to Scope 3 use/combustion) $L_G(t)$ related to the locked-in upstream fossil energy production of the company (currently producing and under development) from the reporting year to 2050, and the company's upstream carbon budget $B_G(t)$ over the same period of time.

The locked-in ratio $r_{AO}(t)$ is calculated as follows:

$$r_{AO}(t) = \frac{L_G(t)}{B_G(t)}$$

$L_G(t)$ is calculated as the total cumulative GHG emissions (Scope 3 use/combustion) implied by currently upstream producing and under development assets (investment decision confirmed/project “sanctioned”) that are going to be commissioned in the future. It excludes any future production of fossil fuels reserves classified as contingent at the date of reporting.

$$L_G(t) = \int_{the\ reporting\ year}^{2050} P_G * EF_G * (1 - \%\ non\ energy)_G$$

Where:

- P_G is the fossil fuels production, oil, gas and coal (expressed in TJ)
- EF_G is the Scope 3 use/combustion emissions factor (applied to P_G without distinguishing between types of resources and extraction processes)
- $\%non\ energy$ is the fraction of non-energy final consumption derived from the reference scenario. It is assumed that aggregate oil, gas and coal production of the company will supply final consumption based on the same patterns as in the reference scenario.

Data to be reported by the company covers aggregate oil, natural gas (fossil gas) and coal productions.

$B_G(t)$ is calculated as the company’s upstream carbon budget up until 2050. To that extent, the value of GHG emissions (Scope 3 use/combustion) related to the primary energy supply in the benchmark is divided by the benchmark primary energy supply of the reporting year and multiplied by the company upstream energy production of the reporting year, in order to obtain an absolute emissions curve that can be compared to the company locked-in emissions. The carbon budget is the cumulative GHG emissions from reporting year to 2050, which is equivalent to the area under the absolute emissions reduction curve.

$$B_G(t) = \int_{the\ reporting\ year}^{2050} P_{Bench} * EF_G * (1 - \%\ non\ energy)_G\ * \frac{P_G\ reporting\ year}{P_{Bench}\ reporting\ year}$$

Where:

- P_{Bench} is the fossil fuel production of oil, gas and coal
- EF_G is the Scope 3 use/combustion emissions factor (applied to P_G without distinguishing between types of resources and extraction processes)
- $P_G\ reporting\ year$ is the company upstream energy production in the reporting year
- $P_{Bench}\ reporting\ year$ is the benchmark primary energy supply in the reporting year
- $\%non\ energy$ is the fraction of non-energy final consumption derived from the reference scenario.

Calculation of score

- $r_{AO} \leq 1$: the company stays within the pathway of locked-in emissions and will be assigned the maximum score (100%).
- $1 < r_{AO} < 1.5$: the company will be assigned a score of (1.5 - r_{AO}) divided by 50%.
- $r_{AO} \geq 1.5$: the company strongly exceeds its carbon budget, and will be assigned the minimum score (0%).

Rationale

OG 2.2 Emissions lock-in

Rationale of the indicator

Relevance of the indicator

Locked-in emissions is included in the ACT assessment for the following reasons:

1. Absolute greenhouse gas emissions over time is the most relevant measure of emissions performance for assessing a company's contribution to global warming.
2. Analysing a company's locked-in emissions alongside science-based budgets also introduces the means to scrutinize the potential cost of inaction, including the probability of stranded assets.
3. Examining absolute emissions, along with recent and short-term emissions intensity trends, forms part of a holistic view of company emissions performance in the past, present, and future.

4. A 2050 horizon has been selected for the locked-in emissions, as locked-in fossil upstream energy production can be planned in the long-term and the shift from fossil to low carbon energies will gradually happen over the 3 next decades

Scoring rationale

This indicator compares over the long term the absolute emissions in the reference scenario pathway and the absolute emissions from the locked-in emissions of currently and under development fossil fuel assets of the company. The trajectory of the company might diverge from the pathway. The magnitude and time span of the divergence provide additional measures of the need for the company to switch to a low carbon model.

Company Assets

- Producing oil, gas and coal upstream assets at the date of reporting
- Under development oil, gas and coal upstream assets at the date of reporting

OG 2.3 TREND IN FUTURE SCOPE 1+2 EMISSIONS INTENSITY (WEIGHTING: 3-8%)

Description & Requirements

OG 2.3 Trend in future Scope 1+2 emissions intensity

Short description of indicator

A measure of the alignment of the company's projected emissions intensity for Scope 1+2 with its decarbonization pathway. The indicator will identify the gap 5 years after the reporting year between the company's performance and the decarbonization pathway, as a percentage, expressed as the company's 'action gap'.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- Part of A1 & A5: Emissions intensity for the year Y for each step of the value chain and for oil products and natural gas (Scope 1+2)

CDP Questionnaire mapping to this indicator:

- C6.1
- C6.3
- C6.5
- C6.10
- C-OG6.12
- C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4
- C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7
- C8.2
- C8.2d
- C-OG9.2a
- C-OG9.3a
- C-OG9.3d
- C-OG9.8b

External sources of data used for the analysis of this indicator are:

- Low carbon scenario - background scenario data (IEA WEO SDS O&G report [6] used to date)
- ADEME, Base carbone [9] – default modelling parameters

The benchmark indicators involved are:

TARGET TYPE	PARAMETER	INTENSITY METRIC	BENCHMARK
Scope 1+2 intensity	CB_{SC1+2}	tCO_2e/TJ	Low carbon scenario (IEA WEO SDS used to date)

Emissions intensities are expressed in tCO_2e/TJ of supplied energy:

- tCO_2e corresponds to the emission of CO_2 equivalent emissions related to the Scope 12 of the O&G company. The emissions are gross emissions, except for the case where CCS are implemented within operation scope (e.g. refining of oil products) and reduce therefore the emissions released to the atmosphere.
- TJ corresponds to the quantity of primary energy that has been supplied at the end of each of the 3 steps in the O&G value chain: O&G extracted (step Upstream), processed (step Midstream) and sold to final users (step Downstream).

How the assessment will be done

The assessment is based on the difference between the company's action pathway (A_{SC1+2}) and the company benchmark (CB_{SC1+2}) between the reporting year and 5 years after.

The company action pathway (A_{SC1+2}) is the company Scope 1+2 emissions intensity over time.

The company benchmark (CB_{SC1+2}) pathway is the 'company Scope 1+2 emissions intensity specific decarbonization pathway'. See Section 5.1 for details on the computation of this pathway.

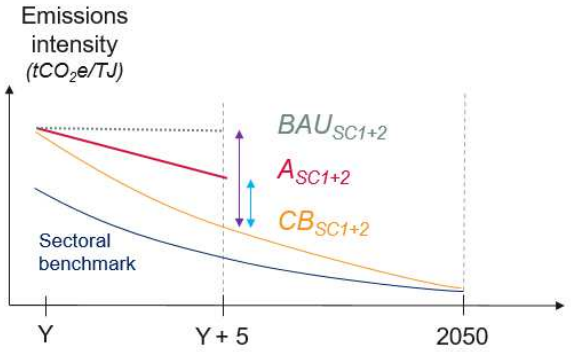
The assessment will compare A_{SC1+2} to CB_{SC1+2} by examining the difference between these pathways 5 years after the reporting year. The pathways are expressed in tons of CO_{2e}/TJ (intensity measure). The result of the comparison is the action gap.

Calculation of score

To assign a score to this indicator, the size of the action gap will be compared to the maximum action gap, which is defined by the business-as-usual pathway (BAU_{SC1+2}). BAU_{SC1+2} is defined as an unchanging (horizontal) intensity pathway, whereby the emissions intensity is not reduced at all over a period after the reporting year.

$$Future\ emissions\ action\ gap = \frac{A_{SC1+2} - CB_{SC1+2}}{BAU_{SC1+2} - CB_{SC1+2}}$$

$$Score = 1 - Future\ emissions\ action\ gap$$



Where:

- A_{SC1+2} is the company Scope 1+2 emissions intensity over time
- CB_{SC1+2} is the 'company Scope 1+2 emissions intensity specific decarbonization pathway

The score assigned to the indicator is expressed as a percentage (1 = 100%). If the company's target is aligned with the sectoral benchmark, then $A_{SC1+2} - CB_{SC1+2} = 0$ and the maximum score is achieved.

Rationale

OG 2.3 Trend in future Scope 1+2 emissions intensity

Rationale of the indicator

Relevance of the indicator

Trend in future emissions intensity is included in the ACT assessment for the following reasons:

1. Recent emissions intensity performance indicates the company's progression towards, or away from, the future emissions intensity necessary for the sector to decarbonize in-line with a low carbon scenario.
2. This indicator is the most valuable in terms of the information it provides on the company's actual action towards decarbonization.
3. This particular measure, along with recent emissions intensity and absolute emissions, forms part of a holistic view of company emissions performance in the past, present, and future.

Scoring rationale

The scoring rationale follows the same narrative as indicator OG 1.1, so refer to the rationale of this indicator to understand the choices made.

Intensity Metric Rationale

See OG 1.1.

OG 2.4 SHARE OF UNSANCTIONED PROJECTS WITHIN CARBON BUDGET (WEIGHTING: 2-8%)

Description & Requirements	OG 2.4 Share of unsanctioned projects within carbon budget
Short description of indicator	The indicator measures the share of unsanctioned projects that are contained in the carbon budget of the company.
Data requirements	The questions comprising the information request that are relevant to this indicator are: CDP Questionnaire mapping to this indicator: - No match External sources of data used for the analysis of this indicator are: ♦ Data from Carbon Tracker ♦ Low carbon scenario – background scenario data (IEA ETP 2020 - SDS [11] used to date) The benchmark indicators involved are:

TARGET TYPE	PARAMETER	INTENSITY METRIC	BENCHMARK
Share of unsanctioned projects within carbon budget	SUP	%	Low carbon scenario (IEA ETP SDS used to date)

How the assessment will be done	Carbon Tracker assesses the extent to which the unsanctioned projects (discovered but not yet sanctioned for development) of upstream and integrated companies aligns with two low carbon scenarios: the B2DS (Beyond 2 Degrees) and the SDS (Sustainable Development) scenarios. The resulting data reflects the percentage of CAPEX under a 'Stated Policies' (STEPS scenario (considered 'business as usual' and aligned with a 50% chance of 2.7°C warming by 2100), that falls outside the carbon budget of a B2DS and a SDS scenario for each company.

The scenario used to define companies benchmark here is the SDS. Carbon Tracker provides the '% of STEPS capex outside SDS budget', expressed as a % band [13]. The average value of this band, S_{UP} (%), is calculated. The indicator score evolves oppositely to this value, i.e. that a high performance is obtained with a low % of CAPEX share falling outside the SDS scenario.

Calculation of score

$$Score\ (\%) = 100\% - S_{UP}$$

Where:

- S_{UP} is the share of CAPEX dedicated to unsanctioned projects falling between the carbon budget of company as determined by low carbon scenario

Rationale

OG 2.4 Share of unsanctioned projects within carbon budget

Rationale of the indicator

Relevance of the indicator

There are finite limits to carbon emissions for any warming outcome. In other words, far more fossil fuel is available than can be burned to stay within Paris limits, hence the so-called "unburnable carbon". Therefore, assuming existing production continues, there is little space for new production in a well-below 2°C scenario. Linking to the global carbon budget, those projects that fit within a given scenario define company carbon budgets, which are made of sanctioned (recently-approved) and unsanctioned (new) projects.

Scoring rationale

The higher the share of unsanctioned projects within carbon budget is, the higher the score will be as it means that the company can implement a significant pipeline of new projects without overshooting its carbon budget.

OG 2.5 LOW CARBON AND MITIGATION TECHNOLOGIES CAPEX SHARE (WEIGHTING: 0-6%)

Description & Requirements

OG 2.5 Low carbon and mitigation technologies CAPEX share

Short description of indicator

A measure of the alignment of the company's planned CAPEX, i.e. investment by the company, for the next five years in low carbon and mitigation technologies with their pathway required in the low carbon scenario. The indicator will identify the gap between the company's planned low carbon and mitigation CAPEX share and the decarbonization pathway.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A7: Share of CAPEX in low carbon and mitigation technologies (M$/M$) planned for the next 5 years

CDP Questionnaire mapping to this indicator:

- C4.5

External sources of data used for the analysis of this indicator are:

- Low carbon scenario - background scenario data (IEA WEO SDS O&G report [6] used to date, with calculation of necessary annual Energy CAPEX split for 2020-2050)

The benchmark indicators involved are:

TARGET TYPE	PARAMETER	INTENSITY METRIC	BENCHMARK
Low carbon and mitigation technologies investments CAPEX share	CB_{LCT}	M$/M$	Low carbon scenario (IEA WEO SDS used to date)

How the assessment will be done

The assessment is based on the ratio between the company's planned CAPEX share in Low carbon and mitigation technologies (S_{LCT}) and the company benchmark (CB_{LCT}). The company benchmark (CB_{LCT}) pathway is the 'company Low carbon and mitigation technologies CAPEX share pathway', adapted to the specificities of the company (based on the split of revenues between Fuels revenues and Power revenues).

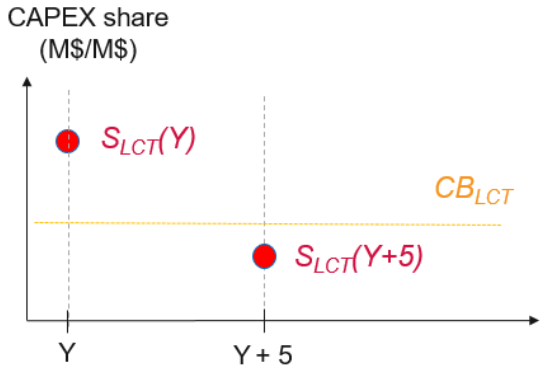
The company plan pathway (S_{LCT}) is the CAPEX share plan over time, two points are considered to calculate this indicator score: the one at the reporting year ($S_{LCT}(Y)$) and the one 5 years later ($S_{LCT}(Y+5)$). Both values are compared to (CB_{LCT}) which is a constant value over time (since it is estimated as the annual CAPEX share companies should reach during a period of time).

The assessment will compare (S_{LCT}), as well as ($S_{LCT}(Y+5)$), to (CB_{LCT}). The pathways are expressed as percentage of CAPEX allocated to investments in Low carbon and mitigation technologies (intensity measure). Where necessary, targets will be normalized to this unit to enable the comparison.

Calculation of score

The ratio of company plan pathway at reporting year and the company benchmark is calculated at reporting year, and 5 years later. The score is the average of these two ratios:

$$Score = average\left(\frac{S_{LCT}(Y)}{CB_{LCT}}; \frac{S_{LCT}(Y+5)}{CB_{LCT}}\right)$$



Where:

- CB_{LCT} is the company (=sectoral) benchmark Capex share
- $S_{LCT}(Y)$ the Capex share at reporting year
- $S_{LCT}(Y+5)$ the Capex share at reporting year + 5

If the company plan pathway is not going up to 5 years from the reporting year, then the score should be multiplied by a corrective ratio expressing the time coverage of the pathway against this 5 year landmark:

- 1 year from reporting year → corrective ratio = 1/5 = 0.2
- 2 years from reporting year → corrective ratio = 2/5 = 0.4
- And so on.

The score assigned to the indicator is expressed as a percentage (1 = 100%), the maximal score being 100% (score obtained even if calculation lead to a high percentage). Averaging the two values (obtained at Y and Y+5) must be done before limiting the score to 100% (if encountered).

Definition of Low carbon technologies

Low carbon technologies are defined as followed by the IEA[i]:

- Renewable energy sources (renewables), nuclear power
- CCUS (to be taken into account latter for indicator 2.6)
- Hydrogen derived from low carbon energy sources
- Technologies that improve the efficiency of energy transformation

[i] IEA - Energy Technology Perspectives 2020 – p28

- Other non-fossil power and storage options
- Cross-cutting technologies that result in minimal emissions of CO2 and pollution.

Low carbon technologies are considered in the EU Green Taxonomy [14] as resulting in substantial GHG emission reductions in other sectors of the economy, provided that product related emissions are at least the level of best available techniques.[ii]

Concrete examples to be considered for O&G sectors are technologies that produce final energy with a low carbon content, for instance:

- Sustainable biofuels as defined by the European Green taxonomy (blended fuels are not eligible)
- Sustainable biogases and sustainable hydrogen as defined by the European Green taxonomy
- Low carbon electricity production technologies with a LCA carbon content < 100g CO_2e/kWh (threshold of European taxonomy)
- Energy efficiency services that reduce the energy consumption of clients

Definition of mitigation technologies

Mitigation technologies are technologies that reduce the carbon footprint of the supplied energy by the O&G companies. According to the EU Green Taxonomy:[iii]

“An economic activity shall be considered to contribute substantially to climate change mitigation where that activity substantially contributes to the stabilization of greenhouse gas concentrations in the atmosphere at a level which prevents dangerous anthropogenic interference with the climate system by avoiding or reducing greenhouse gas emissions or enhancing greenhouse gas removals through any of the following means, including through process or product innovation, consistent with the long term temperature goal of the Paris Agreement.”

Examples related to the O&G sectors along its value chain are:

- Upstream: technologies reducing the carbon footprint of extraction activity (for instance, preventing methane leakages)
- Midstream: technologies reducing the carbon footprint of refining, logistics, etc.
- Downstream: technologies reducing the carbon footprint of distribution, downstream logistics, retail stations

[ii] EU Taxonomy – Technical Annex (2017) p162-166

[iii] EU Taxonomy – Technical Annex (2017) p15

Rationale

OG 2.5 Low carbon and mitigation technologies CAPEX share

Rationale of the indicator

Relevance of the indicator:

Investments planning related to the company's investments in low carbon and mitigation technologies are included in the ACT O&G assessment for the following reasons:

1. CAPEX plans are an indicator of corporate commitment to a low carbon transition and are a meaningful metric of the company's internal planning towards the transition.
2. Low carbon and mitigation technologies CAPEX share is an early KPI of the gradual switch of O&G companies from fossil activities to low carbon activities.

Scoring rationale

Planned CAPEX share are quantitatively interpreted and directly compared to the low carbon benchmarks for the sector, using the projections in the low carbon scenario used, which is further explained in Section 5.1.

Planned CAPEX share is compared to the benchmark directly, and the relative gap is calculated compared to the business as usual pathway. The gap method was chosen for its relative simplicity in interpretation and powerful message, which aligns with the UNEP's narrative of the global commitment gap of the UNFCCC Climate Agreements [10]. The simple percentage score also needs no further computation to become meaningful on its own, as well as be useable for aggregation in the performance score.

To ensure comparability of the scores and replicability of the measurement, projections are compared to the benchmark at a fixed point in time. 5 years after the reporting year was chosen as the reference for this measurement, as it is far enough in time to make a meaningful measurement of the company's future pathway, while close enough to be able to include the typical short to medium time scale of present-day company projections.

Definition rationale

The low carbon technologies have been defined accordingly to the discussions that have taken place in the ACT Technical Working Group. Some of the elements are aligned with the requirements of the EU green taxonomy and are detailed in the Glossary.

OG 2.6 CARBON REMOVAL TECHNOLOGIES (CDR) AND CARBON CAPTURE, USE AND STORAGE TECHNOLOGIES (CCS, CCUS) CAPEX SHARE (WEIGHTING: 0-6%)

Description & Requirements	OG 2.6 Carbon removal technologies (CDR) and carbon capture, use and storage technologies (CCS, CCUS) CAPEX share
Short description of indicator	A measure of the alignment of the company's planned CAPEX for the next five years in CAPEX on CDR, CCS and CCUS technologies with their pathway required in the low carbon scenario[iv]. The indicator will identify the gap between the company's planned CAPEX share in CDR/CCS/CCUD and the decarbonization pathway as a percentage, which is expressed as the company's commitment gap.
Data requirements	The questions comprising the information request that are relevant to this indicator are: ♦ A8: Planned CAPEX share set on investments in (CCS, CCUS, CDR) (CCS, CCUS, CDR) (M$/M$) CDP Questionnaire mapping to this indicator: - C-OG9.8 External sources of data used for the analysis of this indicator are: ♦ Low carbon scenario – used to date: McCollum et *al*. (2018) [15] – background scenario data (share of yearly global investments in CCS on the total yearly CAPEX in a 1.5°C scenario)

[iv] Enhanced Oil Recovery (EOR) activities are not included in these technologies.

The benchmark indicators involved are:

TARGET TYPE	PARAMETER	INTENSITY METRIC	BENCHMARK
CDR, CCS and CCUS CAPEX share	$\underline{CB_{RT}}$	M$/M$	Low Carbon scenario (used to date: McCollum et *al*.)

How the assessment will be done

The assessment is based on the ratio between the company's planned CAPEX share in CDR, CCS and CCUS technologies (S_{RT}) and the company benchmark (CB_{RT}). The company benchmark (CB_{RT}) pathway is the 'company Low carbon and mitigation technologies CAPEX share pathway', adapted to the specificities of the company (based on the split of revenues between Fuels revenues and Power revenues).

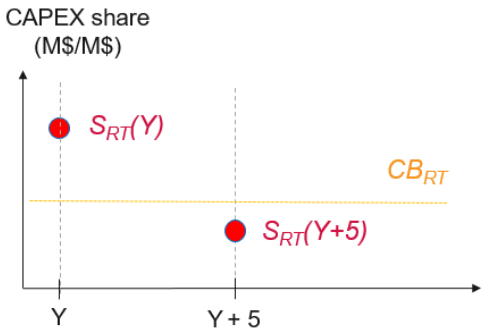
The company plan pathway (S_{RT}) is the CAPEX share plan over time, two points are considered to calculate this indicator score: the one at the reporting year ($S_{RT}(Y)$) and the one 5 years later ($S_{RT}(Y+5)$). Both values are compared to (CB_{RT}) which is a constant value over time (since it is estimated as the annual CAPEX share companies should reach during a period of time).

The assessment will compare (S_{RT}), as well as ($S_{RT}(Y+5)$), to (CB_{RT}). The pathways are expressed as percentage of CAPEX allocated to investments in CDR, CCS and CCUS technologies (intensity measure). Where necessary, targets will be normalized to this unit to enable the comparison.

Calculation of score

The ratio of company plan pathway at reporting year and the company benchmark is calculated at reporting year, and 5 years later. The score is the average of these two ratios:

$$Score = average\left(\frac{S_{RT}(Y)}{CB_{RT}}; \frac{S_{RT}(Y+5)}{CB_{RT}}\right)$$



Where:

- CB_{RT} is the company (=sectoral) benchmark Capex share
- $S_{RT}(Y)$ the Capex share at reporting year
- $S_{RT}(Y+5)$ the Capex share at reporting year + 5

If the company plan pathway is not going up to 5 years from the reporting year, then the score should be multiplied by a corrective ratio expressing the time coverage of the pathway against this 5 year landmark:

- 1 year from reporting year → corrective ratio = 1/5 = 0.2
- 2 years from reporting year → corrective ratio = 2/5 = 0.4
- And so on.

The score assigned to the indicator is expressed as a percentage (1 = 100%), the maximal score being 100% (score obtained even if calculation lead to a high percentage). Averaging the two values (obtained at Y and Y+5) must be done before limiting the score to 100% (if encountered).

Rationale

OG 2.6 Carbon removal technologies (CDR) and carbon capture, use and storage technologies (CCS, CCUS) CAPEX share

Rationale of the indicator

Relevance of the indicator:

Investments planning related to the company's CAPEX in GHG removal technologies are included in the ACT Integrated O&G assessment for the following reasons:

1. CAPEX planned is an indicator of corporate commitment to a low carbon transition and are a meaningful metric of the company's internal planning towards the transition.
2. As Carbon removal technologies are still at their early stage and not yet deployed at large scale, CDR and CCS/CCUS CAPEX share is a meaningful indicator to evaluate the commitment of the O&G companies to the development of these key technologies. Indeed, these carbon removal technologies would help O&G companies reduce their CO_2e emissions, while gradually moving their energy mix away from fossil fuels.
3. Low carbon and mitigation technologies CAPEX share is an early KPI of the gradual switch of O&G companies from fossil activities to low carbon activities.

Scoring rationale

Planned CAPEX share are quantitatively interpreted and directly compared to the low carbon benchmarks for the sector, which is further explained in Section 5.1.

Planned CAPEX share is compared to the benchmark directly, and the relative gap is calculated compared to the business-as-usual pathway. The gap method was chosen for its relative simplicity in interpretation and powerful message, which aligns with the UNEP's narrative of the global commitment gap of the UNFCCC Climate Agreements [10]. The simple percentage score also needs no further computation to become meaningful on its own, as well as be useable for aggregation in the performance score.

To ensure comparability of the scores and replicability of the measurement, planned CAPEX share is compared to the benchmark at a fixed point in time, similar to all companies. This is necessary, because the method interprets linear decarbonization pathways from the targets, while the decarbonization pathways are nonlinear. Therefore, the measurement gaps would vary over time if the time of measurement was not constant, and undesired precedent is set for reporting only planned CAPEX share with short-time horizons.

5 years after the reporting year was chosen as the reference for this measurement, as it is far enough in time to make a meaningful measurement of the company's future pathway, while close enough to be able to include the typical short to medium timescale of present-day company targets.

3. INTANGIBLE INVESTMENTS INDICATORS (WEIGHTING: 2-10%)

OG 3.1 SHARE OF R&D IN LOW CARBON AND MITIGATION TECHNOLOGIES (WEIGHTING: 2-5%)

Description & Requirements	OG 3.1 Share of R&D in Low carbon and mitigation technologies
Short description of indicator	A measure of the ratio of R&D investments in low carbon and mitigation-relevant technologies. The indicator will identify the ratio between the company's R&D share in low carbon and mitigation and the required R&D share in low carbon and mitigation as set by a scientific benchmark of R&D requirements.
Data requirements	The questions comprising the information request that are relevant to this indicator are: ♦ A9: R&D expenses in low carbon and mitigation technologies (M$) ♦ A10: Total R&D expenses (M$) CDP Questionnaire mapping to this indicator: - C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6 - C-CO9.6a/C-EU9.6a/C-OG9.6a External sources of data used for the analysis of this indicator are: ♦ Low carbon scenario - background scenario data (IEA WEO SDS O&G report [6] used to date, with calculation of necessary annual Energy CAPEX split for 2020-2050)

The benchmark indicators involved are:

TARGET TYPE	PARAMETER	INTENSITY METRIC	BENCHMARK
Share of R&D in Low Carbon and mitigation	CB_{RD}	M$/M$	Low carbon scenario (IEA WEO SDS used to date)

How the assessment will be done

The analysis is based on the ratio of the company's 'annual R&D expenditure on low carbon and mitigation technologies' ($CAPEX'Low\ carbon\ and\ Mitigation\ R\&D$) to the company's 'total annual R&D expenditure' ($CAPEX\ R\&D$). The highest scoring level will compare only 'R&D expenditure on non-mature technologies (see the indicator's rationale) that mitigate climate change' ($CAPEX'Low\ carbon\ and\ mitigation\ R\&D_{non-mature}$).

The ratios are defined as the 'mitigation R&D intensity' ratios (D) or ($D_{non-mature}$):

$$D = \frac{CAPEX'Low\ carbon\ \&\ Mitigation\ R\&D}{CAPEX\ R\&D}$$

$$D_{non-mature} = \frac{CAPEX'Low\ Carbon\ \&\ Mitigation\ R\&D_{non-mature}}{CAPEX\ R\&D}$$

Dimension 1 - Inclusive R&D investment ratio:

This ratio will be compared to a benchmark for R&D (B_{RD}) ratio, and a score will be assigned depending on the company's proximity to the benchmark. See Section 5.1 for details on the computation of this benchmark. The inclusive R&D investment ratio includes all investment in low carbon and mitigation technologies (mature and non-mature).

$$R\&D\ Low\ Carbon\ \&\ Mitigation_1 = \frac{D}{B_{RD}}$$

The score for dimension 1 is calculated as follows:

- $R\&D\ Low\ Carbon\ \&\ Mitigation_1 < 1$ → score = ratio * 50%
- $R\&D\ Low\ Carbon\ \&\ Mitigation_1 \geq 1$ → score = 50%

Dimension 2 - Non-mature R&D investment ratio:

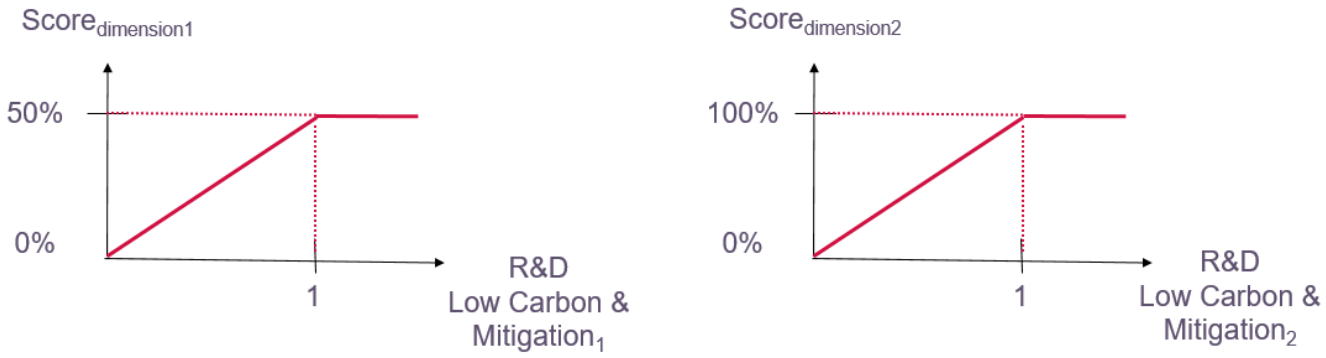
R&D investment is not as necessary for some technologies as it is for others. The non-mature technology investment ratio $D_{non-mature}$ is compared to the benchmark for dimension 2:

$$R\&D\ Low\ Carbon\ \&\ Mitigation_2 = \frac{D_{non-mature}}{B_{RD}}$$

The score for dimension 2 is calculated as follows:

- $R\&D\ Low\ Carbon\ \&\ Mitigation_2 < 1$ → score = ratio
- $R\&D\ Low\ Carbon\ \&\ Mitigation_2 \geq 1$ → score = 100%

Calculation of indicator score



Final score = Max [$score_{dimension1}$; $score_{dimension2}$]

Rationale of the indicator

Relevance of the indicator:

The Low carbon and mitigation R&D indicator is included in the ACT assessment for the following reasons:

- To enable the transition, sectors such as the O&G sector rely heavily on the development of low carbon technologies to replace the fossil fuel assets. R&D is the principal proactive action to develop these technologies.
- R&D is also one of the principal tools to reduce the costs of a technology in order to increase its market penetration.
- Lastly, the R&D investment of a company into non-mature technologies allows for direct insight into the company's commitment to alternative technologies that may not currently be part of its main business model.

Definition of Low carbon technologies

Low carbon technologies are technologies that produce final energy with a low carbon content. They encompass:

- Sustainable biofuels as defined by the European Green taxonomy
- Sustainable biogases and sustainable hydrogen as defined by the European Green taxonomy
- Low carbon electricity production technologies with a LCA carbon content < 100g CO_2e/kWh (threshold of European taxonomy)
- Energy efficiency services that reduce the energy consumption of the clients

Definition of mitigation technologies

Mitigation technologies are technologies that reduce the carbon footprint of the supplied energy by the O&G companies. They can be

- Extraction GHG mitigation technologies: technologies reducing the carbon footprint of extraction activity
    - E.g. technologies to prevent methane leakage
- Midstream mitigation technologies: technologies reducing the carbon footprint of refining, logistics, etc.
    - E.g..: energy efficiency technologies for refining
- Downstream mitigation technologies: technologies reducing the carbon footprint of distribution, downstream logistics, retail stations
    - E.g..: low carbon transport technologies for downstream logistics

Definition of non-mature R&D

A Technology Readiness Level (TRL) should be used to assess the maturity of a technology. Higher scoring levels of this indicator exclude research in technologies that are already considered mature in terms of market penetration, in order to incentivize a focus on

those technologies that have a higher need for R&D investment to break through technical barriers and reduce the levelized costs of deploying these technologies.

To formalize this distinction in the analysis, the company is asked for a detailed breakdown of R&D expenditure. As defining what type of R&D is 'non-mature' is theoretically difficult, the classification is inversed, and done based on the principle of exclusion. This methodology excludes only those low carbon technologies that are considered mature in terms of market position and levelized cost.

Scoring rationale:

To align with the narrative of ratios that is also used in the indicators for Modules 1 and 2, the indicator is computed as the 'R&D investment ratio'. This investment ratio is only assigned 50% of the maximum score, as the analysis aims to incentivize R&D in non-mature technologies as opposed to mature technologies. Therefore, the achievable score for achieving a high R&D in non-mature technologies ($D_{non\text{-}mature}$) is double that of the score when this criterion is not included (D).

Definition rationale

The taxonomy has been defined based on the discussions of the Technical Working Group. Some of the elements are aligned with the requirements of the EU green taxonomy and are detailed in the Glossary part.

OG 3.2 SHARE OF R&D IN CARBON REMOVAL TECHNOLOGIES (WEIGHTING: 0-5%)

Description & Requirements	OG 3.2 Share of R&D in Carbon Removal Technologies
Short description of indicator	A measure of the ratio of R&D investments in carbon removal technologies. The indicator will identify the ratio between the company's R&D share in Carbon Removal technologies and the required R&D share in carbon removal technologies as set by a scientific benchmark of R&D requirements.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A11: R&D expenses in carbon removal technologies (M$)
- A10: Total R&D expenses (M$)

CDP Questionnaire mapping to this indicator:

- C-OG9.8

External sources of data used for the analysis of this indicator are:

- Low carbon scenario – used to date: McCollum et *al*. (2018) [15] – background scenario data (share of yearly global investments in CCS on the total yearly CAPEX in a 1.5°C scenario)

The benchmark indicators involved are:

TARGET TYPE	PARAMETER	INTENSITY METRIC	BENCHMARK
Share of R&D in carbon removal/CCS-CCUS technologies	CB_{CCSRD}	M$/M$	Low Carbon scenario (used to date: McCollum et *al*.)

How the assessment will be done

The analysis is based on the ratio of the company's 'annual R&D expenditure on carbon removal technologies' ($CAPEX'\ Carbon\ Removal\ R\&D$) to the company's 'total annual capital expenditure on R&D' ($CAPEX\ R\&D$). The highest scoring level will compare only 'R&D expenditure on non-mature technologies (see the indicator's rationale) ($CAPEX' Carbon\ Removal\ R\&D_{non-mature}$).

The ratios are defined as the 'mitigation R&D intensity' ratios (D) or ($D_{non-mature}$):

$$D = \frac{CAPEX' Carbon\ Removal\ R\&D}{CAPEX\ R\&D}$$

$$D_{non-mature} = \frac{CAPEX' Carbon\ Removal\ R\&D_{non-mature}}{CAPEX\ R\&D}$$

Dimension 1 - Inclusive R&D investment ratio:

This ratio will be compared to a benchmark for removal R&D (B_{RD}) ratio, and a score will be assigned depending on the company's proximity to the benchmark. See Section 5.1 for details on the computation of this benchmark. The inclusive R&D investment ratio includes all investment in carbon removal technologies (mature and non-mature).

$$R\&D\ Carbon\ Removal_1 = \frac{D}{B_{RD}}$$

The score for dimension 1 is calculated as follows:

- $R\&D\,Carbon\ Removal_1 < 1$ → score = ratio * 50%
- $R\&D\,Carbon\ Removal_1 \geq 1$ → score = 50%

Dimension 2 - Non-mature R&D investment ratio :

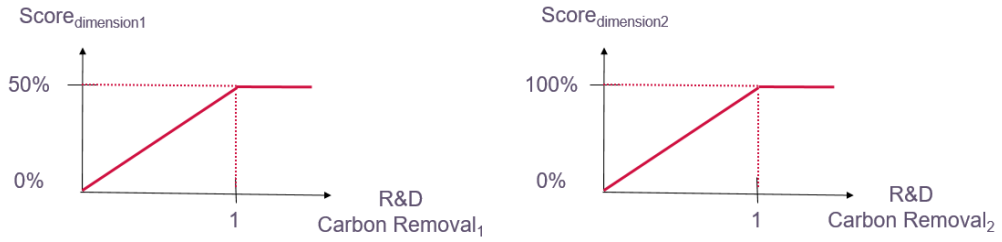
R&D investment is not as necessary for some technologies as it is for others. The non-mature technology investment ratio $D_{non-mature}$ is compared to the benchmark for dimension 2:

$$R\&D\ Carbon\ Removal_2 = \frac{D_{non-mature}}{B_{RD}}$$

The score for dimension 2 is calculated as follows:

- $R\&D\,Carbon\ Removal_2 < 1$ → score = ratio
- $R\&D\,Carbon\ Removal_2 \geq 1$ → score = 100%

Calculation of indicator score



Final score = Max [$score_{dimension1}$; $score_{dimension2}$]

Rationale of the indicator

Relevance of the indicator:

The Carbon Removal R&D indicator is included in the ACT assessment for the following reasons:

- Whereas Carbon removal and CCS/CCUS technologies are key to achieve a low carbon scenario, these technologies are still at their early stage of development, so that R&D is the main proactive action to develop these technologies.
- R&D is also one of the main tools to reduce the costs of a technology in order to increase its market penetration.
- Lastly, the R&D investment of a company into non-mature technologies allows for direct insight into the company's commitment to alternative technologies that may not currently be part of its main business model.

Definitions of CDR/CCS/CCUS technologies are referenced in the Glossary.

Definition of non-mature R&D

A Technology Readiness Level (TRL) should be used to assess the maturity of a technology. Higher scoring levels of this indicator exclude research in technologies that are already considered mature in terms of market penetration. This is to incentivize a focus on those technologies that have a higher need for R&D investment, in order to break through technical barriers and reduce the levelized costs of deploying these technologies

To formalize this distinction in the analysis, the company is asked for a detailed breakdown of R&D expenditure. As defining what type of R&D is 'non-mature' is theoretically difficult, the classification is inversed, and done based on the principle of exclusion. This methodology excludes only those low carbon technologies that are considered mature in terms of market position and levelized cost

Scoring rationale:

To align with the narrative of ratios that is also used in the indicators for Modules 1 and 2, the indicator is computed as the 'R&D investment ratio'. This investment ratio is only assigned 50% of the maximum score, as the analysis aims to incentivise R&D in non-mature technologies as opposed to mature technologies. Therefore, the achievable score for achieving a high R&D in non-mature technologies ($D_{non\text{-}mature}$) is double that of the score when this criterion is not included (D).

SOLD PRODUCT PERFORMANCE (WEIGHTING: 10-23%)

OG 4.1 TREND IN PAST SCOPE 1+2+3 EMISSIONS INTENSITY (WEIGHTING: 4-6%)

Description & Requirements

OG 4.1 Trend in past Scope 1+2+3 emissions intensity

Short description of indicator

A measure of the alignment of the company's recent emissions intensity for Scope 1+2+3, with that of their decarbonization pathway. The indicator will compare the gradient of this trend over a 5-year period to the reporting year (reporting year minus 5 years) with the decarbonization pathway trend over a 5-year period after the reporting year.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A12: Scope 1+2+3 emissions intensity for the company's recent (reporting year -5 or Y-5) generation emissions and the reporting year Y. Here the company can fill the emissions intensities of its suppliers and of its JVs which are not reported in the Scope 1+2 (e.g. not operated JVs).

CDP Questionnaire mapping to this indicator:

- C6.1
- C6.3
- C6.5
- C6.10
- C-OG6.12
- C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4
- C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7
- C8.2
- C8.2d
- C-OG9.2a

- C-OG9.3a
- C-OG9.3d
- C-OG9.8b

External sources of data used for the analysis of this indicator are:

- Low carbon scenario - background scenario data (IEA ETP SDS [11] used to date)
- ADEME, Base carbone [9] – default modelling parameters

The benchmark indicators involved are:

TARGET TYPE	PARAMETER	INTENSITY METRIC	BENCHMARK
Scope 1+2+3 intensity	$CB_{SC1+2+3}$	tCO_2e/TJ	Low carbon scenario (IEA ETP SDS used to date)

The calculated emissions intensity is expressed in tCO_2e/TJ. Several energy types can be selected (e.g. natural gas, oil products, bio-methane farming etc.) and the company is to select the ones it processes. The GHG emissions include emissions from all 3 steps of the value chain (Upstream, Midstream and Downstream) as well as the step Combustion /Use.

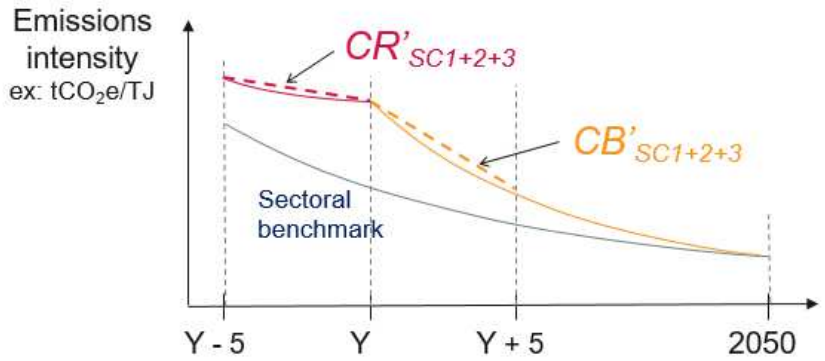
Refer to the Appendix to have more details on how the tool works.

How the assessment will be done

The analysis is based on the difference between the company's recent (reporting year minus 5 years) generation emissions intensity trend gradient ($CR'_{SC1+2+3}$) and the company's decarbonization pathway trend gradient ($CB'_{SC1+2+3}$) in the short-term (reporting year plus 5 years).

The 'Transition ratio' is calculated by the following equation:

$$r_{SC1+2+3} = \frac{CR'_{SC1+2+3}}{CB'_{SC1+2+3}}$$



Where:

- $CR'_{SC1+2+3}$ is the gradient of the linear trend-line of the company's recent generation emissions intensity (tCO_2e/TJ) for Scope 1+2+3 over time.
- $CB'_{SC1+2+3}$ is the gradient of the linear trend-line of the company benchmark pathway.

Refer to the ACT Framework and the SDA methodology for details on the computation of the company specific decarbonization pathway and its trend line.

If the transition ratio is a negative number, it means the company's recent emissions intensity has increased (positive $CR'_{SC1+2+3}$) and a zero score is awarded by default. If the company's recent emissions intensity has decreased, the transition ratio will be a number between 0 and 1. A score is assigned as a percentage value equal to the value of $r_{SC1+2+3}$ (1 = 100%).

Rationale

OG 4.1 Trend in past Scope 1+2+3 emissions intensity

Rationale of the indicator

Relevance of the indicator

Trend in past emissions intensity is included in the ACT assessment for the following reasons:

1. The trend shows the speed at which the company has been reducing its emissions intensity over the recent past. Comparing this to the decarbonization pathway gives an indication of the scale of the change that needs to be made within the company to bring it onto a low carbon pathway.
2. While ACT aims to be as future-oriented, it nevertheless does not want to solely rely on projections of the future, in a way that would make the analysis too vulnerable to the uncertainty of those projections. Therefore, this particular measure, along with projected emissions intensity and absolute emissions, forms part of a holistic view of company emissions performance in the past, present, and future.
3. The O&G companies cover a large range of activities in the sector, they take responsibility of the climate impact of O&G products at several points in the economic chain. The Life Cycle Analysis of the O&G products, on all the GHG Scopes, is therefore a relevant tool to be used in order to embrace the diverse sources of emissions caused by Integrated O&G business models.
4. Even though the emissions intensity factors of the company are the same as the ones used for Scope 1+2, a specific indicator dedicated to Scope 1+2+3 enable the O&G companies to benefit from having suppliers with smaller emissions intensity than the average of the industry. To be clearer, this part requires as input to be filled the same emissions intensities as for Scope 1+2, plus the emissions intensities of the suppliers if the O&G company if the data is available.

Scoring rationale

While ‘gap’ type scoring is preferred for any indicator where possible, this indicator only looks at past emissions, and would therefore require a different baseline in order to generate a gap method. Therefore, instead the two trends are compared. Another advantage of the trend analysis is that it does not require the use of a ‘business as usual’ pathway to anchor the data points and aid interpretation, as trends can be compared directly and a score can be directly correlated to the resulting ratio.

OG 4.2 TREND IN FUTURE SCOPE 1+2+3 EMISSIONS INTENSITY (WEIGHTING: 6-9%)

Description & Requirements

OG 4.2 Trend in future Scope 1+2+3 emissions intensity

Short description of indicator

A measure of the alignment of the company's projected emissions intensity for Scope 1+2+3 with its decarbonization pathway. The indicator will identify the gap in 5 years after the reporting year between the company's performance and the decarbonization pathway as a percentage, which is expressed as the company's 'action gap'.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- Part of A2 & A12: Emissions intensities for the reporting year Y for each step of the value chain and for all energy types (Scope 1+2+3, the main differences with A5 are to add all energy types and the possibility to fill the emissions intensities of the suppliers and/or the JVs which are not reported in the Scope 1+2 here)

CDP Questionnaire mapping to this indicator:

- C6.1
- C6.3
- C6.5
- C6.10
- C-OG6.12
- C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4
- C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7
- C8.2
- C8.2d
- C-OG9.2a
- C-OG9.3a
- C-OG9.3d
- C-OG9.8b

External sources of data used for the analysis of this indicator are:

- Low carbon scenario - background scenario data (IEA ETP SDS [11] used to date)
- ADEME, Base carbone [9] – default modelling parameters

The benchmark indicators involved are:

TARGET TYPE	PARAMETER	INTENSITY METRIC	BENCHMARK
Scope 1+2+3 intensity	$CB_{SC1+2+3}$	tCO_2e/TJ	Low carbon scenario (IEA ETP SDS used to date)

The calculated emissions intensity is expressed in tCO_2e/TJ. Several energy types can be selected (e.g. natural gas, oil products, bio-methane farming etc.) and the company is to select the ones it processes. The GHG emissions include emissions from all 3 steps of the value chain (Upstream, Midstream and Downstream) as well as the step Combustion /Use.

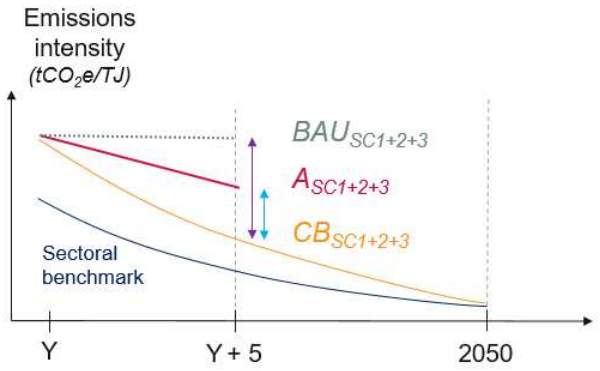
How the assessment will be done

The assessment is based on the difference between the company's action pathway ($A_{SC1+2+3}$) and the company benchmark ($CB_{SC1+2+3}$). The assessment will compare $A_{SC1+2+3}$ to $CB_{SC1+2+3}$, by examining the difference between these pathways in 5 years after the reporting year. The pathways are expressed in tons of CO_2/TJ (intensity measure). The result of the comparison is the action gap.

To assign a score to this indicator, the size of the action gap will be compared to the maximum action gap, which is defined by the business as usual pathway ($BAU_{SC1+2+3}$). $BAU_{SC1+2+3}$ is defined as an unchanging (horizontal) intensity pathway, whereby the emissions intensity is not reduced at all over a period after the reporting year.

$$Future\ emissions\ action\ gap = \frac{A_{SC1+2+3} - CB_{SC1+2+3}}{BAU_{SC1+2+3} - CB_{SC1+2+3}}$$

$$Score = 1 - Future\ emissions\ action\ gap$$



Where:

- $A_{SC1+2+3}$ is the emissions intensity of the company for Scope 1+2+3
- $CB_{SC1+2+3}$ company benchmark pathway is the 'company Scope 1+2+3 emissions intensity specific decarbonization pathway'. See Section 5.1 for details on the computation of this pathway.
- $BAU_{SC1+2+3}$ is the business as usual pathway

The score assigned to the indicator is expressed as a percentage (1 = 100%). If the company's target is aligned with the sectoral benchmark, then $A_{SC1+2+3} - CB_{SC1+2+3} = 0$ and the maximum score is achieved.

Rationale

OG 4.2 Trend in future Scope 1+2+3 emissions intensity

Rationale of the indicator

Relevance of the indicator
Trend in future emissions intensity is included in the ACT OG assessment for the following reasons:

1. Recent emissions intensity performance indicates the company's progression towards, or away from, the future emissions intensity necessary for the sector to decarbonize in-line with a low carbon scenario.
2. This indicator is the most valuable in terms of the information it provides on the company's actual action towards decarbonization.
3. This particular measure, along with recent emissions intensity and absolute emissions, forms part of a holistic view of company emissions performance in the past, present, and future.
4. Even though the emissions intensities of the company are the same as the ones used for Scope 1+2, a specific indicator dedicated to Scope 1+2+3 enable the O&G companies to benefit from having suppliers with smaller emissions intensity than the average of the industry. To be clearer, this part requires as input to be filled the same emissions intensities as for Scope 1+2, plus the emissions intensities of the suppliers of the O&G company if the data is available.

Scoring rationale

Same as for indicator OG 2.1.

Intensity Metric Rationale

See OG 1.2.

OG 4.3 TREND IN FUTURE LOW CARBON PRODUCTS SHARE (WEIGHTING: 0-5%)

Description & Requirements

OG 4.3 Trend in future low carbon products share

Short description of indicator

A measure of the company's growth in sales of low carbon products compared with a benchmark.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A13: Revenues generated by low carbon products (M$) planned for Y+5
- A14: Total revenues (M$) planned for Y+5

CDP Questionnaire mapping to this indicator:

- C4.2a
- C4.5

External sources of data used for the analysis of this indicator are:

- Low carbon scenario– background scenario data (IEA ETP Below 2 Degrees Scenario (SDS) [11] used to date)

The benchmark indicators involved are:

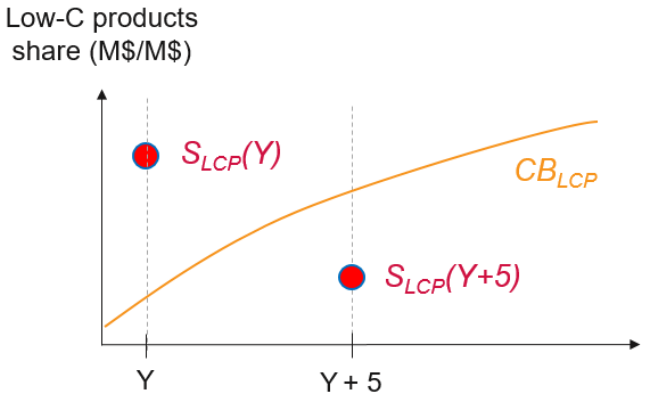
TARGET TYPE	PARAMETER	INTENSITY METRIC	BENCHMARK
Low carbon products share	CB_{LCP}	M$/M$	Low carbon scenario (IEA ETP SDS used to date)

How the assessment will be done

The analysis is based on the difference between the planned company sales and what the company sales should have been according to the benchmark, five years after the reporting year. The business as usual sales pathway is computed, which assumes no growth in Low Carbon Products & Services from the reporting year and over the next five years. The resulting number is the 'LCP sales gap'.

See Section 5.1 for details on the computation of the benchmark for the low carbon revenue share.

$$Score = average\left(\frac{S_{LCP}(Y)}{CB_{LCP}}; \frac{S_{LCP}(Y+5)}{CB_{LCP}}\right)$$



Where:

- CB_{LCP} is the company (=sectoral) benchmark low carbon products share
- $S_{LCP}(Y)$ the low carbon products share at reporting year
- $S_{LCP}(Y+5)$ the low carbon products share at reporting year + 5

If the company plan pathway is not going up to 5 years from the reporting year, then the score should be multiplied by a corrective ratio expressing the time coverage of the pathway against this 5 year landmark:

- 1 year from reporting year → corrective ratio = 1/5 = 0.2
- 2 years from reporting year → corrective ratio = 2/5 = 0.4
- And so on.

The score assigned to the indicator is expressed as a percentage (1 = 100%), the maximal score being 100% (score obtained even if calculation lead to a high percentage). Averaging the two values (obtained at Y and Y+5) must be done before limiting the score to 100% (if encountered).

Rationale

OG 4.3 Trend in future low carbon products share

Rationale of the indicator

Relevance of the indicator:
Trend in future low carbon products share is included in the ACT OG assessment for the following reasons:

1. Emissions intensity pathways in the sector cannot be met without a shift from fossil activities to non-fossil activities, and therefore an expansion of the product offer to low carbon products,
2. The sales are the direct 'output measure' that indicates how this change is incorporated in the business model.

Definition of low carbon products & services

Low Carbon Products & Services encompass the following categories:

- **Renewable electricity**[v]
- **Nuclear electricity**
- **Sustainable biofuels**[vi]
- **Sustainable biogas (i.e. gaseous fuels produced from biomass)**[vi]
- **Sustainable hydrogen**
- **Renewable electricity equipment**
- **Electricity storage equipment**
- **Engineering services in low carbon activities**

All the elements listed above are defined in the Glossary part

[v] Aligned with the EU Green taxonomy. Details in the Glossary part.

[vi] The list of biofuels considered as "advanced" by the Green European Taxonomy can be found in the following document: DIRECTIVE (EU) 2018/2001 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 on the promotion of the use of energy from renewable sources – Annex IX – p123. Biogas is defined p22.

Scoring rationale

The gap method was chosen for its relative simplicity in interpretation and is aligned with most of the other forward-looking indicators. Indeed, the indicator looks at a fix point in the future and assesses the capacity of the company to deploy a range of low carbon products in the short term.

Definition rationale

The taxonomy has been defined based on the discussions of the Technical Working group. Some of the elements are aligned with the requirements of the EU green taxonomy and are detailed in the Glossary part.

OG 4.4 ENERGY EFFICIENCY SERVICES SHARE (WEIGHTING: 0-5%)

Description & Requirements

OG 4.4 Energy efficiency services share

Short description of indicator

A measure of the company's growth in sales of energy efficiency services as compared with a benchmark.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A15: Revenues share of energy efficiency services planned for Y+5 and additional relevant information regarding the offer

CDP Questionnaire mapping to this indicator:

- C4.2b

External sources of data may also be used for the analysis of this indicator.

How the assessment will be done

The analyst will assign a maturity score based on the company's formalized strategy and planned revenues for the energy efficiency services offer, expressed in a maturity matrix.

A company that is placed in the 'aligned' category will receive the maximum score. Companies who are at lower levels will receive a partial score, with 0 points awarded for having no energy efficiency services.

This maturity matrix is indicative but does not show all possible options that can result in a particular score. Company responses will be scrutinized by the analyst and then placed on the level in the matrix where the analyst deems it most appropriate.

Question	Subdimension	Basic	Standard	Advanced	Next practice	Low carbon aligned	Subscore
		0%	*25%*	*50%*	*75%*	*100%*	
Does the company offer energy efficiency services to its clients?	Energy efficiency services	No offer	The company does offer energy efficiency services but no promotion strategy developed.	The company does offer energy efficiency services and a promotion strategy has been developed (advertising, revenues planning, …)	Energy efficiency services are one of the main strategic focal points of the company. Revenue share is expected to grow strongly (+50% within the next 5 years). A promotion strategy has been developed (advertising, revenues planning, …)	Energy efficiency services are one of the main strategic focal points of the company. Revenue share is expected to grow strongly (+50% within the next 5 years). The revenues already account for a significant part of the company's turnover (> 10%).	100%

Rationale

OG 4.4 Energy efficiency services share

Rationale of the indicator

Relevance of the indicator:
Energy efficiency services share is included in the ACT O&G assessment for the following reasons:

1. Emissions intensity pathways in the sector cannot be met without the development of new services aiming at reducing the GHG emissions of the O&G activities as well as the final use of O&G products,
2. The sales are the direct 'output measure' that indicates how this change is incorporated in the business model.

Definition of Energy Efficiency Services
The Energy Efficiency Services include the following elements:

- Energy efficiency audits
- Energy Performance Contracting (EPC)
- Energy efficiency actions
- Energy saving products

All the elements listed above are defined in the Glossary part.

Scoring the indicator

Because of data availability and complexity, a direct measure of the outcome of such engagement is not very feasible at this time. It is often challenging to quantify the emission reduction potential and outcome of collaborative activities with the supply chain. Therefore, the approach of a maturity matrix allows the analyst to consider multiple dimensions of companies' engagement and assess them together towards a single score for all the activities related to client engagement.

Definition rationale

The taxonomy has been defined based on the discussions of the Technical Working group. Some of the elements are aligned with the requirements of the EU green taxonomy and are detailed in the Glossary part.

5. MANAGEMENT INDICATORS (WEIGHTING: 10%)

OG 5.1 OVERSIGHT OF CLIMATE CHANGE ISSUES (WEIGHTING: 2%)

Description & Requirements	OG 5.1 Oversight of climate change issues
Short description of indicator	The company discloses that responsibility for climate change within the company lies at the highest level of decision making within the company structure.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A16: Environmental policy and details regarding governance

CDP Questionnaire mapping to this indicator:

- C1.1
- C1.1a
- C1.1b
- C1.1c
- C1.2
- C1.2a
- C1.1b

External sources of data may also be used for the analysis of this indicator.

How the assessment will be done

The benchmark case is that climate change is managed within the highest decision-making structure within the company. The company situation will be compared to the benchmark case, if it is similar then points will be awarded.

The position at which climate change is managed within the company structure will be determined from the company data submission and accompanying evidence.

Question	Subdimension	Basic	Standard	Advanced	Next practice	Low carbon aligned	Subscore
		0%	*25%*	*50%*	*75%*	*100%*	
What is the position of the employee/ committee with highest responsibility for climate change?	Position of individual(s)/ committee with highest responsibility for climate change	No one in charge of climate change issues	Manager /officer	Senior Manager/ Officer	Senior Manager/Officer closely related to decision-making structure within the company	Board or individual/sub-set of the board or other committee appointed by the board (CEO, other chief etc.)	100%

Rationale	OG 5.1 Oversight of climate change issues
Rationale of the indicator	Successful change within companies, such as the transition to a low carbon economy, requires strategic oversight and buy-in from the highest levels of decision-making within the company. For the O&G sector, a change in strategy and potentially business model will be required and this cannot be achieved at lower levels within an organization. Evidence of how climate change is addressed within the top decision-making structures is a proxy for how seriously the company takes climate change, and how well integrated it is at a strategic level. High-level ownership also increases the likelihood of effective action to address low carbon transition.

OG 5.2 CLIMATE CHANGE OVERSIGHT CAPABILITY (WEIGHTING: 2%)

Description & Requirements	OG 5.2 Climate change oversight capability
Short description of indicator	Company board or executive management has expertise on the science and economics of climate change, including an understanding of policy, technology and consumer drivers which can disrupt current business.
Data requirements	The questions comprising the information request that are relevant to this indicator are: ♦ A16: Environmental policy and details regarding governance CDP Questionnaire mapping to this indicator: - C1.1 - C1.1a - C1.1b - C1.1c - C1.2 - C1.2a - C1.1b

External sources of data may also be used for the analysis of this indicator.

How the assessment will be done

The presence of expertise on relevant topics to climate change and low carbon transition within the individual or committee with overall responsibility for it within the company will be assessed. The presence of expertise is the condition that must be fulfilled for points to be awarded in the scoring.

The analyst will determine if the company has expertise as evidenced through a named expert biography outlining capabilities. A cross check will be performed against 5.1 on the highest responsibility for climate change, the expertise should exist at the level identified or the relationship between the structures/experts identified should also be evident.

Question	Subdimension	Basic	Standard	Advanced	Next practice	Low carbon aligned	Subscore
		0%	*25%*	*50%*	*75%*	*100%*	
Does this employee/committee have proven expertise regarding climate change issues	The presence of expertise on relevant topics to climate change and low carbon transition within the individual or committee with overall CC responsibility	The employee/committee does not meet the following characteristics: - academic background/professional training related to energy & climate change, - former experiences on climate issues, - technical knowledge on climate (based on statements, published	The employee/committee meets several of the following characteristics: - academic background/professional training related to energy & climate change, - former experiences on climate issues, - technical knowledge on climate (based on	The employee/committee meets all the following characteristics: - academic background/professional training related to energy & climate change, - former experiences on climate issues, - technical knowledge on	The employee/committee meets all the following characteristics: - academic background/professional training related to energy & climate change, - former experiences on climate issues,	The employee/committee meets all the following characteristics: - academic background/professional training related to energy & climate change, - former experiences on climate issues,	100%

		reports, …). Therefore, expertise is not evident.	statements, published reports, …).	climate (based on statements, published reports, …).	- technical knowledge on climate (based on statements, published reports, …). Its expertise is advisory to guide decision-makers (consultative committee for instance).	- technical knowledge on climate (based on statements, published reports, …). Its expertise is completely integrated in decision-making (board).	

Rationale

OG 5.2 Climate change oversight capability

Rationale of the indicator

Effective management of low carbon transition requires specific expertise related to climate change and its impacts, and their likely direct and indirect effects on the business. Presence of this capability within or closely related to the decision-making bodies that will implement low carbon transition indicates both company commitment to that transition and also increases the chances of success.

Even if companies are managing climate change at board or equivalent level, a lack of expertise could be a barrier to successful management of low carbon transition.

OG 5.3 LOW CARBON TRANSITION PLAN (WEIGHTING: 3%)

Description & Requirements

OG 5.3 Low carbon transition plan

Short description of indicator

The company has a plan on how to transition the company to a business model compatible with a low carbon economy.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A16: Environmental policy and details regarding governance

CDP Questionnaire mapping to this indicator:

- C1.1
- C1.1a
- C1.1b
- C1.1c
- C1.2
- C1.2a
- C1.1b

External sources of data may also be used for the analysis of this indicator.

How the assessment will be done

The analyst will evaluate the description and evidence of the low carbon transition plan for the presence of best practice elements and consistency with the other reported management indicators. The company description and evidence will be compared to the maturity matrix developed to guide the scoring and a greater number of points will be allocated for elements indicating a higher level of maturity.

Best practice elements identified to date include:

- Plan includes financial projections
- Plan should include cost estimates or other assessment of financial viability as part of its preparation
- Description of the major changes to the business is comprehensive, consistent, aligned with other indicators
- Quantitative estimations of how the business will change in the future are included
- Costs associated with the plan (e.g. write-downs, site remediation, contract penalties, regulatory costs) are included
- Consideration of potential “shocks” or stressors (sudden adverse changes) has been made
- Relevant region-specific considerations are included
- Plan’s measure of success is SMART - contains targets or commitments with timescales to implement them, is time-constrained or the actions anticipated are time-constrained

- Plan's measure of success is quantitative
- Description of relevant testing/analysis that influenced the transition plan is included
- Plan is consistent with reporting against other ACT indicators
- Scope – should cover entire business, and is specific to that business
- Should cover the short, medium and long term. From now or near future <5 years, until at least 2035 and preferably beyond (2050)
- Contains details of actions the company realistically expects to implement (and these actions are relevant and realistic)
- Approved at the strategic level within the organization
- Contains discussion of the potential impacts of a low carbon transition on the current business
- The company has a publicly-acknowledged low carbon science-based target (SBT).
- Maximum points will be awarded if all of these elements are demonstrated.

Question	Subdimension	Basic	Standard	Advanced	Next practice	Low carbon aligned	Subscore
		0%	*25%*	*50%*	*75%*	*100%*	
What is the highest-level approval of low carbon transition plan?	Level of approval within the organization	Not known	Operational level (CSR level)	Upper management level	Board/strategic level	Matches highest level of responsibility as previously reported	12.5%
How the success of the plan is measured?	Measure of success	No measure of success	Measure of success is mainly qualitative	SMART KPI: specific, measurable, acceptable, realistic, time bound.	Measure of success is SMART. Measure of success contains both qualitative and quantitative targets.	Measure of success is quantitative	12.5%

Does the plan comprise financial content? If it does, what type of content?	Financial content in plan	No financial content	Financial projections, cost estimates or other estimates of financial viability are described but not quantified	Financial projections, cost estimates or other estimates of financial viability are laid out OR short-term actions to start implementing plan are quantified in more detail	Quantitative estimations of how the business will change in the future are included Costs associated with the plan (e.g. write-downs, site remediation, contract penalties, regulatory costs) are included	Description of the major changes to the business is comprehensive, consistent, aligned with other indicators	12.5%
To what extent are business future considerations integrated in the plan?	Future considerations	Implications to future business noted but not discussed properly	Contains actions the company expects to implement to make the transition a reality without any details	Contains discussion certain current company elements that need to be changed to make the transition a reality	Contains discussion of the potential portfolio of a future, low carbon ready company	Contains one or more elaborate outlines of how the far-future company could look like in terms of physical assets and business model	12.5%
To what extent short term considerations and remedial actions are integrated in the plan?	Current considerations and plans	Short-term considerations and remedial actions can be discussed but are not integrated in the plan	List of short-term considerations and remedial actions integrated in the plan	Contains discussion of the potential impacts of a low carbon transition on the current business Relevant region-specific considerations are included	Contains details of actions the company realistically expects to implement (and these actions are relevant and realistic)	Consideration of potential short-term “shocks” or stressors (sudden adverse changes) has been made	12.5%

What is the scope of the plan?	Transition plan scope, consistency, analysis	No clear scope to the plan, no consistency among sections and no analysis presented	The scope covers the entire business.	The scope covers the entire business. Plan is consistent with reporting against other ACT indicators Contains a description of relevant testing/analysis	The scope covers the entire business and is specific to it. Plan is consistent with reporting against other ACT indicators. Contains a description of relevant testing/analysis	Transition covers entire business and is specific to it, with proper scoping, consistency and proper analysis	12.5%
What is the time horizon of the plan?	Transition timescale	Covers only short-term (< (reporting year + 3 years))	Covers only medium term (reporting year + 5 years)	Should cover the short, medium and long term. From now or near future < (reporting year + 5 years), until at least (reporting year + 10 years) and preferably beyond (reporting year + 15 years)	Covers the short, medium and long term. From now until at least (reporting year + 20 years)	Covers the short, medium and long term. From now and beyond 2050	12.5%
What is the role of the carbon price in the plan?	Current considerations and plans	No carbon price is considered	A carbon price has been considered to elaborate the plan but is not actually considered for the decisions	A carbon price is integrated in the financial scenario proposed for key decisions	The carbon price is integrated in financial scenario proposed regarding all strategic decisions	The carbon price value is aligned with a low carbon scenario used in the methodology and is integrated in financial scenario proposed regarding all strategic decisions	12.5%

Rationale	OG 5.3 Low carbon transition plan
Rationale of the indicator	The O&G sector will require substantial changes to their business to align to a low carbon economy, over the short, medium and long term, whether it is voluntarily following a strategy to do so or is forced to change by regulations and structural changes to the market. It is better for the success of its business and of its transition that these changes occur in a planned and controlled manner.

OG 5.4 CLIMATE CHANGE MANAGEMENT INCENTIVES (WEIGHTING: 1%)

Description & Requirements	OG 5.4 Climate change management incentives
Short description of indicator	The Board's Compensation Committee has included metrics for the reduction of GHG emissions in the annual and/or long-term compensation plans of senior executives; the Company provides monetary incentives for the management of climate change issues as defined by a series of relevant indicators.
Data requirements	The questions comprising the information request that are relevant to this indicator are: ♦ A17: Management incentives CDP Questionnaire mapping to this indicator: - C1.3 - C1.3a External sources of data may also be used for the analysis of this indicator.
How the assessment will be done	The analyst will verify if the company has compensation incentives set for senior executive compensation and/or bonuses, that directly and routinely rewards specific, measurable reductions of tons of carbon emitted by the company in the preceding year and/or to the future attainment of emissions reduction targets, or other metric related to the company's low carbon transition plan.

Question	Subdimension	Basic	Standard	Advanced	Next practice	Low carbon aligned	Subscore
		0%	*25%*	*50%*	*75%*	*100%*	
Who is entitled to benefit?	Who is entitled to benefit?	Any other answer		Executive	Senior executive	Board chairman - Board/Executive board - Director on board - Corporate executive team - Chief Executive Officer (CEO) - Chief Operating Officer (COO) - Chief Financial Officer (CFO) - All employees	33%
What is the type of incentives (non-monetary/ monetary)?	Type of incentives	No incentive	Recognition (non-monetary)	Other non-monetary reward		Monetary reward	33%
What are the targets related to climate change incentives?	Incentivized performance indicator	No targets incentivized	Behaviour change related indicator or other specification	Qualitative targets, such as: Efficiency project, Efficiency target, Environmental criteria included in purchases, Supply chain engagement,		Quantitative targets, such as: Emissions reduction target, Energy reduction target, or other specification	33%

				or other specification			
Are there targets that are related to fossil fuel volume growth?	Volume growth incentives	Incentives are related to metrics that directly or indirectly incentivize fossil fuels volume growth					Malus: indicator score = 0 if such targets exist

Rationale

OG 5.4 Climate change management incentives

Rationale of the indicator

Executive compensation should be aligned with overall business strategy and priorities. As well as commitments to action the company should ensure that incentives, especially at the executive level, are in place to reward progress towards low carbon transition. This will improve the likelihood of successful low carbon transition.

Monetary incentives at the executive level are an indication of commitment to successful implementation of a strategy for low carbon transition.

OG 5.5 CLIMATE CHANGE SCENARIO TESTING (WEIGHTING: 2%)

Description & Requirements

OG 5.5 Climate change scenario testing

Short description of indicator

Testing or analysis relevant to determining the impact of transition to a low carbon economy on the current and projected business model and/or business strategy has been completed, with the results reported to the board or c-suite, the business strategy revised where necessary, and the results publicly reported.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A18: Scenario testing

CDP Questionnaire mapping to this indicator:

- C3.1a
- C3.1b
- C3.1d
- C3.1e
- C3.1f

External sources of data may also be used for the analysis of this indicator.

How the assessment will be done

The analyst evaluates the description and evidence of the low carbon economy scenario testing for the presence of best-practice elements and consistency with the other reported management indicators. The company description and evidence are compared to the maturity matrix developed to guide the scoring and a greater number of points are allocated for elements indicating a higher level of maturity.

Best-practice elements to be identified in the test/analysis include:

- Entire coverage of the company's boundaries
- Timescale from present to long-term (2035 - 2050)
- Translation of results into value-at-risk or other financial terms
- Multivariate: a range of different changes in conditions are considered together
- Changes in conditions that are specific to a low carbon climate scenario
- Climate change conditions are combined with other likely future changes in operating conditions over the timescale chosen.

Question	Subdimension	Basic	Standard	Advanced	Next practice	Low carbon aligned	Subscore
		0%	*25%*	*50%*	*75%*	*100%*	
What is the scope of the scenario testing?	Boundary	Large element[vii] not included	Large element included	All elements included except small elements	Almost elements included (majority of small elements included)	Covers entire boundary of the company	30%
What is the time horizon of the scenario testing?	Timescale	From present to future	From present to (reporting year + 5 years)	From present to (reporting year + 10 years)	From present to (reporting year + 15 years)	From present to 2050 and beyond	20%
Are the results in qualitative/ quantitative/ financial terms?	Results	Not publicly available	Expressed in qualitative terms	Expressed in quantitative terms	Expressed in financial terms	Expressed in financial terms and results are translated into value-at-risk	10%
What is the type of changing conditions considered?	Conditions considered	Considers no particular changing conditions	Considers a narrow range of different changes in conditions.	Considers a range of changing conditions together (multivariate)	Considers changing climate conditions in combination with changes in operating conditions	Considers changing conditions specific for a low carbon scenario	30%

[vii] Large elements are defined as business segments that generate more that 30% of the company's total revenues.

Is there a carbon price considered?	Conditions considered	No carbon price is considered	A carbon price is used as one of the conditions	A carbon price is used as one of the main conditions and highly influences the results		The carbon price used is aligned with the assumptions of a low carbon scenario[viii]	10%

Rationale

OG 5.5 Climate change scenario testing

Rationale of the indicator

Economical changes predicted to occur due to climate change could have a number of consequences for the O&G sector, including increased costs, a dramatically changed operating environment and major disruptions to the business. There are a variety of ways of analyzing the potential impacts of climate-related changes on the business, whether these are slow and gradual developments or one-off “shocks”. Investors are increasingly calling for techniques such as use of an internal price on carbon, scenario analysis and stress testing to be implemented to enable companies to calculate the value-at-risk that such changes could pose to the business. As this practice is emergent at this time there is currently no comprehensive survey or guidance on specific techniques or tools recommended for the sector. The ACT methodology thus provides a broad definition of types of testing and analysis which can be relevant to this information requirement, to identify both current and best practices and consider them in the analysis.

This disclosure is in line with Disclosure c) of the Taskforce on Climate-related Financial Disclosures: "c) Describe the resilience of the organization’s strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario".

Scenario stress testing is an important management tool for preparing for low carbon transition. For businesses likely to be strongly affected by climate change impacts (both direct and indirect), it has even greater importance.

[viii] Refer for instance to IEA, WEO 2019, Annex B, p 758. CO2 prices are displayed by world regions, predicted values at 2030 and 2050.

6. SUPPLIER ENGAGEMENT INDICATORS (WEIGHTING: 0-20%)

OG 6.1 STRATEGY TO INFLUENCE SUPPLIERS TO REDUCE THEIR GHG EMISSIONS (WEIGHTING: 0-10%)

Description & Requirements

OG 6.1 Strategy to influence suppliers to reduce their GHG emissions

Short description of indicator

This indicator assesses the strategic policy and the process which are formalized and implemented by the company in order to engage its suppliers.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A19: List of environmental/CSR contract clauses in purchasing & suppliers' selection process

CDP Questionnaire mapping to this indicator:

- C12.1
- C12.1a

External sources of data may also be used for the analysis of this indicator.

How the assessment will be done

The analyst will assign a maturity score based on the company's formalized strategy with its suppliers, expressed in a maturity matrix.

A company that is placed in the 'aligned' category will receive the maximum score. Companies who are at lower levels will receive a partial score, with 0 points awarded for having no engagement at all.

This maturity matrix is indicative but does not show all possible options that can result in a particular score. Companies responses will be scrutinized by the analyst and then placed on the level in the matrix where the analyst deems it most appropriate.

Question	Subdimension	Basic	Standard	Advanced	Next practice	Low carbon aligned	Subscore
		0%	*25%*	*50%*	*75%*	*100%*	
To what extent are GHG emissions reduction issues integrated into engagement with suppliers?	Consideration of reduction targets	No consideration	CSR clause included in engagements with suppliers. Means-driven commitment included in contracts (no obligation on results)	CSR clause with GHG emissions reduction included in engagements with suppliers. Results-driven commitment in contracts	CSR clause with quantified GHG emissions reduction included in engagements with suppliers. Results-driven commitment in contracts. Regular reporting (annual frequency as a minimum)	CSR clause with GHG emissions reduction included as priority in engagements with suppliers. Results-driven commitment in contracts. Regular reporting (annual frequency as a minimum)	20%
Which strategy is used by the company to encourage suppliers to develop a low carbon offer?	Strategy towards suppliers	No strategy	Passive approach (suppliers may offer low carbon product but no specific requirements from the company)	Use of one action lever (awareness campaign, compensation, purchasing rule, sectoral workshops/initiatives, common R&D programs, partnerships, etc.)	Use of several action levers (awareness campaign, compensation, purchasing rule, sectoral workshops/initiatives, common R&D programs, partnerships, etc.)	Use of several action levers (awareness campaign, compensation, purchasing rule, sectoral workshops/initiatives, common R&D programs, partnerships, etc.). Regular audits of the supplier by the purchaser or a representative	30%
What is the scope of the action levers used?	Scope	No strategy applied to any suppliers	Insignificant % of suppliers	Strategy applied to few suppliers (represent at least 30% of purchases)	Strategy applied to majority of suppliers (represent at least 60% of purchases)	Strategy applied to all of suppliers (represent at least 90% of purchases)	20%

To what extent GHG issues are integrated in the selection process of suppliers?	Suppliers selection process	No selection of suppliers based on environmental criteria No change in suppliers' base	Selection of suppliers based on at least one environmental criterion No change in suppliers' base	Selection of suppliers with low carbon alternatives (only as a criteria) No change in suppliers' base	Selection of suppliers offering low carbon alternatives (to answer to its own needs) No change in suppliers' base	Engaging suppliers over low carbon alternatives	30%

Rationale

OG 6.1 Strategy to influence suppliers to reduce their GHG emissions

Rationale of the indicator

Relevance of the indicator:

Supplier engagement is included in the ACT OG assessment for the following reasons:

1. Given their size and their decision-making power in the value chain, integrated companies have the ability to influence the strategy and performance of suppliers regarding climate.
2. The upstream segment represents a high source of emissions throughout the value chain (10% of the total GHG emissions[ix] of the Oil value chain) and should be engaged. However, the weight of this indicator depends on the position of the company in the value chain and whether it has influence on its suppliers.
3. Engaging suppliers through contract clauses and sales incentives is necessary to take them on board.

Scoring the indicator

Because of data availability and complexity, a direct measure of the outcome of such engagement is not very feasible at this time. It is often challenging to quantify the emissions reduction potential and outcome of collaborative activities within the supply chain. Therefore, the approach of a maturity matrix allows the analyst to consider multiple dimensions of supplier engagement and assess them together towards a single score for Supplier Engagement.

[ix] ARC Energy Research Institute, using input data from the US Department of Energy National Energy Technology Laboratory to define the US Refined Average (2014))

OG 6.2 ACTIVITIES TO INFLUENCE SUPPLIERS TO REDUCE THEIR GHG EMISSIONS (WEIGHTING: 0-10%)

Description & Requirements

OG 6.2 Activities to influence suppliers to reduce their GHG emissions

Short description of indicator

This indicator assesses initiatives and the partnerships launched by the company in order to engage its suppliers.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A20: List of initiatives implemented to influence suppliers to reduce their GHG emissions, green purchase policy or track record, supplier code of conduct

CDP Questionnaire mapping to this indicator:

- C12.1
- C12.1a

External sources of data may also be used for the analysis of this indicator.

How the assessment will be done

The analyst will assign a maturity score based on the company's formalized strategy with their suppliers, expressed in a maturity matrix.

A company that is placed in the 'aligned' category will receive the maximum score. Companies who are at lower levels will receive a partial score, with 0 points awarded for having no engagement at all.

This maturity matrix is indicative but does not show all possible options that can result in a particular score. Companies responses will be scrutinized by the analyst and then placed on the level in the matrix where the analyst deems it most appropriate.

Question	Subdimension	Basic	Standard	Advanced	Next practice	Low carbon aligned	Subscore
		0%	*25%*	*50%*	*75%*	*100%*	
How does the company encourage suppliers to reduce their GHG emissions?	Suppliers GHG emissions	No activity	Company requires suppliers to sign a code of conduct (or similar) and/or to provide data regarding their environmental performance (for audited suppliers). Means-driven commitment	Company assists suppliers to reduce their GHG emissions Company monitors GHG emissions along its value chain Provision of documents and tools by the lessor	Company partners with large suppliers to define common GHG emissions reduction plan Provision of documents and tools Multi-party working group with annual meeting at least	Company contributes in GHG emissions reduction along its value chain through close partnerships with suppliers	50%
Does the company use its purchasing power to drive low carbon demand?	Low carbon offer of suppliers	No green purchase		Company purchases low carbon products/equipment to reduce its production phase emissions		Company purchases low carbon products/equipment to reduce its production phase emissions Company partners with suppliers to develop low carbon products	30%
Does the company finance low carbon innovation in the supply chain?	Low carbon offer of suppliers	No financing activities		Finances companies that develop innovative low carbon equipment/products	Finances companies that develop innovative low carbon equipment/products. Provides non-financial supports through close partnerships	Finances companies that develop innovative low carbon equipment/products. Provides non-financial supports through close partnerships. Purchases or guarantees future purchases the companies produce in the pilot/road test phase.	20%

Rationale

OG 6.2 Activities to influence suppliers to reduce their GHG emissions

Rationale of the indicator

Relevance of the indicator

Activities to influence suppliers are included in the ACT OG assessment for the following reasons:

1. Given their size and their decision-making power in the value chain, integrated companies have the ability to influence the strategy and performance of suppliers regarding climate.
2. The upstream segment represents a high source of emissions throughout the value chain (10% of the total GHG emissions[x] of the Oil value chain) and should be engaged. However, the weight of this indicator depends on the position of the company in the value chain and whether it has influence on its suppliers.
3. Engaging suppliers through contract clauses and sales incentives is necessary to take them on board.

Scoring the indicator

Because of data availability and complexity, a direct measure of the outcome of such engagement is not very feasible at this time. It is often challenging to quantify the emission reduction potential and outcome of collaborative activities with the supply chain. Therefore, the approach of a maturity matrix allows the analyst to consider multiple dimensions of supplier engagement and assess them together towards a single score for all the activities related to Supplier Engagement.

[x] ARC Energy Research Institute, using input data from the US Department of Energy National Energy Technology Laboratory to define the US Refined Average (2014))

7. CLIENTS ENGAGEMENT INDICATORS (WEIGHTING: 0-10%)

OG 7.1 STRATEGY TO INFLUENCE CLIENT BEHAVIOUR TO REDUCE THEIR GHG EMISSIONS (WEIGHTING: 0-5%)

Description & Requirements

OG 7.1 Strategy to influence clients to reduce their GHG emissions

Short description of indicator

This indicator assesses the level of engagement that the company has with its clients, based on an assessment of the client policy formalized and implemented by the company.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A21: Client policy

CDP Questionnaire mapping to this indicator:

- C12.1
- C12.1b

External sources of data may also be used for the analysis of this indicator.

How the assessment will be done

The analyst will assign a maturity score based on the company's formalized strategy with their clients, expressed in a maturity matrix. Particular attention will be paid to differentiate:

- "Business to business" (B2B) cases, i.e. where the client is a company.
- "Business to Customer" (B2C) cases, i.e. where the client is a non-business customer.

A company that is placed in the 'aligned' category will receive the maximum score. Companies who are at lower levels will receive a partial score, with 0 points awarded for having no engagement at all.

This maturity matrix is indicative but does not show all possible options that can result in a particular score. Company responses will be scrutinized by the analyst and then placed on the level in the matrix where the analyst deems it most appropriate.

Question	Subdimension	Basic	Standard	Advanced	Next practice	Low carbon aligned	Subscore
		0%	*25%*	*50%*	*75%*	*100%*	
To what extent GHG emissions reduction challenges are integrated in engagement with clients?	Consideration of reduction targets	No strategy	GHG emissions reduction included in engagement with clients Means-driven commitment	GHG emissions reduction is mentioned in the strategy, along with levers identified to influence clients	Quantified GHG emissions reduction for the clients in the strategy. Levers to reach the objective are identified	Quantified GHG emissions reduction for the clients is included as a priority in the strategy. Levers to reach the objective are identified	40%
Which strategy is used by the company to encourage clients to buy low carbon products?	Influence on clients	No strategy	Passive approach	Use of one action lever (awareness campaign, compensation, purchasing rule, etc.) Provision of documents and tools by the lessor	Use of several action levers (awareness campaign, compensation, purchasing rule, etc.) Provision of documents and tools Multi-party working group with annual meeting at least	Use of several action levers (awareness campaign, compensation, purchasing rule, etc.) Contribution to shift demand towards low carbon products	40%
What is the % of clients in scope of the action levers used?	Scope	No clients in the scope	Insignificant % of clients	Only large clients (represent at least 30% of revenues in total)	Majority of clients (represent at least 60% of total revenues)	All clients (represent at least 90% of total revenues)	20%

Rationale

OG 7.1 Strategy to influence clients to reduce their GHG emission

Rationale of the indicator

Relevance of the indicator

Strategy to influence clients are included in the ACT OG assessment for the following reasons:

1. Given their size and their decision-making power in the value chain, integrated companies have the ability to influence the strategy and performance of clients regarding climate.

2. The downstream segment represents the largest source of emissions throughout the value chain (representing more than 80% of total GHG emissions of the oil value chain[1]) and should be engaged. However, the weight of this indicator depends on the position of the company in the value chain and whether it has influence on its clients.

Scoring the indicator

Because of data availability and complexity, a direct measure of the outcome of such engagement is not very feasible at this time. It is often challenging to quantify the emission reduction potential and outcome of collaborative activities with the supply chain. Therefore, the approach of a maturity matrix allows the analyst to consider multiple dimensions of supplier engagement and assess them together towards a single score for all the activities related to Client Engagement.

OG 7.2 ACTIVITIES TO INFLUENCE CLIENT BEHAVIOUR TO REDUCE THEIR GHG EMISSIONS (WEIGHTING: 0-5%)

Description & Requirements

OG 7.2 Activities to influence clients to reduce their GHG emissions

Short description of indicator

This indicator assesses the level of engagement that the company has with its clients, based on an assessment of previous initiatives that show whether or not the company engages with clients in various ways.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A22: List of initiatives implemented to influence client behaviour to reduce their GHG emissions

CDP Questionnaire mapping to this indicator:

- C12.1
- C12.1b

External sources of data may also be used for the analysis of this indicator.

How the assessment will be done

The analyst will assign a maturity score based on the company's formalized strategy with their clients, expressed in a maturity matrix. Particular attention will be paid to differentiate:

- "Business to business" (B2B) cases, i.e. where the client is a company.

- "Business to Customer" (B2C) cases, i.e. where the client is a non-business customer.

A company that is placed in the 'aligned' category will receive the maximum score. Companies who are at lower levels will receive a partial score, with 0 points awarded for having no engagement at all.

This maturity matrix is indicative but does not show all possible options that can result in a particular score. Companies responses will be scrutinized by the analyst and then placed on the level in the matrix where the analyst deems it most appropriate.

Question	Subdimension	Basic	Standard	Advanced	Next practice	Low carbon aligned	Subscore
		0%	*25%*	*50%*	*75%*	*100%*	
How the company encourage clients to reduce their GHG emissions?	Clients GHG emissions	No engagement	Company promotes products with lower carbon footprint but no data reported Company defines means-driven commitment	Company assists clients to reduce their GHG emissions	Company partners with strategic clients to define common GHG emissions reduction plan Provision of documents and tools Multi-party working group with annual meeting at least	Company contributes in GHG emissions reduction along its value chain through close partnerships with clients	30%
Does the company promote low carbon solutions to its clients?	Low carbon products	No offer	The company does offer low carbon/energy efficient products but no promotion strategy developed	The company promotes its low carbon offer through marketing and communication channels	The company promotes its low carbon offer through marketing and communication channels. The company offers buying incentives regarding low carbon products	The company promotes its low carbon offer through marketing and communication channels. The company offers buying incentives regarding low carbon products. The brand identity of the company is based only on its range of low carbon solutions.	40%

Does the company provide support to clients in order to help them reduce their GHG emissions?	Support provided to clients	No support provided	Insignificant % of clients	The company provides support (consulting services, premium client service) to a small part of its clients (represent at least 20% of total revenues) in order to help them reduce their GHG emissions	The company provides support (consulting services, premium client service) to a significant portion of its clients (representing at least 40% of total revenues) in order to help them reduce their GHG emissions	The company provides support (consulting services, premium client service) to a majority of its clients (represent at least 60% of total revenues) in order to help them reduce their GHG emissions	30%

Rationale

OG 7.2 Activities to influence clients to reduce their GHG emissions

Rationale of the indicator

Relevance of the indicator

Activities to influence clients are included in the ACT OG assessment for the following reasons:

1. Given their size and their decision-making power in the value chain, integrated companies have the ability to influence the strategy and performance of clients regarding climate.
2. The downstream segment represents the largest source of emissions throughout the value chain (representing more than 80% of total GHG emissions of the oil value chain[1]) and should be engaged. However, the weight of this indicator depends on the position of the company in the value chain and whether it has influence on its clients.

Scoring the indicator

Because of data availability and complexity, a direct measure of the outcome of such engagement is not very feasible at this time. It is often challenging to quantify the emission reduction potential and outcome of collaborative activities with the supply chain. Therefore, the approach of a maturity matrix allows the analyst to consider multiple dimensions of supplier engagement and assess them together towards a single score for all the activities related to Client Engagement.

8. POLICY ENGAGEMENT INDICATORS (WEIGHTING: 5%)

OG 8.1 COMPANY POLICY ON ENGAGEMENT WITH TRADE ASSOCIATIONS (WEIGHTING: 1%)

Description & Requirements

OG 8.1 Company policy on engagement with trade associations

Short description of indicator

The company has a policy on what action to take when industry organizations to which it belongs are found to be opposing “climate-friendly” policies.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A23: Company policy on engagement with trade associations

CDP Questionnaire mapping to this indicator:

- C12.3

External sources of data may also be used for the analysis of this indicator.

How the assessment will be done

The analyst will evaluate the description and evidence of the policy on trade associations and climate change for the presence of best practice elements and consistency with the other reported management indicators. The company description and evidence will be compared to the maturity matrix developed to guide the scoring and a greater number of points will be allocated for elements indicating a higher level of maturity.

Best practice elements to be identified in the test/analysis include:

- A publicly available policy is in place
- The scope of the policy covers the entire company and its activities, and all group memberships and associations
- The policy sets out what action is to be taken in the case of inconsistencies
- Action includes option to terminate membership of the association
- Action includes option of publicly opposing or actively countering the association position
- Responsibility for oversight of the policy lies at top level of the organization

- There is a process to monitor and review trade association positions

Question	Subdimension	Basic	Standard	Advanced	Next practice	Low carbon aligned	Subscore
		0%	*25%*	*50%*	*75%*	*100%*	
What is the scope covered by the engagement policy? Is the policy publicly available?	Transparency and scope	Does not cover entire company or all group memberships. Is not publicly available.	Does not cover entire company or all group memberships. Is publicly available.	Covers the entire company and its activities, and all group memberships and associations, but not publicly available		Covers the entire company and its activities, and all group memberships and associations. Public policy is publicly available	40%
Does the company have a review process of trade associations?	Oversight	No process to review trade associations positions	A process to monitor and review trade association positions exists but is not necessarily implemented	A process to monitor and review trade association positions exists and is well implemented	A process to monitor and review trade association positions exists and is well implemented at a high level of the organization	A process to monitor and review trade associations positions exists. Responsibility for oversight of the policy lies at top level of the organization	40%
Does the policy have an action plan regarding engagement with trade associations?	Action plan	No mention of this element		Sets out what action is to be taken in the case of inconsistencies	Option to terminate membership of the association	Option of publicly opposing or actively countering the association position	20%

Rationale

OG 8.1 Company policy on engagement with trade associations

Rationale of the indicator

Trade associations are a key instrument by which companies can indirectly influence policy on climate. Thus, when trade associations take positions, which are negative for climate, companies need to take action to ensure that this negative influence is countered or minimized.

This indicator is consistent with ACT philosophy and common to the other sectoral methodologies.

OG 8.2 TRADE ASSOCIATIONS SUPPORTED DO NOT HAVE CLIMATE-NEGATIVE ACTIVITIES OR POSITIONS (WEIGHTING: 2%)

Description & Requirements

OG 8.2 Trade associations supported do not have climate-negative activities or positions

Short description of indicator

This indicator assess if the company is or is not on the board or providing funding beyond membership of any trade associations that have climate-negative activities or positions. It also takes into account the fact that the company is or is not supporting trade associations with climate-positive activities and/or positions. The company's responsibilities (funding or decisional aspects) is examined here.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A24: List of supported trade associations

CDP Questionnaire mapping to this indicator:

- C12.3

External sources of data may also be used for the analysis of this indicator.

How the assessment will be done

The list of trade associations declared in the CDP data and other external source entries relating to the company (e.g. RepRisk database), is assessed against a list of associations that have climate-negative activities or positions. The results are compared to any policy described in 5.1.

If the company is part of trade associations that have climate-positive activities and/or positions, this should be considered for the analysis.

Question	Subdimension	Basic	Standard	Advanced	Next practice	Low carbon aligned	Subscore
		0%	*25%*	*50%*	*75%*	*100%*	
Does the company support trade associations that have climate negative activities/positions?	Membership/funding	Company is on the board or provides funding beyond membership to trade associations that have climate-negative activities or positions.		The company is not on the board or providing funding beyond membership of any trade associations that have climate-negative activities or positions. Company can be member.		Company is not a member of any trade associations that have climate negative activities or positions	100%

Rationale OG 8.2 Trade associations supported do not have climate-negative activities or positions

Rationale of the indicator Trade associations are a key instrument by which companies can indirectly influence policy on climate. Participating in trade associations which actively lobby against climate-positive legislation is hence, a negative indicator and likely to obstruct low carbon transition. However, membership in association that supports climate positive policies should also be considered in the analysis.

OG 8.3 POSITION ON SIGNIFICANT CLIMATE POLICIES (WEIGHTING: 2%)

Description & Requirements OG 8.3 Position on significant climate policies

Short description of indicator The company is not opposed to any significant climate relevant policy and/or supports climate friendly policies.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A25: Position of the company on significant climate policies (public statements, etc.)

CDP Questionnaire mapping to this indicator:

- C12.3

External sources of data may also be used for the analysis of this indicator.

How the assessment will be done

The analyst will evaluate the description and evidence on company position on relevant climate policies for the presence of best practice elements, negative indicators and consistency with the other reported management indicators. The company description and evidence will be compared to the maturity matrix developed to guide the scoring and a greater number of points will be allocated for elements indicating a higher level of maturity.

Question	Subdimension	Basic	Standard	Advanced	Next practice	Low carbon aligned	Subscore
		0%	*25%*	*50%*	*75%*	*100%*	
What is the position of the company on significant climate policies?	Climate policy support	Reported direct opposition to climate policy can be found (third-party claims are found)	No reported direct opposition to climate policy	Publicly supports significant climate policies	Publicly commits to international low carbon commitments Engages in sectoral/cross-sectoral initiatives against climate change*	Publicly commits to international low carbon commitments Leads sectoral/cross-sectoral initiatives against climate change* (founding member/main sponsor/spokeperson of the initiative)	100%

List of sectoral initiatives on the low carbon transition of O&G sector:

- Zero Routine Flaring by 2030' Initiative[xi]
- Oil and Gas Climate Initiative[xii]
- Perspectives Gaz[xiii]
- IEA targets[xiv]
- Industry sector policies and measures modelled in IEA SDS scenario[xv]
- …

List of cross-sectoral initiatives on the low carbon transition of the economy:

- Paris Agreement
- SBT Initiative (validated targets)
- ACT initiative
- …

Rationale	OG 8.3 Position on significant climate policies
Rationale of the indicator	Private and public stakeholders of the O&G sectors have been developing initiatives about sustainable practices that contribute to the transition to a low carbon economy. Companies should not oppose effective and well-designed regulation in these areas, but should support it. Assessing the position of the company regarding the evolution of the context is thus key to understand the corporate vision in these matters.

[xi] The World Bank

[xii] Oil and Gas Climate Initiative, At work Committed to climate action, 2018.

[xiii] Perspectives Gaz (2018)

[xiv] IEA, The Oil and Gas Industry in Energy Transitions, 2018.

[xv] IEA, WEO 2019, Annex B.6 Policies.

9. BUSINESS MODEL INDICATORS (WEIGHTING: 10%)

OG 9.1 BUSINESS ACTIVITIES THAT DRIVE THE ENERGY MIX TO LOW CARBON ENERGY (WEIGHTING: 4%)

Description & Requirements

OG 9.1 Business activities that drive the energy mix to low carbon energy

Short description of indicator

The company is actively developing business models for a low carbon future by demonstrating its application of low carbon business model pathways. The innovative business models that have been identified as being strategic for the company's low carbon transition are the ones that drive the energy mix to low carbon energy.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A26: List of activities and relevant financial KPI (turnover, invested capital, etc.) in new businesses related to low carbon business models
- A27: Current position and action plan of the company towards the identified low carbon business models

Regarding financial KPIs, which might be highly strategic and confidential, the company may be asked to indicate ranges of numbers instead of specific data.

CDP Questionnaire mapping to this indicator:

- C4.5
- C8.2
- C-OG9.8

External sources of data may also be used for the analysis of this indicator.

How the assessment will be done

The analysis is based on (up to) five business activities proposed by the company. The analyst evaluates the implementation of the future business model pathways through a maturity matrix.

If several business models are developed by the company, the final score will be the one given to the most mature business model (usually the one that is best scored too). The company should not be penalized if it has built a mature business model and explores besides other tracks (which would be scored with a lower score) compared to another company having only one mature business model.

Three business model categories, comprising subcategories (non-exhaustive list), aim at driving the energy mix to low carbon energy:

1. Production and sale of sustainable fuels and gases	2. Low carbon electricity[i]	3. Activities that do not contribute to fossil fuel extraction
• Production and sales of sustainable fuels (including 2nd generation biofuels, 3rd generation biofuels, e-fuels, …) • Production and sale of green hydrogen • Production and sale of biogas (including bio-methane, e-gas…) • …	• Production and sale of renewable electricity • Production and sale of electricity from nuclear sources • Electricity storage • Renewable electricity equipment • EV charging[ii] • …	• Other relevant activities that contribute to preserving available fossil fuels deposits (compensation to balance losses for non-extracted fossil fuels, lowering fossil fuel consumption of clients by paying them to use other sources of energy that are less carbon intensive, etc.)

Best-practice elements to be identified in the test/analysis include:

- the company has developed a mature business model that integrates one or many of the above elements
- the business activity is profitable

[i] As defined in the European Taxonomy, i.e. below a 100gCO_2/kWh a threshold (Technical Annex, 'Electricity, gas, steam and air conditioning supply', p205)

[ii] Even if EV charging does not necessarily means that low-carbon electricity is used, it is considered as part of the low-carbon business model sub-category. Indeed, integrated or downstream players are developing EV charging at the expense of fossil fuels activities. It is also expected that the carbon content of the electricity mix worldwide decreases in the future.

- the business activity is of a substantial size
- the company is planning to expand the business activity
- expansion will occur on a defined timescale

Maximum points are awarded if all of these elements are demonstrated.

The maturity matrix is provided below:

	Basic	Advanced	Low carbon aligned	Weight of the indicator in business model score
Associated score	0%	50%	100%	100%
Profitability of business model	Mature business models but non profitable	Mature and profitable business model	Mature and profitable business model, contributing to the global profitability of the company	25%
Current size of business model	Limited size of business for the company (few FTE or time dedicated, small turnover, few revenues expected, etc.)	Substantial size of market for the company (significant number or FTE or dedicated hours, great turnover, great anticipated profitability, etc.)	Crucial size of market for the company (represent one of the three largest business segments of the company)	25%
Growth potential of business model	Scheduling next development steps	Scheduling the expansion of the target or size of the business model	Scheduling the high expansion of the target or size of the business model	25%
Deployment schedule of business model	Deployment anticipated and planned to continue for at least 2 years	Deployment anticipated and planned to continue for 2 to 10 years	Deployment anticipated and planned to continue for at least 10 years	25%

Rationale

OG 9.1 Business activities that drive the energy mix to low carbon energy

Rationale of the indicator

In addition to developing sustainable practices, a company may transition its business model to other areas to remain profitable in a low carbon economy. The company's future business model should enable it to decouple financial results from GHG emissions, in order to meet the constraints of low carbon transition while continuing to generate value. The business model shifts identified do not conflict with the changes that are implied by decarbonizing the company's Integrated O&G business model.

This indicator aims to identify both relevant current business activities, and those still at a burgeoning stage. It is recognized that transition to a low carbon economy, with associated change in business models, will take place over a number of years. The assessment will thus seek to identify and reward projects at an early stage as well as more mature business activities, although the latter (i.e. substantially sized, profitable, and/or expanding) business activities will be better rewarded.

Business models related to this indicator represent for some of them mature markets with long-established players. Therefore, the requirements of the business models in terms of size and profitability have been revised upwards, compared to the other two indicators.

The maturity matrix contains more demanding criteria than those established for indicators OG 9.2 and OG 9.3. Indeed, activities that reduce the energy mix to low carbon energy represent a more mature and less risky market than those associated with OG 9.2 and OG 9.3. Innovative business models are expected to be more ambitious and complete.

OG 9.2 BUSINESS ACTIVITIES THAT CONTRIBUTE TO THE REDUCTION OF ENERGY DEMAND (WEIGHTING: 3%)

Description & Requirements

OG 9.2 Business activities that contribute to the reduction of energy demand

Short description of indicator

The company is actively developing business models for a low carbon future by demonstrating its application of low carbon business model pathways. The innovative business models that have been identified as being strategic for the company's low carbon transition are the ones that contribute to the reduction of energy demand.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A26: List of activities and relevant financial KPI (turnover, invested capital, etc.) in new businesses related to low carbon business models

- A27: Current position and action plan of the company towards the identified low carbon business model

Regarding financial KPIs, which might be highly strategic and confidential, the company may be asked to indicate ranges of numbers instead of specific data.

CDP Questionnaire mapping to this indicator:

- C4.5
- C8.2
- C-OG9.8

External sources of data may also be used for the analysis of this indicator.

How the assessment will be done

The analysis is based on (up to) five business activities proposed by the company. The analyst evaluates the implementation of the future business model pathways through a maturity matrix.

If several business models are developed by the company, the final score will be the one given to the most mature business model (usually the one that is best scored too). The company should not be penalized if it has built a mature business model and explores besides other tracks (which would be scored with a lower score) compared to another company having only one mature business model.

Two business model categories, comprising subcategories (non-exhaustive list) aim at contributing to the reduction of energy demand:

1. Sales of Energy efficiency services	2. Services that optimize the use of / reduce demand for energy
• Energy audits • Energy efficiency services/actions • Energy Performance Contracting (EPC) / Energy Operations & Maintenance services • Energy efficient equipment • Product as a service • …	• Low carbon building • Demand-response electricity management and other smart grids • Mobility services (mobility on demand, …) • …

In order for companies to align with a low carbon future and meet future mobility needs, it is expected that they pursue at least one of these future business model pathways and integrate them in their strategic plans. The analyst evaluates the description and evidence of the company's degree of activity in one of the future business model areas for the presence of best practice elements and consistency with the other reported management indicators. The company description and evidence are compared to the maturity matrix developed to guide the scoring and a greater number of points are allocated for elements indicating a higher level of maturity.

The minimum requirement for points to be awarded is that some level of exploration of one or more of these relevant business areas has started. This could include participation in collaborations, pilot projects, or research funding.

Best-practice elements to be identified in the test/analysis include:

- the company has developed a mature business model that integrates one or many of the above elements
- the business activity is profitable
- the business activity is of a substantial size
- the company is planning to expand the business activity
- expansion will occur on a defined timescale

Maximum points are awarded if all of these elements are demonstrated.

The maturity matrix is provided below:

	Basic	Advanced	Low carbon aligned	Weight of the indicator in business model score
Associated score	0%	50%	100%	**100%**
Profitability of business model	Non- estimated or in a very early stage of development (research or conception stage)	Mature business model but non- profitable or in a development stage (prototype / demonstration or test)	Mature and profitable business model	25%
Current size of business model	Non- estimated	Limited size of business for the company (few FTE or time dedicated, small	Substantial size of market for the company (significant number or FTE or dedicated	25%

		turnover, few revenues expected, etc.)	hours, great turnover, great anticipated profitability, etc.)	
Growth potential of business model	Non- estimated or exploration of the business model interrupted	Scheduling next development steps	Scheduling the expansion of the target or size of the business model	25%
Deployment schedule of business model	Non-planned	Deployment anticipated and planned with a 2 year horizon or less	Deployment anticipated and planned with a 2 year horizon or more	25%

Rationale

OG 9.2 Business activities that contribute to the reduction of energy demand

Rationale of the indicator

In addition to developing sustainable practices, a company may transition its business model to other areas to remain profitable in a low carbon economy. The company's future business model should enable it to decouple financial results from GHG emissions, in order to meet the constraints of low carbon transition while continuing to generate value. The business model shifts identified do not conflict with the changes that are implied by decarbonizing the company's Integrated O&G business model.

This indicator aims to identify both relevant current business activities, and those still at a burgeoning stage. It is recognized that transition to a low carbon economy, with associated change in business models, will take place over a number of years. The assessment will thus seek to identify and reward projects at an early stage as well as more mature business activities, although the latter (i.e. substantially sized, profitable, and/or expanding) business activities will be better rewarded.

OG 9.3 BUSINESS ACTIVITIES THAT DEVELOP CCS, CCUS AND NEGATIVE EMISSIONS TECHNOLOGIES (WEIGHTING: 3%)

Description & Requirements

OG 9.3 Business activities that develop CCS, CCUS and Negative Emissions Technologies (NETs)

Short description of indicator

The company is actively developing business models for a low carbon future by demonstrating its application of low carbon business model pathways. The innovative business models that have been identified as being strategic for the company's low carbon transition are the ones that develop CCS, CCUS and NETs.

Data requirements

The questions comprising the information request that are relevant to this indicator are:

- A26: List of activities and relevant financial KPI (turnover, invested capital, etc.) in new businesses related to low carbon business models
- A27: Current position and action plan of the company towards the identified low carbon business models

Regarding financial KPIs, which might be highly strategic and confidential, the company may be asked to indicate ranges of numbers instead of specific data.

CDP Questionnaire mapping to this indicator:

- C4.5
- C8.2
- C-OG9.8

External sources of data may also be used for the analysis of this indicator.

How the assessment will be done

The analysis is based on (up to) five business activities proposed by the company. The analyst evaluates the implementation of the future business model pathways through a maturity matrix. The technologies exposed above are only to be considered as part of business models (to be sold to clients), i.e. that offsetting the company's emissions is not taken into account here.

If several business models are developed by the company, the final score will be the one given to the most mature business model (usually the one that is best scored too). The company should not be penalized if it has built a mature business model and explores besides other tracks (which would be scored with a lower score) compared to another company having only one mature business model.

Business model categories, comprising subcategories (non-exhaustive list), can either relate to:

- CCS and CCUS technologies
- Negative Emissions Technologies (NETs)

A list of NETs have been proposed by the European Academies' Science Advisory Council (EASAC) and is reported below [16]:

- Afforestation / Reforestation
- Land management to increase and fix carbon in soils
- Bioenergy production with carbon capture and storage (BECCS)
- Enhanced weathering
- Direct capture of CO_2 from ambient air with CO_2 storage (DACCS)
- Ocean fertilization to increase CO_2

In order for companies to align with a low carbon future, it is expected that they pursue at least one of these future business model pathways and integrate them in their strategic plans. The analyst evaluates the description and evidence of the company's degree of activity in one of the future business model areas for the presence of best practice elements and consistency with the other reported management indicators. The company description and evidence are compared to the maturity matrix developed to guide the scoring and a greater number of points are allocated for elements indicating a higher level of maturity.

The minimum requirement for points to be awarded is that some level of exploration of one or more of these relevant business areas has started. This could include participation in collaborations, pilot projects, or research funding.

Best-practice elements to be identified in the test/analysis include:

- the company has developed a mature business model that integrates one or many of the above elements
- the business activity is profitable
- the business activity is of a substantial size
- the company is planning to expand the business activity
- expansion will occur on a defined timescale

Maximum points are awarded if all of these elements are demonstrated.

The maturity matrix is provided below:

	Basic	Advanced	Low carbon aligned	Weight of the indicator in business model score
Associated score	0%	50%	100%	**100%**
Profitability of business model	Non- estimated or in a very early stage of development (research or conception stage)	Mature business model but non- profitable or in a development stage (prototype / demonstration or test)	Mature and profitable business model	25%
Current size of business model	Non- estimated	Limited size of business for the company (few FTE or time dedicated, small turnover, few revenues expected, etc.)	Substantial size of market for the company (significant number or FTE or dedicated hours, great turnover, great anticipated profitability, etc.)	25%
Growth potential of business model	Non- estimated or exploration of the business model interrupted	Scheduling next development steps	Scheduling the expansion of the target or size of the business model	25%
Deployment schedule of business model	Non-planned	Deployment anticipated and planned with a 2 year horizon or less	Deployment anticipated and planned with a 2 year horizon or more	25%

Rationale

OG 9.3 Business activities that develop CCS, CCUS and Negative Emissions Technologies (NETs)

Rationale of the indicator

In addition to developing sustainable practices, a company may transition its business model to other areas to remain profitable in a low carbon economy. The company's future business model should enable it to decouple financial results from GHG emissions, in order to meet the constraints of low carbon transition while continuing to generate value. The business model shifts identified do not conflict with the changes that are implied by decarbonizing the company's Integrated O&G business model.This indicator aims to identify both relevant current business activities, and those still at a burgeoning stage. It is recognized that transition to a low carbon economy, with associated change in business models, will take place over a number of years. The assessment will thus seek to identify and reward projects at an early stage as well as more mature business activities, although the latter (i.e. substantially sized, profitable, and/or expanding) business activities will be better rewarded.

5 Assessment

5.1 SECTORAL BENCHMARK

Description of the benchmark

The fundamental target to achieve for all organizations is to contribute to not exceeding a threshold of 2ºC global warming compared to pre-industrial temperatures. This target has long been widely accepted as a credible threshold for achieving a reasonable likelihood of avoiding climate instability, while a 1.5ºC rise has been agreed upon as an aspirational target.

As a consequence, low carbon scenarios used for the benchmark are Well Below 2°C scenarios or 1.5°C scenarios.

Every company shall be benchmarked according to an acceptable and credible benchmark that align with spatial boundary of the methodology. All companies shall be benchmarked to the generic pathway for all energies/all uses except for ones that have locked-in specific uses or energies (e.g. service station companies with uses limited to road transportation).

The company benchmark is the company allocated decarbonization pathway. The company is allocated this pathway from the sector decarbonization pathway, of which there are different pathways for different countries and regions. The extent to which a company is tied to a scenario in any one country is proportional to its sales in that country, thus the company benchmark is geographically weighted.

The allocation mechanism, as defined by the SDA (see Glossary), is the convergence mechanism. This allocation takes the company's emissions intensity in the base year and converges it to the sector's emissions intensity in 2050. Thus, companies starting from a lower intensity will have a shallower decarbonisation pathway than companies starting from a higher intensity. In this way, past action or in-action to reduce intensity is incorporated.

Next, the reference pathway definition and classification are presented.

Reference pathway classification

A reference pathway defines the carbon intensity (tCO_2e/TJ) pathway for a given company type.

For the O&G sector, we consider 2 types of pathways:

- the generic pathway for all energy sources/all uses
- specific pathways (e.g. service stations pathway).

In the future, additional relevant pathways (that are not currently available) might be considered as well.

For the semi-integrated and integrated O&G companies, the generic pathways shall be applied, as these companies may supply a varied combination of energy mixes to the whole range of final markets. For companies that have locked-in specific uses or energies, a specific pathway might be defined. E.g. as service stations are solely for road mobility, the service station companies shall apply its specific pathway.

The generic pathway considers total energy supply CO_2 equivalent content, while the service station pathway only need consider the carbon intensity of energy supply for road transport.

Available reference pathways

To date, 2 reference pathways have been generated: O&G TPES pathway for all energies/all use and Service station pathway for service station pure players.

These pathways may need to be updated according to the latest methodological developments of the scenarios.

- O&G TPES pathway

The O&G Total Primary Energy Supply (TPES) pathway is based on energy data from IEA ETP 2020 – Sustainable Development Scenario (SDS) [11]. This pathway shows the total energy supply carbon intensity to 2050.

The pathway is converted to GHG emissions broken down between Upstream, Midstream, Downstream operations and Use/Combustion based on standardized emissions intensities.

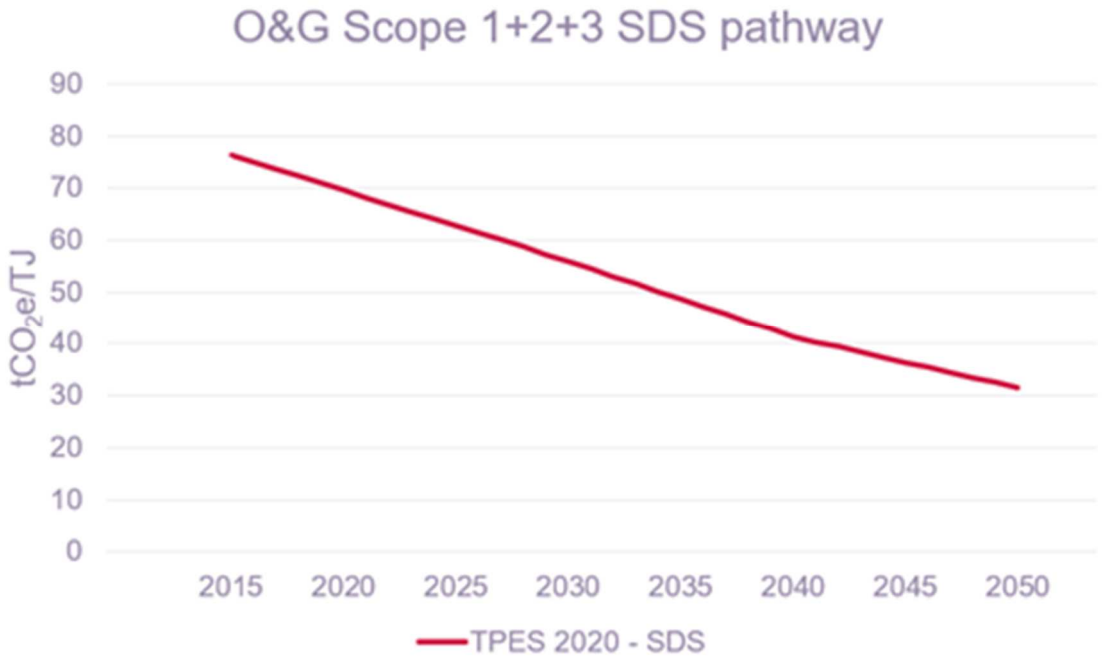


FIGURE 5 - CALCULATED PATHWAYS FOR IEA ETP 2020 - SDS (SCOPE 1+2+3) [11].

The pathway is converted to CO_2e emissions based on standardized emissions intensities.

- Service stations pathway

As for the O&G TPES pathway, the Service stations SDS pathway is generated based on energy data from IEA ETP 2020 – SDS [11]. This pathway shows the total energy supply carbon intensity for road transport until 2050.

The pathway is converted to CO_2e emissions based on standardized emissions intensities.

Mapping and current status of the benchmarks (February 2021)

TABLE 7: BENCHMARKS THAT ARE CONSIDERED IN THIS METHODOLOGY

Benchmark	Performance indicators concerned	Status
Benchmarks for Scope 1+2 GHG intensity	OG 1.1 / OG 1.2 / OG 2.1 / OG 2.3	Done
Benchmarks for Scope 1+2+3 GHG intensity	OG 1.2 / OG 4.1 / OG 4.2	Done
Benchmark for locked-in emissions	OG 2.2	Done
Benchmark for the share of CAPEX in Low carbon & mitigation technologies	OG 2.5	Done after road-test of the methodology
Benchmark for the share of CAPEX CDR and CCS/CCUS technologies	OG 2.6	Done after road-test of the methodology
Benchmark for the R&D share in Low carbon & mitigation technologies	OG 3.1	Same as for CAPEX so far – Done after road-test of the methodology
Benchmark for the R&D share in CDR/CCS/CCUS technologies	OG 3.2	Same as for CAPEX so far – Done after road-test of the methodology
Benchmark for the Low carbon revenue share	OG 4.3	Done after road-test of the methodology

5.2 QUANTITATIVE BENCHMARKS USED FOR THE INDICATORS

Benchmarks for Scope 1+2 GHG intensity

The low carbon scenario chosen for this benchmark is the IEA World Energy Outlook (WEO) 2020 – Sustainable Development Scenario [17], as it gives targets for the emissions related to the operations of O&G (upstream/midstream/downstream).

Emission intensity targets are defined by the IEA for O&G companies for 2030 as % reduction compared to 2018, as shown in Figure 6.

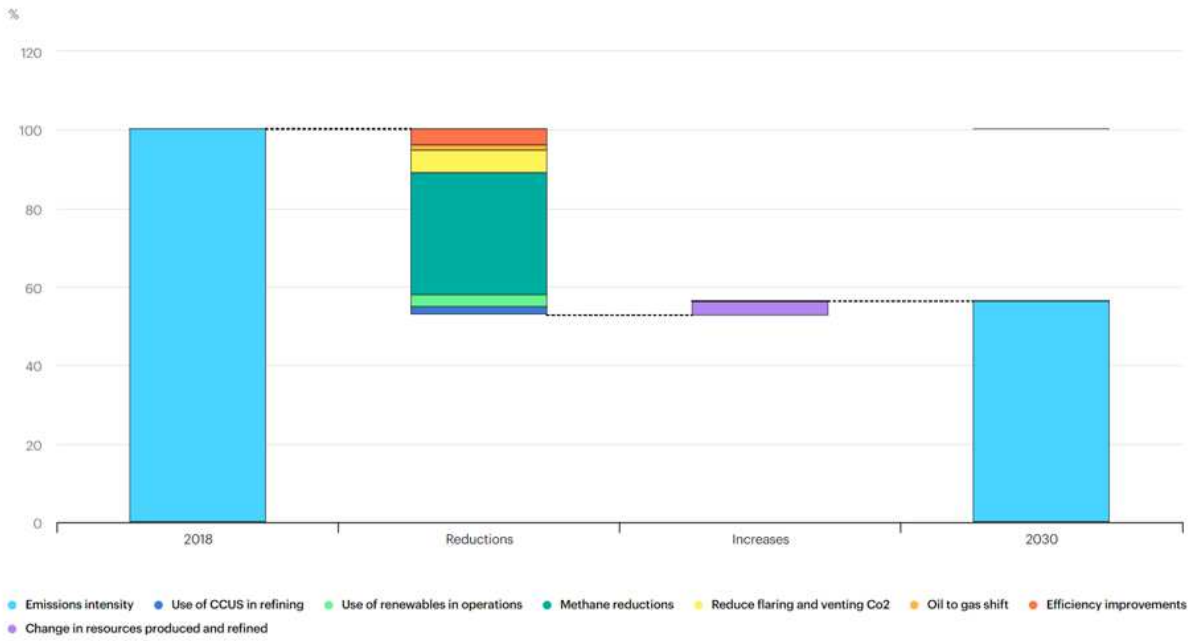


FIGURE 6 – O&G SECTOR SCOPE 1+2 GHG INTENSITY PREVISIONS BY IEA

All these emissions intensity targets have been translated into the Upstream, Midstream and Downstream steps of the value chain of Oil and Gas products. To compute the emissions intensity targets of each year, the compound annual percentage change from 2018 to 2030 has been computed, and this percentage change has been applied until 2050. A check has been made to make sure that the value in 2050 is realistic.

Benchmark for the share of CAPEX in Low carbon & mitigation technologies

The low carbon scenario chosen for this benchmark is the IEA WEO SDS as it gives estimates of the required Annual Energy CAPEX for the 2020-2050 period for the Fuel business model and Power Business models.

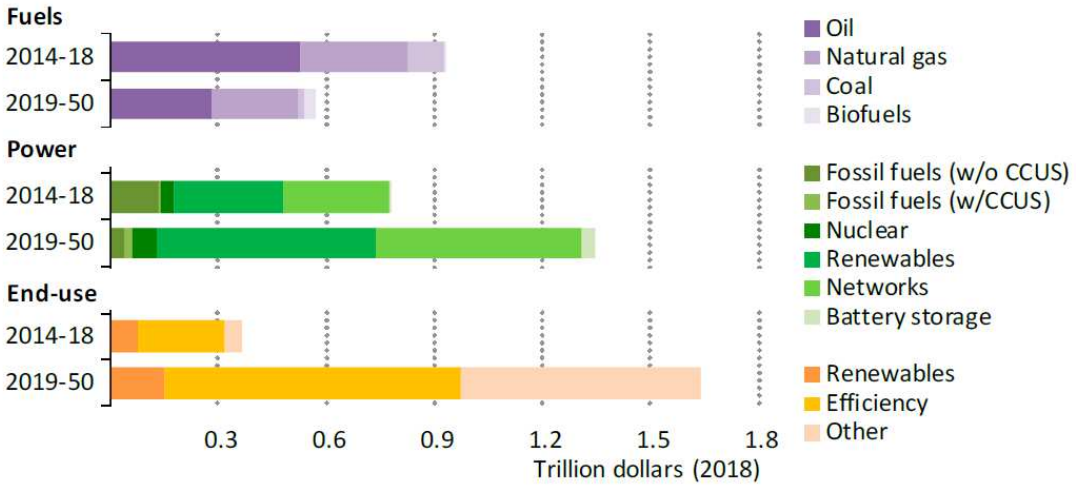


FIGURE 7 - AVERAGE ANNUAL ENERGY INVESTMENT IN THE SDS[i]

- Estimated ratio of low carbon CAPEX for Fuels Businesses is 5% over the 2019-2050 period
- Estimated ratio of low carbon CAPEX for Power business is 67% over the 2019-2050 period

[i] From IEA, WEO 2019, page 93

The required share of low carbon investments for an Oil & Gas player is estimated by considering that the field of transition for an Oil & Gas player is the Total Energy playfield. The sum of the required low carbon investments for Fuel and Power leads to a share of low carbon investents of 49%.

➔ Benchmark for the share of CAPEX in Low carbon & mitigation technologies = **49%**.

Benchmark for the share of CAPEX CDR and CCS/CCUS technologies

The benchmark used for CAPEX in CDR and CCS/CCUS technologies is based on an average of several global energy-economy models (see McCollum et *al*., 2018)[ii], which give an order of magnitude of CCS CAPEX required in a 1.5°C scenario, compared to the total Energy Supply (fuels and electricity) CAPEX worldwide.

➔ Benchmark for the share of CAPEX CDR and CCS/CCUS technologies = **5%.**

Benchmark for the R&D share in Low carbon & mitigation technologies

There is no science-based benchmark identified as of 2021 for the share of R&D expenses in low carbon & mitigation technologies for the O&G sector. As a proxy, it is proposed to use as a default value the same benchmark as the one used for the share of CAPEX in low carbon and mitigation technologies.

➔ Benchmark for the R&D share in Low carbon & mitigation technologies = **49%**.

Benchmark for the R&D share in CDR/CCS/CCUS technologies

There is no science-based benchmark identified as of 2020 for the share of R&D expenses in CDR/CCS/CCUS technologies for the O&G sector. As a proxy, it is proposed to use as a default value the same benchmark as the one used for the share of CAPEX in CDR/CCS/CCUS technologies

➔ Benchmark for the R&D share in CDR/CCS/CCUS technologies = **5%**.

Benchmark for the Low carbon revenue share

The low carbon scenario chosen for this benchmark is the IEA ETP 2020 - SDS [11] as it describes the evolution of the primary energy total supply between 2014 and 2050.

The additional low carbon energies of the scenario are presumed to be sold by both the incumbents in low carbon energies as well as the new entrants in low carbon energies in 2015 (especially the actors of the O&G sector),

The company share of volume of primary energy (Energy MJ) is taken as a proxy of its revenue share.

As a consequence, it is proposed the following benchmark for the share of low carbon revenues in total revenues.

TABLE 8: LOW CARBON PRODUCT SHARE BENCHMARK

	Sustainable Development Scenario							
	2019	2020	2025	2030	2035	2040	2045	2050
Low Carbon share for Oil & Gas	1%	2%	7%	12%	21%	30%	38%	46%

[ii] The models assessed in the McCollum et *al*. (2018) paper include six global energy-economy models (« IAM frameworks »: AIM/CGE, IMAGE, MESSAGEix-GLOBIOM, POLES, REMIND-MAgPIE and WITCH-GLOBIUM) as well as investment estimates from IEA and IRENA.

5.3 WEIGHTINGS

Rationale for weightings

The selection of weights for both the modules and the individual indicators was guided by a set of principles [4]. These principles helped define the value of the indicators, see Table 9.

TABLE 9: GENERAL PRINCIPLES FOR THE ASSIGNMENT OF WEIGHTINGS TO ACT INDICATORS AND MODULES

Principle	Explanation
Value of information	The value of the information that an indicator gives about a company's outlook for the low carbon transition is the primary principle for the selection of the weights.
Impact of variation	A high impact of variation in an indicator means that not performing in such an indicator has a large impact on the success of a low carbon transition, and this makes it more relevant for the assessment.
Future orientation	Indicators that measure the future, or a proxy for the future, are more relevant for the ACT assessment than past & present indicators, which serve only to inform the likelihood and credibility of the transition.
Data quality sensitivity	Indicators that are highly sensitive to expected data quality variations are not recommended for a high weight compared to other indicators, unless there is no other way to measure a particular dimension of the transition.

The weightings have been designed for each type of company covered by the ACT O&G methodology, in order to reflect the strategic stakes which are different from an upstream company to a downstream company.

For semi-integrated companies covering two segments of the value chain (i.e. upstream-midstream, or midstream-downstream), weightings are calculated as an average of the split of turnover between their activities.

As an illustration, if a company turnover is based on P % of upstream activities and therefore (100-P) % of midstream activities, then the weighting factors for each module is calculated as below:

$$Weighting_{company} = P \times Weighting_{UP} + (100 - P) \times Weighting_{MID}$$

Dedicated weightings are listed below for all kind of companies.

TABLE 10: MODULES WEIGHTINGS FOR ALL TYPES OF COMPANIES CONSIDERED IN THE O&G VALUE CHAIN

	INTEGRATED PLAYER		SEMI-INTEGRATED PLAYER		PURE UPSTREAM PLAYER		PURE MIDSTREAM PLAYER		PURE DOWNSTREAM PLAYER	
Module	**Weighting**	**Rationale**	**Weighting**	**Rationale**	**Weighting**	**Rationale**	**Weighting**	**Rationale**	**Weighting**	**Rationale**
1. Targets	**15%**	Fixed weight across all sectors	**See above**	Based on the weightings of the two steps of the value chain	**15%**	Fixed weight across all sectors	**15%**	Fixed weight across all sectors	**15%**	Fixed weight across all sectors
2. Material Investment	**15%**	Owned assets (production infrastructure) represent a significant source of emissions	**See above**	Idem	**40%**	Owned assets (production infrastructure) represent the highest source of emissions	**15%**	Owned assets (e.g. refineries) represent a significant source of emissions	**5%**	Except for the infrastructure related to the distribution network, owned assets do not represent a significant source of emissions
3. Intangible Investment	**8%**	R&D investments for low carbon innovation are crucial for the value chain	**See above**	Idem	**10%**	R&D investments for low carbon innovation are crucial for the value chain	**10%**	R&D investments for low carbon innovation are crucial for the value chain	**2%**	R&D investments for low carbon innovation exist but not crucial for the value chain
4. Sold Product Performance	**23%**	The performance of sold products (traditional O&G vs low carbon solutions) represent a significant source of emissions	**See above**	Idem	**10%**	The performance of sold products (traditional O&G vs low carbon solutions) represent a significant source of emissions	**20%**	The performance of sold products (traditional O&G vs low carbon solutions) represent a significant source of emissions	**23%**	The performance of sold products (traditional O&G vs low carbon solutions) represent a significant source of emissions
5. Management	**10%**	Fixed weight across all sectors	**See above**	Idem	**10%**	Fixed weight across all sectors	**10%**	Fixed weight across all sectors	**10%**	Fixed weight across all sectors
6. Supplier	**4%**	Low weight since external upstream/midstream suppliers might not be needed (all value chain covered by the company)	**See above**	Idem	**0%**	Suppliers for Upstream are not strategic, compared to the rest of the value chain.	**10%**	High level of influence on the upstream	**20%**	High level of influence on the upstream/midstream
7. Client	**10%**	Client contact and high level of influence (product shift, energy efficiency services)	**See above**	Idem	**0%**	No lever to influence client along the value chain. Not relevant.	**5%**	B2B Client contact and medium level of influence (product shift...)	**10%**	Client contact and high level of influence (product shift, energy efficiency services)
8. Policy engagement	**5%**	Average weight compared to the other sectors	**See above**	Idem	**5%**	Average weight compared to the other sectors	**5%**	Average weight compared to the other sectors	**5%**	Average weight compared to the other sectors
9. Business Model	**10%**	Fixed weight across all sectors	**See above**	Idem	**10%**	Fixed weight across all sectors	**10%**	Fixed weight across all sectors	**10%**	Fixed weight across all sectors
	100%		**100%**		**100%**		**100%**		**100%**	

- **WEIGHTING FOR INTEGRATED O&G COMPANIES**

TABLE 11: INDICATORS WEIGHTINGS FOR INTEGRATED COMPANIES

OG	Module	Indicator	Module weight	Indicator weight
1.1	Targets	Alignment of Scope 1+2 emissions reduction targets	15%	4%
1.2		Alignment of Scope 1+2+3 emissions reduction targets		8%
1.3		Time horizon of targets		2%
1.4		Historic Target Ambition and Company Performance		1%
2.1	Material Investment	Trend in past Scope 1+2 emissions intensity	15%	2%
2.2		Emissions lock-in		3%
2.3		Trend in future Scope 1+2 emissions intensity		3%
2.4		Share of unsanctioned projects within carbon budget		2%
2.5		Low carbon and mitigation technologies CAPEX share		3%
2.6		Carbon removal technologies (CDR) and carbon capture, use and storage technologies (CCS, CCUS) CAPEX share		2%
3.1	Intangible Investment	Share of R&D in Low carbon and mitigation technologies	8%	4%
3.2		Share of R&D in Carbon removal technologies (CCS, CCUS, CDR)		4%
4.1	Sold Product Performance	Trend in past Scope 1+2+3 emissions intensity	23%	5%
4.2		Trend in future Scope 1+2+3 emissions intensity		8%
4.3		Trend in future low carbon products share		5%
4.4		Energy efficiency services share		5%
5.1	Management	Oversight of climate change issues	10%	2%
5.2		Climate change oversight capability		2%
5.3		Low carbon transition plan		3%
5.4		Climate change management incentives		1%
5.5		Climate change scenario testing		2%
6.1	Supplier	Strategy to influence suppliers to reduce their GHG emissions	4%	2%
6.2		Activities to influence suppliers to reduce their GHG emissions		2%
7.1	Client	Strategy to influence client behaviour to reduce their GHG emissions	10%	5%
7.2		Activities to influence client behaviour to reduce their GHG emissions		5%
8.1	Policy engagement	Company policy on engagement with trade associations	5%	1%
8.2		Trade associations supported do not have climate-negative activities or positions		2%
8.3		Position on significant climate policies		2%
9.1	Business model	Business activities that drive the energy mix to low carbon energy	10%	4%
9.2		Business activities that contribute to the reduction of energy demand		3%
9.3		Business activities that develop CCS, CCUS and negative emissions technologies		3%
Overall			**100%**	**100%**

- **RATIONALE FOR INTEGRATED O&G COMPANIES WEIGHTING SCHEME**

Targets 15%

The targets module has a relatively large weight of 15%. Most of it is placed on the alignment of *Scope 1+2+3 emissions reduction targets* with 8%, compared to 4% for *Scope 1+2*. A higher weight on Scope 1+2+3 because the Scope 3 is by far the largest source of emissions across the value chain of an integrated O&G company. 1% score is attributed to the *previous achievemen*t indicator, which measures the company's past credentials on target setting and achievement. It is not very important by the principles outlined above, but nonetheless can provide contextual information on the company's experience to meet ambitious targets Finally, *the time horizon of targets* has a weight of 2%. It is a proxy of how forward-looking the company is, which is very long-term oriented.

Material Investment 15%

This module carries a weight of 15%. This weight is a little lower than the 20% recommended in the ACT developer guidelines. This gap is due to the specific operating models of the O&G companies, which have impact through both their material investments and their sold products, and therefore have both modules rated. The material investment module has a lower weight than sold product performance because it assesses the impact of Scope 1+2 emissions, which is lower than the impact of Scope 3 (performance of products in particular).

The assets owned by an integrated company, especially its production infrastructure. represent a high source of emissions. As they are mainly contributing to the Scope 1+2 emissions, the analysis of the *trend in future Scope 1+2 emissions intensity* receives a weight of 3%.

The *emissions lock-in* indicator uses the same information but attempts to measure the amount of carbon emissions the company is already committed to from its individual carbon budget. This means it is also very future oriented and receives a weight of 3%. *The trend in past Scope 1+2 emissions intensity* is an indication of the 'adjustment' that the company has to make to place itself on a low carbon pathway. It principally adds information about what kind of changes the company needs to undergo in order to become low carbon aligned, and therefore receives a medium weight of 3%.

The CAPEX allocated to low carbon technologies is also a useful signal for understanding the future alignment of the company with a low carbon pathway. *Low carbon and mitigation technologies CAPEX share* and *Carbon removal technologies (CCS, CCUS, CDR) CAPEX share* have respective weights of 3% and 2%.

Intangible investment 8%

The R&D in climate change mitigation technologies indicator is focused on the company's intangible investments or financial commitments to climate change mitigation technologies. R&D investment for low carbon innovation are crucial for the value chain, especially for the upstream and midstream segments, and thus the module is weighted to 8%.

Sold product performance 23%

This module carries the highest weight of all the modules as it holds most of the information about the company's actions to reduce emissions from its products (traditional O&G vs low carbon solutions), where most of the emissions occur (Scope 3). The focus is put on the *trend in future Scope 1+2+3 emissions intensity* with a weight of 8%. The trend in future share of low carbon products (weight of 5%) and the energy efficiency services share (weight of 5%) are also good indicators to take into consideration for this module.

Management 10%

Management is a multi-faceted module that makes up 10% of the score, because it incorporates a number of smaller indicators which together paint a picture of the company's management and strategic approach to the low carbon transition. Consequently, and according to the principle of future orientation the highest weight, 3%, is placed on *the low carbon transition plan*. *The oversight of climate change issues* and *the climate change oversight capability* are weighted at 2% each. These two indicators measure the ability of the company to integrate sustainability into its strategy and to embrace the main challenges related to low carbon transition. *Climate change scenario testing*, future-oriented, is also weighted at 2%. Finally, the *climate-change management incentives* has a low weight of 1%, as it is a contextual indicators whose outcome can strengthen or undermine the company's ability to carry out the transition plan and meet ambitious science-based targets.

Supplier engagement 4%

In order to reduce emissions from the whole value chain, it is imperative that integrated companies involve their supply chains. This indicator focuses on the global strategy and general activities that an integrated company has in place with respect to its engagement with suppliers. Nonetheless, since their supply chains are mainly internalized, the engagement with external suppliers provides less leverage than for midstream or downstream companies. Therefore, this module has a low weight of 4%.

Client 10%

The client engagement indicator is focused on the company's efforts to reduce emissions generated after the products have been sold and to influence client practices towards low carbon consumption and circular economy practices. As with supplier engagement, it is not an indicator that is easy to measure and relies heavily on data quality to make a proper analysis. This module therefore focuses on the global strategy and general activities that an O&G company has in place to support/govern its engagement with clients.

Policy Engagement 5%

In line with the rationale for the management indicators of low weight, the policy engagement indicators are also contextual aspects which tell a narrative about the company's stance on climate change and how the company expresses it in their engagement with policy makers and trade associations. The total weight for this module is therefore medium at 5%. The *company's position on relevant climate policy* and the *trade associations supported do not have climate-negative activities or positions* make up the bulk of this, with 2% each. The remaining 1% is allocated to *company policy on engagement with trade associations*.

Business model 10%

It includes those aspects that are relevant to the transition but are not directly a part of the primary business activities. It is future oriented by asking the company its narrative on certain future directions that the sector can/has to take to enable the transition. It has been split into three main categories, which represent the three main challenges of the transition for an O&G company: *Business activities that drive the energy mix to low carbon energy* (4%), *Business activities that contribute to the reduction of energy demand* (3%) and *Business activities that develop CCS, CCUS and negative emissions* technologies (3%).

- **WEIGHTING SCHEME FOR UPSTREAM PLAYERS**

TABLE 12: INDICATORS WEIGHTINGS FOR UPSTREAM COMPANIES

OG	Module	Indicator	Module weight	Indicator weight
1.1	Targets	Alignment of Scope 1+2 emissions reduction targets	15%	8%
1.2		Alignment of Scope 1+2+3 emissions reduction targets		4%
1.3		Time horizon of targets		2%
1.4		Historic Target Ambition and Company Performance		1%
2.1	Material Investment	Trend in past Scope 1+2 emissions intensity	40%	5%
2.2		Emissions lock-in		7%
2.3		Trend in future Scope 1+2 emissions intensity		8%
2.4		Share of unsanctioned projects within carbon budget		8%
2.5		Low carbon and mitigation technologies CAPEX share		6%
2.6		Carbon removal technologies (CDR) and carbon capture, use and storage technologies (CCS, CCUS) CAPEX share		6%
3.1	Intangible Investment	Share of R&D in Low carbon and mitigation technologies	10%	5%
3.2		Share of R&D in Carbon removal technologies (CCS, CCUS, CDR)		5%
4.1	Sold Product Performance	Trend in past Scope 1+2+3 emissions intensity	10%	4%
4.2		Trend in future Scope 1+2+3 emissions intensity		6%
4.3		Trend in future low carbon products share		0%
4.4		Energy efficiency services share		0%
5.1	Management	Oversight of climate change issues	10%	2%
5.2		Climate change oversight capability		2%
5.3		Low carbon transition plan		3%
5.4		Climate change management incentives		1%
5.5		Climate change scenario testing		2%
6.1	Supplier	Strategy to influence suppliers to reduce their GHG emissions	0%	0%
6.2		Activities to influence suppliers to reduce their GHG emissions		0%
7.1	Client	Strategy to influence client behaviour to reduce their GHG emissions	0%	0%
7.2		Activities to influence client behaviour to reduce their GHG emissions		0%
8.1	Policy engagement	Company policy on engagement with trade associations	5%	1%
8.2		Trade associations supported do not have climate-negative activities or positions		2%
8.3		Position on significant climate policies		2%
9.1	Business model	Business activities that drive the energy mix to low carbon energy	10%	4%
9.2		Business activities that contribute to the reduction of energy demand		3%
9.3		Business activities that develop CCS, CCUS and negative emissions technologies		3%
Overall			**100%**	**100%**

- **RATIONALE FOR UPSTREAM PLAYERS WEIGHTING SCHEME**

Targets 15%

The targets module has a relatively large weight of 15%. Most of it is placed on the alignment of *Scope 1+2+3 emissions reduction targets* with 8%, compared to 4% for *Scope 1+2*. A higher weight on Scope 1+2+3 because the Scope 3 is by far the largest source of emissions across the value chain of an integrated O&G company. 1% of the score is attributed to the *previous achievemen*t indicator, which measures the company's past performance on setting and achieving targets. It is not considered important according to the principles outlined above, but can provide contextual information on the company's experience in meeting ambitious targets Finally, *the time horizon of targets* has a weight of 2%. It is a proxy of how forward-looking the company is and is very long-term oriented.

Material Investment 40%

This module is weighted at 40%, highest of all the modules as production infrastructure is responsible for the bulk of emissions related to the Upstream sector. As these emissions are mainly contributing to the Scope 1+2 the *trend in future Scope 1+2 emissions intensity* receives a high weight of 8%.

Both indicators, *Emissions lock-in* and *Share of unsanctioned projects within carbon budget*, get strong weights (7% and 8% respectively). These attempt to measure the carbon emissions the company is committed to from its individual carbon budget through current and future projects.

The trend in past Scope 1+2 emissions intensity is an indication of the 'adjustment' that the company has to make to place itself on a low carbon pathway. It principally adds information about what kind of changes the company needs to undergo in order to become low carbon aligned, and therefore receives a medium weight of 5%.

Besides, the CAPEX allocated to low carbon technologies is also a relevant signal for understanding the future alignment of the company with a low carbon pathway. *Low carbon and mitigation technologies CAPEX share* and *Carbon removal technologies (CCS, CCUS, CDR) CAPEX share* have a respectively weight of 6%.

Intangible investment 10%

The R&D in climate change mitigation technologies indicator is focused around the company's intangible investments or financial costs into climate change mitigation technologies. R&D investment for low carbon innovation are crucial for the value chain, especially for the upstream segments, and thus the module is heighted to 10%.

Sold product performance 10%

This module carries a low weight compared to the midstream and downstream segments. Even though most of the emissions occur in the Scope 3 throughout the value chain, Upstream players have few levers to reduce emissions related to the products. The focus is put on the *trend in future Scope 1+2+3 emissions intensity* with a weight of 6%. Since Upstream players do not deliver final products, the trend in future share of low carbon products and the energy efficiency services share are not relevant (weight of 0%).

Management 10%

Management is a multi-faceted module that makes up 10% of the score, because it incorporates a number of smaller indicators which together paint a picture of the company's management and strategic approach to the low carbon transition. Consequently, and according to the principle of future orientation the highest weight,

3%, is placed on *the low carbon transition plan*. *The oversight of climate change issues* and *the climate change oversight capability* are weighted at 2% each. These two indicators measure the ability of the company to integrate sustainability into its strategy and to embrace the main challenges related to low carbon transition. *Climate change scenario testing*, future-oriented, is also weighted at 2%. Finally, the *climate-change management incentives* has a low weight of 1%, as it is a contextual indicators whose outcome can strengthen or undermine the company's ability to carry out the transition plan and meet ambitious science-based targets.

Supplier engagement 0%

Suppliers of the Upstream segment have few levers to reduce the emissions of the whole value chain and are not strategic. Therefore, the module has a null weight.

Client 0%

Upstream players have little ability to influence their clients (Midstream players). The module has a null weight.

Policy Engagement 5%

In line with the rationale for the management indicators of low weight, the policy engagement indicators are also contextual aspects which tell a narrative about the company's stance on climate change and how the company expresses it in their engagement with policy makers and trade associations. The total weight for this module is therefore medium at 5%. The *company policy on engagement with trade associations*, and the *company's position on relevant climate policy* make up the bulk of this, with 2% each. Finally, 1% is allocated to *positions of the company's trade associations that do not have climate-negative activities* as this is a very specific question and concern a minority of companies.

Business model 10%

The module captures many elements and aspects that cannot otherwise be captured in any of the other modules. It includes those aspects that are relevant to the transition but are not directly a part of the primary generation activities. It is future oriented by asking the companies on its narrative on certain future directions that the sector can/has to take to enable the transition. It has been split into three main categories, which represent the three main challenges of the transition for an O&G company: *Business activities that drive the energy mix to low carbon energy* (4%), *Business activities that contribute to the reduction of energy demand* (3%) and *Business activities that develop CCS, CCUS and negative emissions technologies* (3%).

• WEIGHTING SCHEME FOR MIDSTREAM PLAYERS

TABLE 13: INDICATORS WEIGHTINGS FOR MIDSTREAM COMPANIES

OG	Module	Indicator	Module weight	Indicator weight
1.1	Targets	Alignment of Scope 1+2 emissions reduction targets	15%	6%
1.2		Alignment of Scope 1+2+3 emissions reduction targets		6%
1.3		Time horizon of targets		2%
1.4		Historic Target Ambition and Company Performance		1%
2.1	Material Investment	Trend in past Scope 1+2 emissions intensity	15%	3%
2.2		Emissions lock-in		0%
2.3		Trend in future Scope 1+2 emissions intensity		4%
2.4		Share of unsanctioned projects within carbon budget		0%
2.5		Low carbon and mitigation technologies CAPEX share		4%
2.6		Carbon removal technologies (CDR) and carbon capture, use and storage technologies (CCS, CCUS) CAPEX share		4%
3.1	Intangible Investment	Share of R&D in Low carbon and mitigation technologies	10%	5%
3.2		Share of R&D in Carbon removal technologies (CCS, CCUS, CDR)		5%
4.1	Sold Product Performance	Trend in past Scope 1+2+3 emissions intensity	20%	6%
4.2		Trend in future Scope 1+2+3 emissions intensity		9%
4.3		Trend in future low carbon products share		5%
4.4		Energy efficiency services share		0%
5.1	Management	Oversight of climate change issues	10%	2%
5.2		Climate change oversight capability		2%
5.3		Low carbon transition plan		3%
5.4		Climate change management incentives		1%
5.5		Climate change scenario testing		2%
6.1	Supplier	Strategy to influence suppliers to reduce their GHG emissions	10%	5%
6.2		Activities to influence suppliers to reduce their GHG emissions		5%
7.1	Client	Strategy to influence client behaviour to reduce their GHG emissions	5%	2.5%
7.2		Activities to influence client behaviour to reduce their GHG emissions		2.5%
8.1	Policy engagement	Company policy on engagement with trade associations	5%	1%
8.2		Trade associations supported do not have climate-negative activities or positions		2%
8.3		Position on significant climate policies		2%
9.1	Business model	Business activities that drive the energy mix to low carbon energy	10%	4%
9.2		Business activities that contribute to the reduction of energy demand		3%
9.3		Business activities that develop CCS, CCUS and negative emissions technologies		3%
Overall			**100%**	**100%**

• RATIONALE FOR MIDSTREAM PLAYERS WEIGHTING SCHEME

Targets 15%

The targets module has a relatively large weight of 15%. Most of it is placed on the alignment of *Scope 1+2+3 emissions reduction targets* with 6% and for *Scope 1+2* (6%). 1% score is attributed to the

*previous achievemen*t indicator, which measures the company's past credentials on target setting and achievement. It is not very important by the principles outlined above, but nonetheless can provide contextual information on the company's experience to meet ambitious targets Finally, *the time horizon of targets* has a weight of 2%. It is a proxy of how forward-looking the company is, which is very long-term oriented.

Material Investment 15%

This module carries a weight of 15%. This weight is a bit lower than the 20% recommended in the ACT developer guidelines. This gap is due to the specificity of the O&G companies, which have impact through their material investments and their sold products; and therefore, have both modules rated. The material investment module has a lower weight than the one for sold product performance because it represents the impact of Scope 1+2 emissions, which is lower than the impact of the Scope 3 (performance of the products particular).

The assets owned by an integrated company represent a relatively high source of emissions for Midstream companies. As these emissions are mainly contributing to the Scope 1+2, the analysis of the *trend in future Scope 1+2 emissions intensity* receives a weight of 4%.

The trend in past Scope 1+2 emissions intensity is an indication of the 'adjustment' that the company has to make to place itself on a low carbon pathway. It principally adds information about what kind of changes the company needs to undergo in order to become low carbon aligned, and therefore receives a medium weight of 3%.

Besides, the CAPEX allocated to low carbon technologies is also a relevant signal for understanding the future alignment of the company with a low carbon pathway. *Low carbon and mitigation technologies CAPEX share* and *Carbon removal technologies (CCS, CCUS, CDR) CAPEX share* have respectively a weight of 4%.

Both indicators *Emissions lock-in* and *Share of unsanctioned projects within carbon budget* concern infrastructure for exploration and production and are not relevant for Midstream players. They have a 0 weight.

Intangible investment 10%

The R&D in climate change mitigation technologies indicator is focused around the company's intangible investments or financial costs into climate change mitigation technologies. R&D investment for low carbon innovation are crucial for the value chain, especially for the midstream segment, and thus the module is heighted to 10%.

Sold product performance 20%

This module carries the largest weight out of all the modules. Indeed, it holds most of the information about the company's actions to reduce emissions on its products (traditional O&G vs low carbon solutions), where most of the emissions occur (Scope 3). The focus is put on the *trend in future Scope 1+2+3 emissions intensity* with a weight of 9%. The trend in future share of low carbon products (weight of 5%) is also a relevant indicator to take into consideration for this module. Since Midstream players do not offer services, the indicator *energy efficiency services share* is assigned a zero weight.

Management 10%

Management is a multi-faceted module that makes up 10% of the score, because it incorporates a number of smaller indicators which together paint a picture of the company's management and strategic approach to the low carbon transition. Consequently, and according to the principle of future orientation the highest weight,

3%, is placed on *the low carbon transition plan*. *The oversight of climate change issues* and *the climate change oversight capability* are weighted at 2% each. These two indicators measure the ability of the company to integrate sustainability into its strategy and to embrace the main challenges related to low carbon transition. *Climate change scenario testing*, future-oriented, is also weighted at 2%. Finally, the *climate-change management incentives* has a low weight of 1%, as it is a contextual indicators whose outcome can strengthen or undermine the company's ability to carry out the transition plan and meet ambitious science-based targets.

Supplier engagement 10%

In order to reduce emissions from the whole value chain, it is imperative that Midstream players involve their supply chains, i.e. the Upstream segments, whether from fossil or renewable origin. Therefore, this module has a significant weight of 10%. These indicators focus on the global strategy and general activities that an integrated company has in place with respect to its engagement with suppliers.

Client 5%

The client engagement indicator is focused around the company's efforts to reduce the emissions generated after its products have been sold and to influence downstream companies' practices towards low carbon consumption and circular economy practices. This module focuses on the global strategy and general activities that a Midstream company has in place on their engagement with its clients.

Policy Engagement 5%

In line with the rationale for the management indicators of low weight, the policy engagement indicators are also contextual aspects which tell a narrative about the company's stance on climate change and how the company expresses it in their engagement with policy makers and trade associations. The total weight for this module is therefore medium at 5%. The *company policy on engagement with trade associations*, and the *company's position on relevant climate policy* make up the bulk of this, with 2% each. Finally, 1% is allocated to *positions of the company's trade associations that do not have climate-negative activities* as this is a very specific question and concern a minority of companies.

Business model 10%

The module captures many elements and aspects that cannot otherwise be captured in any of the other modules. It includes those aspects that are relevant to the transition but are not directly a part of the primary generation activities. It is future oriented by asking the companies on its narrative on certain future directions that the sector can/has to take to enable the transition. It has been split into three main categories, which represent the three main challenges of the transition for an O&G company: *Business activities that drive the energy mix to low carbon energy* (4%), *Business activities that contribute to the reduction of energy demand* (3%) and *Business activities that develop CCS, CCUS and negative emissions technologies* (3%).

- **WEIGHTING SCHEME FOR DOWNSTREAM PLAYERS**

TABLE 14: INDICATORS WEIGHTINGS FOR DOWNSTREAM COMPANIES

OG	Module	Indicator	Module weight	Indicator weight
1.1	Targets	Alignment of Scope 1+2 emissions reduction targets	15%	2%
1.2		Alignment of Scope 1+2+3 emissions reduction targets		10%
1.3		Time horizon of targets		2%
1.4		Historic Target Ambition and Company Performance		1%
2.1	Material Investment	Trend in past Scope 1+2 emissions intensity	5%	2%
2.2		Emissions lock-in		0%
2.3		Trend in future Scope 1+2 emissions intensity		3%
2.4		Share of unsanctioned projects within carbon budget		0%
2.5		Low carbon and mitigation technologies CAPEX share		0%
2.6		Carbon removal technologies (CDR) and carbon capture, use and storage technologies (CCS, CCUS) CAPEX share		0%
3.1	Intangible Investment	Share of R&D in Low carbon and mitigation technologies	2%	2%
3.2		Share of R&D in Carbon removal technologies (CCS, CCUS, CDR)		0%
4.1	Sold Product Performance	Trend in past Scope 1+2+3 emissions intensity	23%	5%
4.2		Trend in future Scope 1+2+3 emissions intensity		8%
4.3		Trend in future low carbon products share		5%
4.4		Energy efficiency services share		5%
5.1	Management	Oversight of climate change issues	10%	2%
5.2		Climate change oversight capability		2%
5.3		Low carbon transition plan		3%
5.4		Climate change management incentives		1%
5.5		Climate change scenario testing		2%
6.1	Supplier	Strategy to influence suppliers to reduce their GHG emissions	20%	10%
6.2		Activities to influence suppliers to reduce their GHG emissions		10%
7.1	Client	Strategy to influence client behaviour to reduce their GHG emissions	10%	5%
7.2		Activities to influence client behaviour to reduce their GHG emissions		5%
8.1	Policy engagement	Company policy on engagement with trade associations	5%	1%
8.2		Trade associations supported do not have climate-negative activities or positions		2%
8.3		Position on significant climate policies		2%
9.1	Business model	Business activities that drive the energy mix to low carbon energy	10%	4%
9.2		Business activities that contribute to the reduction of energy demand		3%
9.3		Business activities that develop CCS, CCUS and negative emissions technologies		3%
Overall			**100%**	**100%**

- **RATIONALE FOR DOWNSTREAM PLAYERS WEIGHTING SCHEME**

Targets 15%

The targets module has a relatively large weight of 15%. Most of it is placed on the alignment of *Scope 1+2+3 emissions reduction targets* with 10%, compared to 2% for *Scope 1+2*. 1% score is attributed to the *previous achievement* indicator, which measures the company's past credentials on target setting

and achievement. It is not very important by the principles outlined above, but nonetheless can provide contextual information on the company's experience to meet ambitious targets Finally, *the time horizon of targets* has a weight of 2%. It is a proxy of how forward-looking the company is, which is very long-term oriented.

Material Investment 5%

This module carries a low weight of 5%. The material investment module has a much lower weight than the one for sold product performance because it represents the impact of Scope 1+2 emissions, which is lower than the impact of the Scope 3 (performance of the products). Downstream players have limited infrastructure and these are not strategic sources of emissions.

The analysis of the *trend in future Scope 1+2 emissions intensity* receives a weight of 3%.

The trend in past Scope 1+2 emissions intensity is an indication of the 'adjustment' that the company has to make to place itself on a low carbon pathway. It principally adds information about what kind of changes the company needs to undergo in order to become low carbon aligned, and therefore receives a weight of 2%.

Besides, the CAPEX allocated to low carbon technologies is also a relevant signal for understanding the future alignment of the company with a low carbon pathway. *Low carbon and mitigation technologies CAPEX share* and *Carbon removal technologies (CCS, CCUS, CDR) CAPEX share* have respectively a weight of 4%.

Both indicators *Emissions lock-in* and *Share of unsanctioned projects within carbon budget* concern infrastructure for exploration and production, and are not relevant for Downstream players. They have a 0 weight.

Intangible investment 2%

The R&D in climate change mitigation technologies indicator is focused around the company's intangible investments or financial costs into climate change mitigation technologies. R&D investment for low carbon innovation are crucial for the value chain, but not for the downstream segment, and thus the module is heighted to 2%.

Sold product performance 23%

This module carries the largest weight out of all the modules. Indeed, it holds most of the information about the company's actions to reduce emissions on its products (traditional O&G vs low carbon solutions), where most of the emissions occur (Scope 3). The focus is put on the *trend in future Scope 1+2+3 emissions intensity* with a weight of 8%.

The trend in future share of low carbon products (weight of 5%) and the energy efficiency services share (weight of 5%) are also relevant indicators to take into consideration for this module.

Management 10%

Management is a multi-faceted module that makes up 10% of the score, because it incorporates a number of smaller indicators which together paint a picture of the company's management and strategic approach to the low carbon transition. Consequently, and according to the principle of future orientation the highest weight, 3%, is placed on *the low carbon transition plan*. *The oversight of climate change issues* and *the climate change oversight capability* are weighted at 2% each. These two indicators measure the ability of the company to integrate sustainability into its strategy and to embrace the main challenges related to low carbon transition. *Climate change scenario testing*, future-oriented, is also weighted at 2%. Finally, the *climate-*

change management incentives has a low weight of 1%, as it is a contextual indicators whose outcome can strengthen or undermine the company's ability to carry out the transition plan and meet ambitious science-based targets.

Supplier engagement 20%

In order to reduce emissions from the whole value chain, it is imperative that downstream companies involve their supply chains. The engagement with external suppliers represents a high leverage. Downstream players have control over their product mix and influence the demand throughout the way up the value chain. Therefore, this module has a high weight of 20%. This indicator focuses on the global strategy and general activities that an integrated company has in place with respect to its engagement with suppliers.

Client 10%

The client engagement indicator is focused around the company's efforts to reduce the emissions generated after the products have been sold and to influence client practices towards low carbon consumption and circular economy practices. As with the influence on suppliers, it is not an indicator that is easy to measure, and relies heavily on data quality to make a proper analysis. This module therefore focuses on the global strategy and general activities that a Downstream player has in place on their engagement with its clients.

Policy Engagement 5%

In line with the rationale for the management indicators of low weight, the policy engagement indicators are also contextual aspects which tell a narrative about the company's stance on climate change and how the company expresses it in their engagement with policy makers and trade associations. The total weight for this module is therefore medium at 5%. The *company policy on engagement with trade associations*, and the *company's position on relevant climate policy* make up the bulk of this, with 2% each. Finally, 1% is allocated to *positions of the company's trade associations that do not have climate-negative activities* as this is a very specific question and concern a minority of companies.

Business model 10%

The module captures many elements and aspects that cannot otherwise be captured in any of the other modules. It includes those aspects that are relevant to the transition but are not directly a part of the primary generation activities. It is future oriented by asking the companies on its narrative on certain future directions that the sector can/has to take to enable the transition. It has been split into three main categories, which represent the three main challenges of the transition for an O&G company: *Business activities that drive the energy mix to low carbon energy* (4%), *Business activities that contribute to the reduction of energy demand* (3%) and *Business activities that develop CCS, CCUS and negative emissions technologies* (3%).

5.4 DATA REQUEST

Table 15 introduces a summary of the information which will be requested to companies through a questionnaire, as well as the corresponding indicators. The whole data mapping is available in the questionnaire dedicated to the companies.

TABLE 15: CORRESPONDANCE BETWEEN INDICATORS FROM ACT O&G AND FROM CDP QUESTIONNAIRE

Number	Description of the data requested to the company	List of all data points required	Indicator relevance	CDP 2020 Questionnaire mapping
General information	General information about the company and the data availability	General description and introduction to your organization	OG 0.1	C0.1 C-OG0.7
		The start and end date for which data is reported	OG 0.2	C0.2
		The countries/regions 1 to N for which data will be provided.	OG 0.3	C0.3 C7.2
		The currency in which the response is submitted	OG 0.4	C0.4
		The boundary you are using for your Scope 1+2 greenhouse gas inventory	OG 0.5	C0.5 C6.2
		Attach the latest relevant company reports. Add rows to the table as required	OG 0.6	C12.4
		Any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1+2 emissions that are within your selected reporting boundary which are not included in your disclosure?	OG 0.7	C6.2 C6.4
		Details of the sources of Scope 1+2 emissions that are within your selected reporting boundary which are not included in your disclosure. Add columns to the table as required	OG 0.8	C6.2 C6.4a
		Do you have emissions intensities data from your suppliers that will be used to calculate a part of your Scope 3?	OG 0.9	-
A1	Emissions intensity targets (reporting year and longest time horizon available) for each step of the value chain and for oil products and natural gas (Scope 1+2)	• Total volume supplied and operated for oil products and natural gas and for each step (TJ/GWh) – input volume and output volume for the steps Midstream and Downstream • Scope 1+2 emissions intensity of the company for oil products and natural gas and for each step (tCO_2e/TJ)	OG 1.1	C4.1c C6.1 C6.3 C6.5 C6.10 C-OG6.12

				C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4 C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7 C8.2 C8.2d C-OG9.2a C-OG9.3a C-OG9.3d C-OG9.8b
A2	Emissions intensity targets (reporting year and longest time horizon available) for each step of the value chain and for all energy types (Scope 1+2+3, the main differences with A1 are to add all energy types and the possibility to fill the emissions intensities of the suppliers and/or the JVs which are not reported in the Scope 1+2 here)	• Total volume supplied and operated per energy type and for each step (TJ/GWh) – input volume and output volume for the steps Midstream and Downstream • Total volume supplied and not-operated per energy type and for each step (TJ) • % of energy not further processed and for each step • Scope 1+2 emissions intensity of the company per energy type and for each step (tCO_2e/TJ) • Scope 1+2 emissions intensity of the suppliers per energy type and for the steps Upstream and Midstream of Fossil & Biofuels (tCO_2e/TJ) • Scope 1+2 emissions intensity of the JV per energy type and for the steps Upstream and Midstream of Fossil & Biofuels (tCO_2e/TJ) • % of non-energy use after the midstream step • Fuel purchased externally for Electricity (step generation)	OG 1.2	C4.1c C6.1 C6.3 C6.5 C6.10 C-OG6.12 C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4 C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7 C8.2 C8.2d C-OG9.2a C-OG9.3a C-OG9.3d C-OG9.8b
A3	All emissions intensity targets for each step of the value chain, precising energy types and endpoints.	• All time horizon targets (indicate the energy type, the Scope, the step of the value chain, the year, the % of coverage missing)	OG 1.3	C4.3 C4.3a C4.3b
A4	Past internal targets set on carbon performance	• Past emissions reduction targets (indicate the target in tCO_2e/TJ, the energy type, the Scope, the step of the value chain, the year of the target and if the target has been achieved or not)	OG 1.4	C4.1 C4.1b
A5	Emissions intensities for the year Y-5 prior to the reporting year and for the reporting year Y for each step of the value chain and for oil products and natural gas (Scope 1+2)	• Total volume supplied and operated for oil products and natural gas and for each step (TJ/GWh) – input volume and output volume for the steps Midstream and Downstream	OG 2.1	C6.1 C6.3 C6.5 C6.10

		• Scope 1+2 emissions intensity of the company for oil products and natural gas and for each step (tCO_2e/TJ)		C-OG6.12 C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4 C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7 C8.2 C8.2d C-OG9.2a C-OG9.3a C-OG9.3d C-OG9.8b C7.9
A6	Yearly production of currently producing and under development assets of fossil primary fuels (oil, gas and coal) as from the date of reporting and projected up to 2050 (Upstream)	• Producing assets (oil, gas, coal) • Assets under development (oil, gas, coal)	OG 2.2	-
A7	CAPEX in low carbon and mitigation technologies (M$/M$) planned for the next 5 years	• Share of CAPEX in low carbon and mitigation technologies (M$/M$) planned for the next 5 years • Business as usual share of CAPEX in low carbon and mitigation technologies (M$/M$)	OG 2.5	C4.5
A8	Planned CAPEX set on investments in (CCS, CCUS, CDR) (CCS, CCUS, CDR) (M$/M$)	• Planned CAPEX share set on investments in (CCS, CCUS, CDR) (CCS, CCUS, CDR) (M$/M$) for the next five years • Business as usual CAPEX share set on investments in (CCS, CCUS, CDR) (CCS, CCUS, CDR) (M$/M$) for the next five years	OG 2.6	C-OG9.8
A9	R&D expenses in low carbon and mitigation technologies (M$)	• Annual R&D expenditure on low carbon and mitigation technologies (M$) of the reporting year Y • Annual R&D expenditure on non-mature low carbon and mitigation technologies (M$) of the reporting year Y	OG 3.1	C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6 C-CO9.6a/C-EU9.6a/C-OG9.6a
A10	Total R&D expenses (M$)	• Annual total R&D expenditure (M$) of the reporting year Y	OG 3.1, OG 3.2	-
A11	R&D expenses in carbon removal technologies (M$)	• Annual R&D expenditure in carbon removal technologies (M$) of the reporting year Y • Annual R&D expenditure in non-mature carbon removal technologies (M$) of the reporting year Y	OG 3.2	C-OG9.8

A12	Emissions intensities for the year Y-5 prior to the reporting year and for the reporting year Y for each step of the value chain and for all energy types (Scope 1+2+3, the main differences with A5 are to add all energy types and the possibility to fill the emissions intensities of the suppliers and/or the JVs which are not reported in the Scope 1+2 here)	• Total volume supplied and operated per energy type and for each step (TJ/GWh) – input volume and output volume for the steps Midstream and Downstream • Total volume supplied and not-operated per energy type and for each step (TJ) • % of energy not further processed and for each step • Scope 1+2 emissions intensity of the company per energy type and for each step (tCO_2e/TJ) • Scope 1+2 emissions intensity of the suppliers per energy type and for the steps Upstream and Midstream of Fossil & Biofuels (tCO_2e/TJ) • Scope 1+2 emissions intensity of the JV per energy type and for the steps Upstream and Midstream of Fossil & Biofuels (tCO_2e/TJ) • % of non-energy use after the midstream step • Fuel purchased externally for Electricity (step generation)	OG 4.1	C6.1 C6.3 C6.5 C6.10 C-OG6.12 C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4 C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7 C8.2 C8.2d C-OG9.2a C-OG9.3a C-OG9.3d C-OG9.8b
A13	Revenues generated by low carbon products (M$) planned for Y+5	• Revenues generated by low carbon products (M$) planned for Y+5 • Revenues generated by low carbon products (M$) in the reporting year Y	OG 4.3	C4.2a C4.5
A14	Total revenues (M$) planned for Y+5	• Total revenues (M$) planned for Y+5	OG 4.3	-
A15	Revenues share of energy efficiency services planned for Y+5 and additional relevant information regarding the offer	• Energy efficiency service share	OG 4.4	C4.2b
A16	Environmental policy and details regarding governance	• Oversight of climate change issues • Climate change oversight capability • Low carbon transition plan	OG 5.1, OG 5.2, OG 5.3	C1.1 C1.1a C1.1b C1.1c C1.2 C1.2a C1.1b
A17	Management incentives	• Climate change management incentives	OG 5.4	C1.3 C1.3a
A18	Scenario testing	• Climate change scenario testing	OG 5.5	C3.1a C3.1b C3.1d C3.1e C3.1f

A19	List of environmental/CSR contract clauses in purchasing & suppliers' selection process	• Strategy to influence suppliers to reduce their GHG emissions	OG 6.1	C12.1 C12.1a
A20	List of initiatives implemented to influence suppliers to reduce their GHG emissions, green purchase policy or track record, supplier code of conduct	• Activities to influence suppliers to reduce their GHG emissions	OG 6.2	C12.1 C12.1a
A21	Client policy	• Strategy to influence client behaviour to reduce their GHG emissions	OG 7.1	C12.1 C12.1b
A22	List of initiatives implemented to influence client behaviour to reduce their GHG emissions	• Activities to influence client behaviour to reduce their GHG emissions	OG 7.2	C12.1 C12.1b
A23	Company policy on engagement with trade associations	• Company policy on engagement with trade associations	OG 8.1	C12.3
A24	List of supported trade associations	• Trade associations supported do not have climate-negative activities or positions	OG 8.2	C12.3
A25	Position of the company on significant climate policies (public statements, etc.)	• Position on significant climate policies	OG 8.3	C12.3
A26	List of activities and relevant financial KPI (turnover, invested capital, etc.) in new businesses related to low carbon business models	• For business activities that drive the energy mix to low carbon energy • For business activities that contribute to the reduction of energy demand • For business activities that develop CCS, CCUS and negative emissions technologies	OG 9.1, OG 9.2, OG 9.3	C4.5 C8.2 C-OG9.8
A27	Business activities that: • Drive the energy mix to low carbon energy • Contribute to the reduction of energy demand • Develop CCS, CCUS and negative emissions technologies	• Description of business activity • Stage of development (incl. profitability) • Exploration type • List and turnover or invested capital (or other financial KPI) of activities in new businesses related to low carbon business models • Current position and action plan of the company towards the identified low carbon business models • What are your future plans for this activity? • Maturity of the targeted market	OG 9.1, OG 9.2, OG 9.3	C4.5 C8.2 C-OG9.8

6. Rating

The ACT rating shall comprise:

- **A performance score**
- **A narrative score**
- **A trend score**

These pieces of information shall be represented within the ACT rating as follows:

- Performance score as a number from 1 (lowest) to 20 (highest)
- Narrative score as a letter from E (lowest) to A (highest)
- Trend score as either "+" for improving, "-" for worsening, or "=" for stable.

In some situations, trend scoring may reveal itself to be unfeasible depending on data availability. In this case, it should be replaced with a "?".

TABLE 16: BEST EXEMPLE OF ACT RATING

The highest available ACT rating is 20 A +	A **performance rating** of **20**: the company received high scores in its assessment against the methodology indicators.
	An **assessment rating** of **A:** the information reported by the company and available from public sources was consistent and showed that the company is well aligned to transition to the low carbon economy.
	A **trend rating** of **+**: the information provided shows the company will be better placed to transition to the low carbon economy in future.

Detailed information on the ACT rating is available in the ACT Framework document [4].

6.1 PERFORMANCE SCORING

Performance scoring shall be performed in compliance with the ACT Framework. Considering the characteristics of the O&G sector, all the modules of ACT Framework are integrated in the analysis. The scoring will depend on the position of the company in the value chain. Indeed, the weighting scheme depends on whether the company is an Integrated O&G company, Upstream player, Midstream player or Downstream player. No other additional sector-specific issue that impacts the analysis scoring for the companies of the sector has been identified to date.

A detailed description of the Performance indicators and of their weightings for the O&G sector is presented in 4.3 Performance indicators.

Figure 8 shows an example of the composition of the modular, weighted performance score of an integrated O&G company.

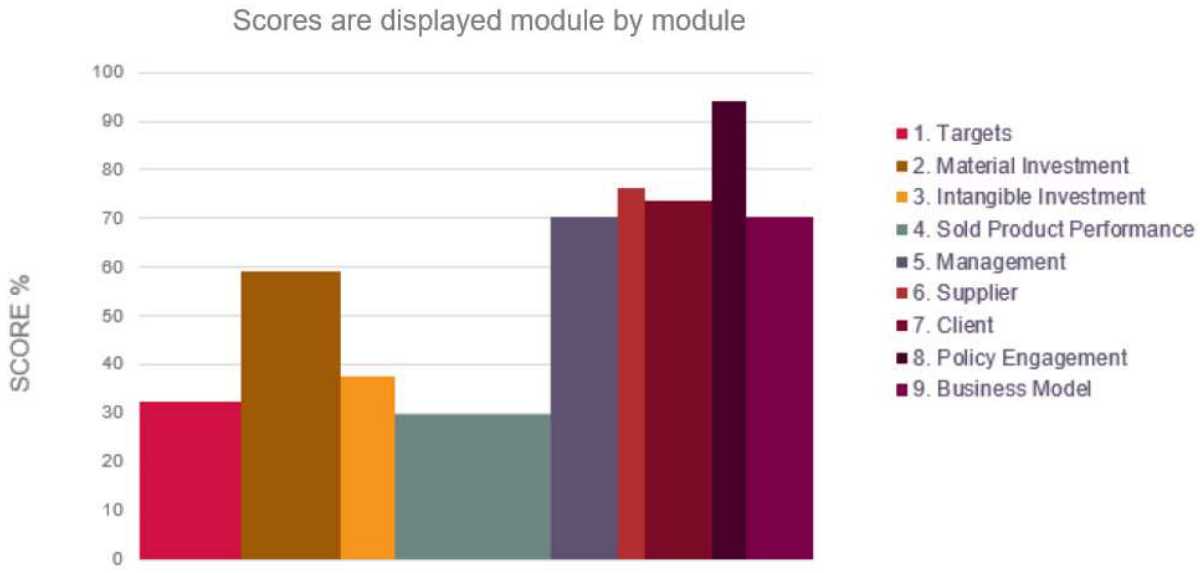


FIGURE 8 - PERFORMANCE SCORE OF AN INTEGRATED COMPANY (FICTIVE EXAMPLE)

6.2 NARRATIVE SCORING

Narrative scoring shall be performed in compliance with the ACT Framework. No sector-specific issue that impacts the analysis scoring for the companies of the sector has been identified to date.

6.3 TREND SCORING

Scoring shall be performed in compliance with the ACT Framework.

To apply the trend scoring methodology presented in the ACT Framework, the analyst should identify the trends from the existing data infrastructure based on the data points and/or indicators that can indicate the future direction of change within the company.

Table 17 includes an overview of which indicators/data points could contain valuable information about future direction for a company in the O&G sector.

TABLE 17: RELEVANT PERFORMANCE INDICATORS FOR TRENDS IDENTIFICATION FOR THE O&G SECTOR

MODULE	INDICATOR
Targets	OG 1.1 Alignment of Scope 1+2 emissions reduction targets OG 1.2 Alignment of Scope 1+2+3 emissions reduction targets OG 1.3 Time horizon of targets
Material Investment	OG 2.3 Trend in future Scope 1+2 emissions intensity OG 2.4 Share of unsanctioned projects within carbon budget
Sold Product Performance	OG 4.2 Trend in future Scope 1+2+3 emissions intensity OG 4.3 Trend in future low carbon products share
Management	OG 5.3 Low carbon transition plan OG 5.5 Climate change scenario testing
Business model	OG 9.1 Business activities that drive the energy mix to low carbon energy OG 9.2 Business activities that contribute to the reduction of energy demand OG 9.3 Business activities that develop CCS, CCUS and Negative Emissions Technologies (NETs)

7. Aligned state

The ACT Assessment framework proposes five guiding questions as the basis to steer the development of ACT methodologies and create consistent ACT ratings across sectors. Figure 9 presents the response of a low carbon aligned company of the sector to these five questions.

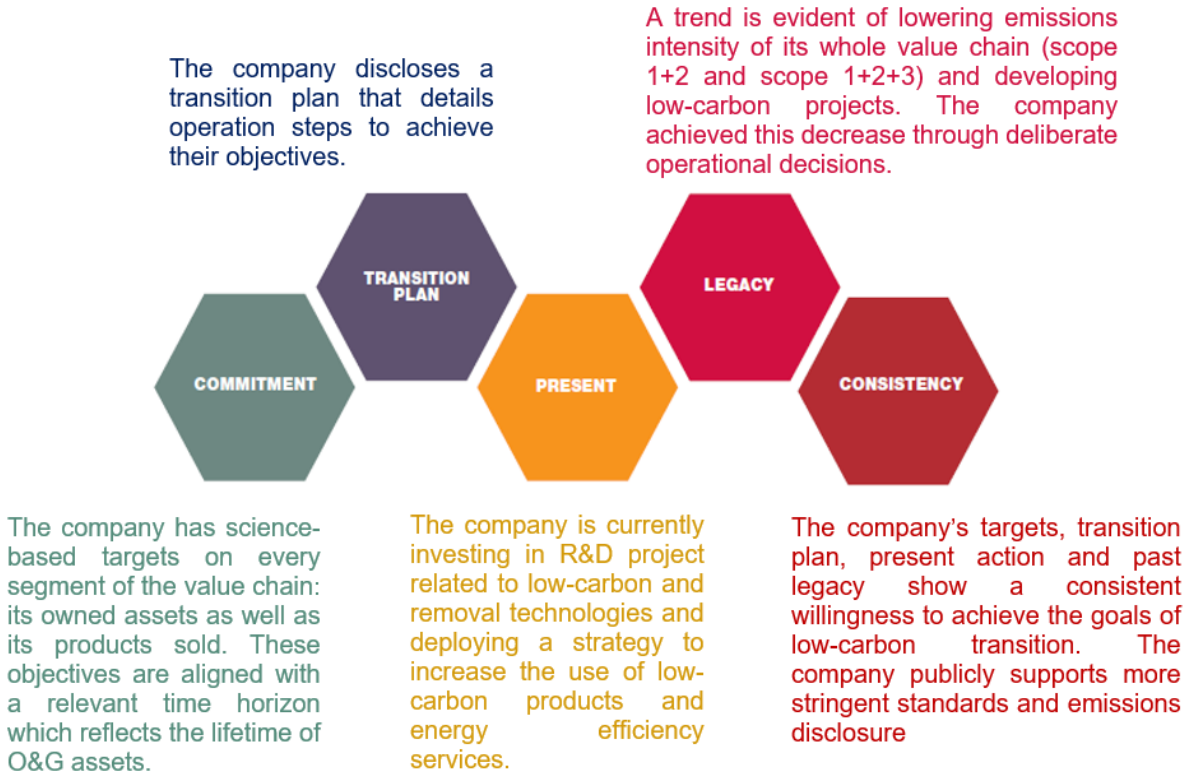


FIGURE 9 – LOW CARBON ALIGNED COMPANY IN REGARD TO ACT ASSESSMENT FRAMEWORK

8. Acronym list

ACT	Assessing low Carbon Transition
ADEME	Agence de l'Environnement et de la Maîtrise de l'Energie (French Environment and Energy Management Agency)
B2B	Business-To-Business
B2DS	Below 2°C Scenario
BAU	Business As Usual
BECCS	Bio-Energy Carbon Capture and Storage
CAPEX	Capital Expenditure
CC	Climate Change
CCS	Carbon Storage and Capture
CCUS	Carbon Capture, Utilisation and Storage
CDR	Carbon Dioxide Removal
CEO	Chief Executive Officer
CH_4	Methane
CO_2	Carbon Dioxide
COP	Conference of the Parties
CSR	Corporate Social Responsibility
DAC	Direct Air Capture
E&P	Exploration and Production
EF	Emissions Factor
ETP	Energy Technology Perspectives
FTE	Full-Time Equivalent
GHG	Greenhouse Gas
GWh	Gigawatt Hour
IEA	International Energy Agency
IPIECA	International Petroleum Industry Environmental Conservation Association

JV	Joint-Venture
KPI	Key Performance Indicator
LCA	Life Cycle Analysis
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
LT	Long-Term point
N2O	Nitrous Oxide
NACE	Nomenclature statistique des Activités économiques dans la Communauté Européenne (Statistical Classification of Economic Activities in the European Community)
O&G / OG	Oil & Gas
R&D	Research & Development
SBT	Science-Based Targets
SDA	Sectoral Decarbonization Approach
SDS	Sustainable Development Scenario
TCFD	Task Force on Climate-related Financial Disclosures
TJ	Terajoule (10^{12} joules)
TPES	Total Primary Energy Supply
TRL	Technology Readiness Level
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WEO	World Energy Outlook

9. Glossary

ACT	The Assessing low carbon Transition (ACT) initiative was jointly developed by ADEME and CDP. ACT assesses how ready an organization is to transition to a low carbon world using a future-oriented, sector-specific methodology (ACT website).
ACTION GAP	In relation to emissions performance and reduction, the action gap is the difference between what a given company has done in the past plus what it is doing now, and what has to be done. For example, companies with large action gaps have done relatively little in the past, and their current actions point to the continuation of past practices.
ADEME	Agence de l'Environnement et de la Maîtrise de l'Energie ; The French Environnent and Energy Management Agency (ADEME webpage).
ALIGNMENT	The ACT project seeks to gather information that will be consolidated into a rating that is intended to provide a general metric of the 2-degree alignment of a given company. The wider goal is to provide companies specific feedback on their general alignment with 2-degrees in the short and long term.
ANALYST	Person in charge of the ACT assessment.
ASSESS	Under the ACT project, to evaluate and determine the low carbon alignment of a given company. The ACT assessment and rating will be based on consideration of a range of indicators. Indicators may be reported directly from companies. Indicators may also be calculated, modelled or otherwise derived from different data sources supplied by the company. The ACT project will measure 3 gaps (Commitment, Horizon and Action – defined in this glossary) in the GHG emissions performance of companies. This model closely follows the assessment framework presented above. It starts with the future, with the goals companies want to achieve, followed by their plans, current actions and past actions.
ASSET	An item of property owned by a company, regarded as having value and available to meet debts, commitments, or legacies. Tangible assets include 1) fixed assets, such as machinery and buildings, and 2) current assets, such as inventory. Intangible assets are nonphysical such as patents, trademarks, copyrights, goodwill and brand value.
BASE YEAR	According to the GHG Protocol and ISO14064-1, a base year is "a historic datum (a specific year or an average over multiple years) against which a company's emissions are tracked over time". Setting a base year is an essential GHG

	accounting step that a company must take to be able to observe trends in its emissions information (GHG Protocol Corporate Standard).
BENCHMARK	A standard, pathway or point of reference against which things may be compared. In the case of pathways for sector methodologies, a sector benchmark is a low carbon pathway for the sector average value of the emissions intensity indicator(s) driving the sector performance. A company's benchmark is a pathway for the company value of the same indicator(s) that starts at the company performance for the reporting year and converges towards the sector benchmark in 2050, based on a principle of convergence or contraction of emissions intensity.
BUSINESS-AS-USUAL	No proactive action taken for change. In the context of the ACT methodology, the business-as-usual pathway is constant from the initial year onwards. In general, the initial year – which is the first year of the pathway/series – is the reporting year (targets indicators) or the reporting year minus 5 years (performance indicators).
BUSINESS MODEL	A plan for the successful operation of a business, identifying sources of revenue, the intended client base, products, and details of financing. Under ACT, evidence of the business model shall be taken from a range of specific financial metrics relevant to the sector and a conclusion made on its alignment with low carbon transition and consistency with the other performance indicators reported.
CAPITAL EXPENDITURE	Money spent by a business or organization on acquiring or maintaining fixed assets, such as land, buildings, and equipment.
CARBON DIOXIDE REMOVAL TECHNOLOGIES (CDR)	Carbon Dioxide Removal technologies (CDR) are anthropogenic activities removing CO_2 from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products. It includes existing and potential anthropogenic enhancement of biological or geochemical sinks (afforestation, reforestation, land management, bio-energy carbon capture and storage, enhanced weathering, etc.) and direct air capture and storage (DAC).
CARBON CAPTURE AND STORAGE (CCS)	Carbon Capture and Storage (CCS) is a process in which a relatively pure stream of carbon dioxide (CO_2) from industrial and energy-related sources is separated (captured), conditioned, compressed and transported to a storage location for long-term isolation from the atmosphere. CCS is considered as a CDR only when applied to a biogenic stream of CO_2 (e.g. coming from a bio-energy power plant): it is then called BECCS (bio-energy carbon capture and storage).
CARBON CAPTURE, USE AND STORAGE (CCU/S)	Carbon Capture, Use and Storage (CCU/S) is a process in which CO_2 is captured and then used to produce a new product. If the CO_2 is stored in a product for a climate-relevant time horizon, this is referred to as carbon dioxide capture, utilization and storage (CCUS). Only then, and only combined with CO_2 recently removed from the atmosphere, can CCUS lead to carbon dioxide removal. CCU

	is sometimes referred to as carbon dioxide capture and use. Enhanced Oil Recovery is not to be considered within these technologies.
CDP	Formerly the "Carbon Disclosure Project", CDP is an international, not-for-profit organization providing the only global system for companies and cities to measure, disclose, manage and share vital environmental information. CDP works with market forces, including 827 institutional investors with assets of over US$100 trillion, to motivate companies to disclose their impacts on the environment and natural resources and take action to reduce them. More than 5,500 companies worldwide disclosed environmental information through CDP in 2015. CDP now holds the largest collection globally of primary climate change, water and forest risk commodities information and puts these insights at the heart of strategic business, investment and policy decisions (CDP website).
CLIMATE CHANGE	A change in climate, attributed directly or indirectly to human activity, that alters the composition of the global atmosphere and that is, in addition to natural climate variability, observed over comparable time periods' (UNFCCC).
COMPANY PATHWAY	A company's past emissions intensity performance pathway up until the present.
COMPANY TARGET PATHWAY	The emissions intensity performance pathway that the company has committed to follow from the initial year on until a future year, for which it has set a performance target.
COMMITMENT GAP	In relation to emissions performance, the difference between what a company needs to do and what it says it will do.
CONSERVATIVENESS	A principle of the ACT project; whenever the use of assumptions is required, the assumption shall err on the side of achieving 2-degrees maximum.
CONSISTENCY	A principle of the ACT project; whenever time series data is used, it should be comparable over time. In addition to internal consistency of the indicators reported by the company, data reported against indicators shall be consistent with other information about the company and its business model and strategy found elsewhere. The analyst shall consider specific, pre-determined pairs of data points and check that these give a consistent measure of performance when measured together.
DATA	Facts and statistics collected together for reference and analysis (e.g. the data points requested from companies for assessment under the ACT project indicators).
DECARBONIZATION	A complete or near-complete reduction of greenhouse gas emissions over time (e.g. decarbonization in the electric utilities sector by an increased share of low

	carbon power generation sources, as well as emissions mitigating technologies like Carbon Capture and Storage (CCS)).
DECARBONIZATION PATHWAY	Benchmark pathway (See 'Benchmark')
EMISSIONS	The GHG Protocol defines direct GHG emissions as emissions from sources that are owned or controlled by the reporting entity, and indirect GHG emissions as emissions that are a consequence of the activities of the reporting entity, but occur at sources owned or controlled by another entity (GHG Protocol).
ENERGY EFFICIENCY AUDITS	Audits which provide a clear understanding of energy consumption to better manage it and have a higher energy efficiency.
ENERGY OPERATIONS & MAINTENANCE (O&M) SERVICES	Technical operation and day-to-day maintenance of energy facilities.
ENERGY PERFORMANCE CONTRACTING	Energy performance contracting (EPC) is a mechanism for organising the energy efficiency financing. The EPC involves an Energy Service Company (ESCO) which provides various services, such as finances and guaranteed energy savings.
ENERGY SAVING PRODUCTS	Products eligible for White Certificate (also called Energy Savings Certificate (ESC) or Energy Efficiency Credit (EEC)).
ENGINEERING SERVICES IN LOW CARBON ACTIVITIES	Evaluate, design and deliver both novel and proven energy projects, optimize operations of energy systems, and maximize reliability of energy assets throughout their life cycle.
FOSSIL FUEL	A natural fuel such as coal, oil or gas, formed in the geological past from the remains of living organisms.
FUTURE	A period of time following the current moment; time regarded as still to come.
GREENHOUSE GAS (GHG)	Greenhouse gas (e.g. carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and three groups of fluorinated gases (sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs)) which are the major anthropogenic GHGs and are regulated under the Kyoto Protocol. Nitrogen trifluoride (NF_3) is now considered a potent contributor to climate change and is therefore mandated to be included in national inventories under the United Nations Framework Convention on Climate Change (UNFCCC).
GUIDANCE	Documentation defining standards or expectations that are part of a rule or requirement (e.g. CDP reporting guidance for companies).

HORIZON GAP	In relation to emissions performance, the difference between the average lifetime of a company's production assets (particularly carbon intensive) and the time-horizon of its commitments. Companies with large asset-lives and small time horizons do not look far enough into the future to properly consider a transition plan.
INCENTIVE	A thing, for example money, that motivates or encourages someone to do something (e.g. a monetary incentive for company board members to set emissions reduction targets).
INDICATOR	An indicator is a quantitative or qualitative piece of information that, in the context of the ACT project, can provide insight on a company's current and future ability to reduce its carbon intensity. In the ACT project, 3 fundamental types of indicators can be considered: → Key performance indicators (KPIs); → Key narrative indicators (KNIs); and → Key asset indicators (KAIs).
INTENSITY (EMISSIONS)	The average emissions rate of a given pollutant from a given source relative to the intensity of a specific activity; for example grams of carbon dioxide released per MWh of energy produced by a power plant.
INTERVENTION	Methods available to companies to influence and manage emissions in their value chain, both upstream and downstream, which are out of their direct control (e.g. a retail company may use consumer education as an intervention to influence consumer product choices in a way that reduces emissions from the use of sold products).
LIFETIME	The duration of a thing's existence or usefulness (e.g. a physical asset such as a power plant).
LONG-TERM	Occurring over or relating to a long period of time; under ACT this is taken to mean until the year 2050. The ACT project seeks to enable the evaluation of the long-term performance of a given company while simultaneously providing insights into short- and medium-term outcomes in alignment with the long-term.
LOW CARBON SCENARIO (OR PATHWAY)	A low carbon scenario (or pathway) is a well-below 2°C scenario or a scenario with higher decarbonization ambition. Note: in this method, 'Reference scenario' is used to refer to these low carbon scenarios.
LOW CARBON TRANSITION	The low carbon transition is the transition of the economy according to a low carbon scenario.

MANUFACTURE	Making objects on a large scale using machinery.
MATURITY MATRIX	A maturity matrix is essentially a “checklist”, the purpose of which is to evaluate how well advanced a particular process, program or technology is according to specific definitions.
MITIGATION (EMISSIONS)	The action of reducing the severity of something (e.g. climate change mitigation through absolute GHG emissions reductions)
MODEL	A program designed to simulate what might or what did happen in a situation (e.g. climate models are systems of differential equations based on the basic laws of physics, fluid motion, and chemistry that are applied through a 3-dimensional grid simulation of the planet Earth).
NEGATIVE EMISSIONS TECHNOLOGY	Technologies that allow removal of Greenhouse Gases from the atmosphere.
NUCLEAR ELECTRICITY	Electricity that comes from splitting atoms in a reactor to heat water into steam, turn a turbine and generate electricity.
PATHWAY (EMISSIONS)	A way of achieving a specified result; a course of action (e.g. an emissions reduction pathway).
PERFORMANCE	Measurement of outcomes and results.
PLAN	A detailed proposal for doing or achieving something.
POINT	A mark or unit of scoring awarded for success or performance.
POWER GENERATION	The process of generating electric power from other sources of primary energy.
PRIMARY ENERGY	Primary energy is an energy form found in nature that has not been subjected to any conversion or transformation process. It is energy contained in raw fuels, and other forms of energy received as input to a system. Primary energy can be non-renewable or renewable.
PRODUCT	Good or service.
RELEVANT / RELEVANCE	In relation to information, the most relevant information (core business and stakeholders) to assess low carbon transition.
RENEWABLE ENERGY	Energy from a source that is not depleted when used, such as wind or solar power.
REPORTING YEAR	Year under consideration.

RESEARCH AND DEVELOPMENT (R&D)	A general term for activities in connection with innovation; in industry; for example, this could be considered work directed towards the innovation, introduction, and improvement of products and processes.
SCIENCE-BASED TARGET	To meet the challenges that climate change presents, the world's leading climate scientists and governments agree that it is essential to limit the increase in the global average temperature at below 2°C. Companies making this commitment will be working toward this goal by agreeing to set an emissions reduction target that is aligned with climate science and meets the requirements of the Science-Based Targets Initiative.
SCENARIO	The Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) presents the results of an extensive climate modelling effort to make predictions of changes in the global climate based on a range of development/emissions scenarios. Regulation on climate change-related issues may present opportunities for your organization if it is better suited than its competitors to meet those regulations, or more able to help others to do so. Possible scenarios would include a company whose products already meet anticipated standards designed to curb emissions, those whose products will enable its clients to meet mandatory requirements or those companies that provide services assisting others in meeting regulatory requirements.
SCENARIO ANALYSIS	A process of analyzing possible future events by considering alternative possible outcomes.
SECTORAL DECARBONIZATION APPROACH (SDA)	To help businesses set targets compatible with 2-degree climate change scenarios, the Sectoral Decarbonization Approach (SDA) was developed. The SDA takes a sector-level approach and employs scientific insight to determine the least-cost pathways of mitigation, and converges all companies in a sector towards a shared emissions target in 2050.
SHORT-TERM	Occurring in or relating to a relatively short period of time in the future.
SCOPE 1 EMISSIONS DIRECT GHG EMISSIONS AND REMOVALS	All direct GHG emissions (GHG Protocol Corporate Standard). Category 1 from ISO 14064-1:2018: Direct GHG emissions and removals occur from GHG sources or sinks inside organizational boundaries and that are owned or controlled by the [reporting] organization. Those sources can be stationary (e.g. heaters,electricity generators, industrial process) or mobile (e.g. vehicles).
SCOPE 2 EMISSIONS INDIRECT GHG EMISSIONS FROM IMPORTED ENERGY	Indirect GHG emissions from consumption of purchased electricity, heat or steam (GHG Protocol Corporate Standard). Category 2 from ISO 14064-1:2018: GHG emissions due to the fuel combustion associated with the production of final energy and utilities, such as electricity, heat, steam, cooling and compressed air [imported by the reported company]. It excludes all upstream emissions (from cradle to power plant gate) associated with

	fuel, emissions due to the construction of the power plant, and emissions allocated to transport and distribution losses.
SCOPE 3 EMISSIONS INDIRECT GHG EMISSIONS	Other indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g. Transmission & Distribution losses) not covered in Scope 2, outsourced activities, waste disposal, etc. (GHG Protocol Corporate Standard). Scope 3 also encompass the emissions related to the useISO 14064-1:2018: GHG emission that is a consequence of an organization's operations and activities, but that arises from GHG sources that are not owned or controlled by the [reporting] organization. These emissions occur generally in the upstream and/or downstream chain. Category 3 : indirect GHG emissions from transportation Category 4: Indirect GHG emissions from products used by an organization Category 5: Indirect GHG emissions associated with the use of products from the organization Category 6: Indirect GHG emissions from other sources of sold-products.
SECTOR	A classification of companies with similar business activities, e.g. automotive manufacturers, power producers, retailers, etc.
STRATEGY	A plan of action designed to achieve a long-term or overall aim. In business, this is the means by which a company sets out to achieve its desired objectives; long-term business planning.
SUPPLIER	A person or entity that is the source for goods or services (e.g. a company that provides engine components to an automotive manufacturing company).
SUSTAINABLE RENEWABLE ELECTRICITY	Facilities operating at life cycle emissions lower than 100 gCO_2e/kWh, declining to 0 gCO_2e/kWh by 2050, are eligible; this is applicable to production of electricity from solar PV, concentrated solar power, wind power, ocean energy, hydropower, geothermal and bioenergy – production of electricity from gas combustion is not included. *Green EU taxonomy alignment*
SUSTAINABLE ELECTRICITY EQUIPMENT	Equipment where the main objective is an increase of the generation or use of renewable electricity generation; equipment to increase the controllability and observability of the electrical power system and enable the development and integration of renewable energy sources, this includes: Sensors and measurement tools, and Communication and control; equipment to carry information to users for remotely acting on consumption; equipment to allow for exchange of renewable electricity between users) *Green EU taxonomy alignment*

SUSTAINABLE ELECTRICITY STORAGE EQUIPMENT	All electricity storage are eligible except storage technology which uses hydrocarbons as a medium of storage is not eligible; for hydrogen storage: Direct CO_2 emissions from manufacturing of hydrogen: 0.95 tCO_2e/t Hydrogen; electricity use for hydrogen produced by electrolysis is at or lower than 50 MWh/t Hydrogen; average carbon intensity of the electricity produced that is used for hydrogen manufacturing is at or below 100 gCO_2e/kWh. *Green EU taxonomy alignment*
SUSTAINABLE BIOFUELS AND SUSTAINABLE BIOGAS	If produced from the advanced bioenergy feedstock listed in Annex IX of Directive (EU) 2018/2001. Only production of advanced biofuels as per Art2(34), and certified low-ILUC fuels, in line with the requirements of RED II, is eligible. If primary forest-related feedstock (item (o) of Annex IX, Part A of Directive (EU) 2018/2001) is used, it must be produced in economic activities fulfilling the Afforestation & Reforestation, and/or Rehabilitation & Existing Forest Management criteria. If crop feedstock is used, it must be produced in economic activities fulfilling the Growing of Perennial Crops or the Growing of Non-perennial Crops criteria. *Green EU taxonomy alignment*
SUSTAINABLE HYDROGEN	Hydrogen which meets the following requirements: • Direct CO_2 emissions from manufacturing of hydrogen: 0.95 tCO_2e/t Hydrogen • Electricity use for hydrogen produced by electrolysis is at or lower than 50 MWh/t Hydrogen • Average carbon intensity of the electricity produced that is used for hydrogen manufacturing is at or below 100 gCO_2e/kWh *Green EU taxonomy alignment*
TARGET	A quantifiable goal (e.g. to reduce GHG emissions). • The following are examples of absolute targets: o metric tonnes CO_2e or % reduction from base year o metric tonnes CO_2e or % reduction in product use phase relative to base year o metric tonnes CO_2e or % reduction in supply chain relative to base year • The following are examples of intensity targets: o metric tonnes CO_2e or % reduction per passenger.kilometer (also per km; per nautical mile) relative to base year o metric tonnes CO_2e or % reduction per square foot relative to base o metric tonnes CO_2e or % reduction per MWh
TOTAL PRIMARY ENERGY SUPPLY (TPES)	Total amount of primary energy that a country has at their disposal. This includes imported energy, exported energy (subtracted off) and energy extracted from natural resources (energy production).

TRADE ASSOCIATION	Trade associations (sometimes also referred to as industry associations) are an association of people or companies in a particular business or trade, organized to promote their common interests. Their relevance in this context is that they present an "industry voice" to governments to influence their policy development. The majority of organizations are members of multiple trade associations, many of which take a position on climate change and actively engage with policymakers on the development of policy and legislation on behalf of their members. It is acknowledged that in many cases companies are passive members of trade associations and therefore do not actively take part in their work on climate change (CDP climate change guidance).
TRANSPORT	To take or carry (people or goods) from one place to another by means of a vehicle, aircraft, or ship.
TREND	A general direction in which something (e.g. GHG emissions) is developing or changing.
TECHNOLOGY	The application of scientific knowledge for practical purposes, especially in industry (e.g. low carbon power generation technologies such as wind and solar power, in the electric power generation sector).
TRANSITION	The process or a period of changing from one state or condition to another (e.g. from an economic system and society largely dependent on fossil fuel-based energy, to one that depends only on low carbon energy).
VERIFIABLE / VERIFIABILITY	To prove the truth of, as by evidence or testimony; confirm; substantiate. Under the ACT project, the data required for the assessment shall be verified or verifiable.
WEIGHTING	The allowance or adjustment made in order to take account of special circumstances or compensate for a distorting factor.

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Appendix

A: SHORT USER MANUAL ON HOW TO USE THE TOOL

The section below provides details on how to fill the tool computing the global emissions intensity of the O&G company

The ACT O&G tool requires the following for each step of the value chain and for all energy types:

- **The Scope 1+2 emissions intensity of the company**
- **Specific Scope 1+2 emissions intensity of suppliers' and/or JV partners' emissions intensities if available (only for the steps Upstream and/or Midstream).** These emissions will be counted as part of the Scope 3 of the company
- **Quantity of energy** supplied at each step of the value chain and for all energy types

Note that the suppliers to be considered are the ones included in the O&G value chain.

Details on the quantity of energy to be filled in

The detailed required pieces of information based on the energy mix for **Fossil & Biofuels activities** the company is to provide in the excel tool are the following:

Upstream

a. The company is to provide the total volume supplied (TJ) for each type of energy (operated and non-operated)
b. The company also has to indicate the % of energy not to be further processed by the company at the next steps of the value chain.

Midstream

c. The company is to provide the total volume input (TJ) it will process at this step of the value chain, as well as the output volume it will be able to supply at the end of this step (operated and non-operated) - for example the volume of crude oil before it is refined, and the volume of oil products at the end of the refinery process - it might concern especially oil products and gas (for example because of flaring). The gap between these two values is explained by a yield not equal to 100%; the emissions intensity for Scope 1+2 will apply to the output volume.
d. The company also has to indicate the % of energy not to be further processed by the company at the next steps of the value chain.
e. At last, the company is to fill the % of the volume supplied for non-energy use. As regards the final use of products, the percentage of non-energy use has to be filled. Indeed, by convention, the methodology considers that non-energy products will not emit any CO_2e at the Use step of the value chain (e.g. petrochemical products).

Downstream

f. The company is to fill the total volume input (TJ) it will process at this step of the value chain, as well as the output volume it will be able to supply at the end of this step - it might concern especially gas (for example because gas leakage during distribution). The gap between these two values is explained by a yield not equal to 100%; the emissions intensity for Scope 1+2 will apply to the output volume.

The detailed required pieces of information based on the energy mix for **Electricity** the company is to provide in the excel tool are the following:

Generation

a. The company is to provide the total volume of supplied electricity (GWh). For electricity generated from fossil energies, the company is also to fill the % of this energy that has been purchased from suppliers in order to calculate the right Scope 3.
b. The company also has to indicate the % of energy not to be further processed by the company at the next steps of the value chain.

Transmission & Distribution

c. The company is to provide the total volume of supplied electricity (GWh). The company is also to fill the % of the electricity that has been purchased from suppliers in order to calculate the right Scope 3.

For electricity generated from fossil fuels: volume of supplied electricity (GWh) is transformed into primary energy using the average conversion of the power plant efficiency.

For renewable electricity: the primary energy volume is equal to the volume of electricity supplied. This is a convention that is used for renewable energy sources by the IEA. The concept of primary energy is less relevant when the primary energy is considered infinite (the sun, the wind, etc.).

Gross/Net GHG emissions

The GHG emissions are gross emissions, except for the case where CCS are implemented within the value chain of the company (e.g. refining of oil products) and reduce therefore the emissions released to the atmosphere. The company can lower its emissions intensity for oil products step Midstream by taking into account its CCS activities accordingly.
Offsetting activities (purchasing carbon credits from the market) are not taken into account.[i]

Default Scope 3 emissions intensity

Default emissions intensities are used to calculate the Scope 3 GHG emissions corresponding to the Upstream, Midstream, Downstream and Use steps of the value chain. Default emissions intensities come from ADEME's "Documentation des facteurs d'émissions de la Base Carbone, v17 vendredi 8 novembre 2019".

The O&G company will have the possibility to fill and replace the default emission intensities by emission intensities of its suppliers - as well as of its JV partners - to benefit from the selection of suppliers and/or JV partners with low carbon intensity for the Upstream and/or Midstream steps of the value chain.

B: TECHNICAL WORKING GROUP MEMBERS

ACT O&G methodology has been developed with inputs and feedbacks from members of the ACT Technical Working Group and ACT- SBTi Joint Technical Working Group and workshops. The methodology may not reflect TWG members' opinions. The ACT initiative warmly thanks the following people for their inputs and feedbacks.

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CDP	Dua Zehra, Pedro Faria, Nicolette Bartlett
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Climate Accountability Institute	Richard Heede
CRC	Brian Pellens, Mike Glavin
DNCA	Alix Chosson
ECO2 Initiative	Rémi Marcus
Embridge	Edwin Makkinga
Energean	Vassilis Tsetoglou
Engie	Camille Jeandaux, Christine Fedigan
ENI	Tommaso Baldarelli
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SBTi	Alexander Farsan
Shell	Alex Cantlay, Shantanu Chatterjee, Mark Downes
Total	Marie-Alix Du-Laz, Julien Wastyn
Tullow Oil	Anna Brog
UNGC	Heidi Huusko
WBA	Charlotte Hugman, Vicky Sins
WRI	Nate Aden
WWF	Jesse Fahnestock

C: COMPANIES INVOLVED IN THE ROAD TEST

Company[i]	Position in the O&G value chain
ENI	Integrated
CEPSA	Integrated
EQUINOR	Integrated
YPF*	Integrated
SHELL	Integrated
TOTAL	Integrated
GALP	Integrated
ORIGIN ENERGY*	Integrated
WOODSIDE	Upstream
EDF	Midstream
ENGIE*	Midstream
BUTAGAZ	Downstream
PRIMAGAZ	Downstream
RUBIS	Downstream

[i] Scored with publicly available information