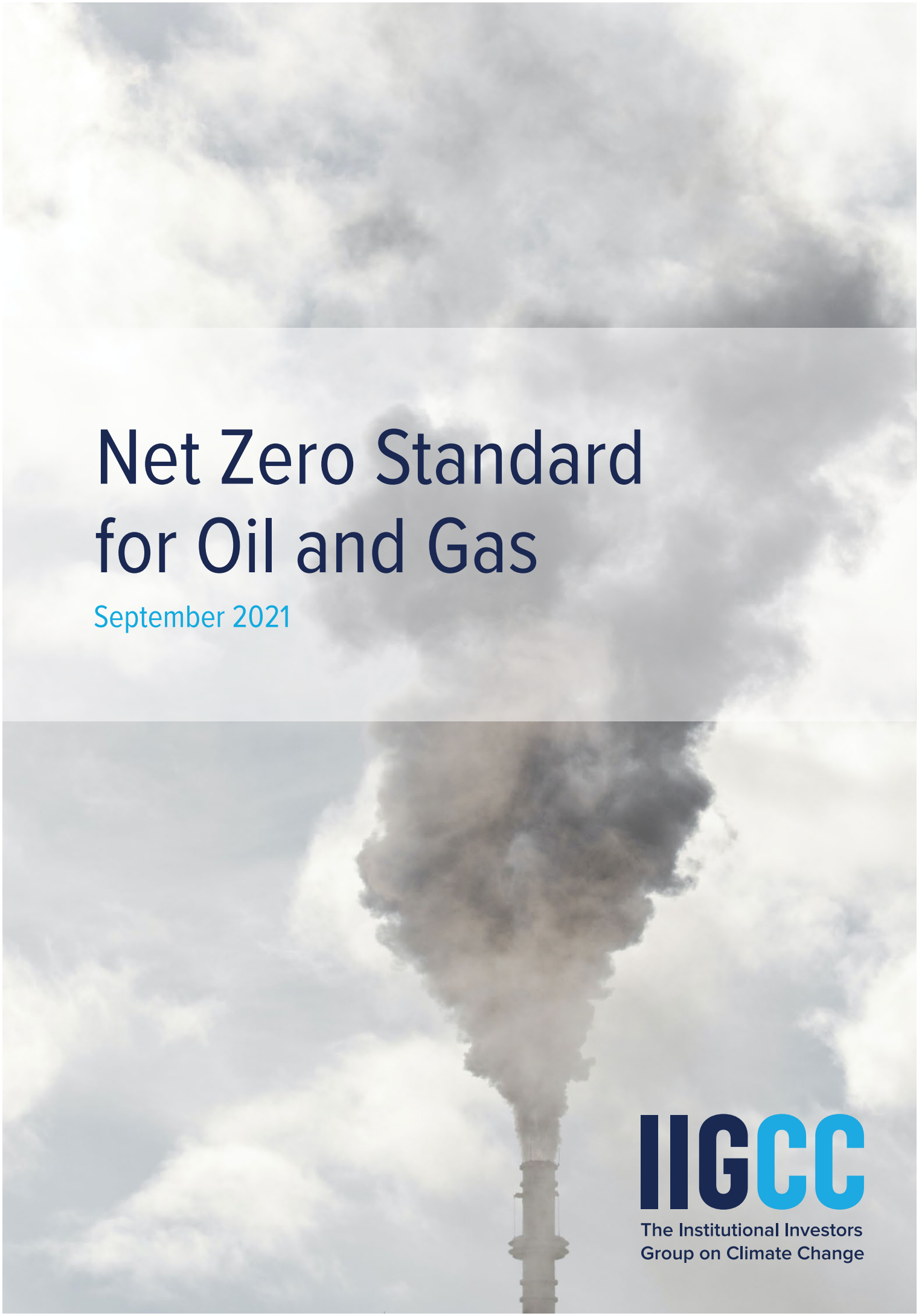

Net Zero Standard for Oil and Gas

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IIGCC

The Institutional Investors Group on Climate Change

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Investor Introduction

In response to investor engagement, individually and through initiatives such as Climate Action 100+, a substantial number of companies in the oil and gas sector have begun to set out their net zero transition plans and targets. This was not the case before CA100+ and initiatives such as the Transition Pathway Initiative (TPI) existed. This clearly demonstrates the need for investors to be active owners by engaging companies – and supporting the people within them – that are driving significant strategy shifts.

But time is very much against all of us and we need to accelerate the pace and scale of commitments. This Transition Decade will determine if the world is able to limit warming to 1.5 degrees. The International Energy Agency has set out the implications of a 1.5 degree pathway for the oil and gas sector in their 'Net Zero by 2050' report: no new oil or gas fields are approved for development. Further, the recent IPCC Sixth Assessment Report has underlined the urgency of drastically cutting emissions in order to avoid the worst impacts of climate change. These calls to action from industry groups and scientist alike, must translate to real, drastic, and immediate emission reductions in all sectors. Emission reductions across the board means significant fossil fuel demand destruction. This will have profound impacts on the industry as a whole and every company within it. This level of disruption to the industry represents significant financial risk to investors – albeit not as large a risk that unabated climate change poses.

Therefore, it is essential that oil and gas company boards know that those with credible independently verified net zero strategies will be supported by their investors. Equally important is that those without will be challenged. Equity investors have already shown that they are willing to replace board directors when company strategies fail to meet expectations. As investors that hold company debt align engagement with equity investor actions, those companies that set themselves against societal objectives will not only lose their social license to operate but will also struggle to access the capital markets.

As investors, we recognise that this is a complex transition with short-, medium- and long-term actions. It is also clear there is no single or simple pathway to net zero and we therefore need to be able to compare and differentiate the paths companies are taking. Based upon the engagement undertaken to date by CA100+, multiple paths are emerging for companies, including:

- diversifying into new areas of business and renewables;
- working through value chains with customers to reshape demand for oil and gas;
- offering solutions to reduce emissions;
- ceasing exploration and running existing assets down in order to return cash to investors;
- and combinations of all the above.

In order for investors to play their role, we need to be able to meaningfully compare different company strategies whilst recognising that there is no one size fits all approach to reaching net zero. Assessing the credibility and adequacy of company transition plans is a technically complex task. Our aim in developing this Oil and Gas Sector Net Zero Standard is to allow us to do that. It will encourage the consistency of reporting that we need to make this comparison, and it also identifies the strategies that oil and gas companies might include in their net zero transition plans. Ultimately, this is intended to create a level playing field for what, at a minimum, must be included in transition plans so we can understand, compare, contrast, and perform our role as long term stewards of our assets.

Having developed this Standard with impressive input from investors, experts, and companies we will now pilot this Standard. We will test its robustness to generate the insights we need to meaningfully and robustly engage with companies in the sector, not just those with transition plans but, more critically, those that do not have transition plans.

We have been hugely encouraged by the level of support we have received from global investors and from some of the world's largest oil and gas companies in the development of the Standard. That support, input and credible challenge has enabled us to produce what we see as an authoritative Net Zero Standard that significantly advances our understanding of the low-carbon transition in the oil and gas sector. But we also recognise that we have more to do, and we invite all oil and gas companies and the investment community to work with us in refining and implementing the Standard.

Adam Matthews

Chair of the Net Zero Oil & Gas Standard Dialogue

Co-Chair IIGCC Corporate Programme

Chief Responsible Investment Officer, Church of England Pensions Board

Summary

1 The last 18 months have seen some oil and gas companies substantially enhance their long-term climate ambitions, with many pitching their new targets as consistent with "net zero". Analysis by the TPI [1] and others [2] has highlighted significant variation in both the extent and scope of these commitments which has led investors to question:

- **a.** The credibility of these commitments
- **b.** What an acceptable net zero commitment is
- **c.** How net zero commitments might be assessed by investors
- **d.** What impact the planned reductions in GHG intensities will have on absolute emissions at both a company level and on the overall societal net zero goal

2 This paper identifies what investors should expect of oil and gas companies seeking to align their businesses to net zero. It identifies both the actions oil and gas companies should take and how they should report on those actions. Taken together the combination of proposed actions and disclosure constitutes a "Net Zero Standard" by which their strategies can be evaluated.

3 This Standard has been developed by the Institutional Investors Group on Climate Change (IIGCC) with the support of the Transition Pathway Initiative (TPI) and in consultation with investors active in engagement through Climate Action 100+ (CA100+), Non-Governmental Organisations (NGOs) with specific expertise in the oil and gas sector, and oil and gas companies themselves. It aims to be applicable to all oil and gas companies, both integrated and exploration and production (E&P) businesses and companies based in any region. Its key insight is that there are multiple strategies oil and gas companies can deploy to align with net zero but alignment does require comprehensive and early action by all parts of the business. Assessing these multiple strategies requires a rigorous, sector specific framework that draws on multiple metrics.

4 The expectations proposed by this Standard are summarised in Exhibit 1. They are designed to supplement the Disclosure Indicators developed as part of the Climate Action 100+ Net-Zero Company Benchmark [3] [4] with specific expectations for the oil and gas sector. This paper discusses, indicator by indicator, why these sector specific expectations have been adopted.

5 The principal components of this Standard will be piloted by IIGCC, with the aim of feeding into the development of subsequent iterations of the CA100+ Net-Zero Company Benchmark and other reporting frameworks. This Standard also aims to inform the activities of other investor initiatives such as the Paris Aligned Investment Initiative (PAII [5]), Net Zero Asset Managers Initiative (NZAMI [6]) and Net-Zero Asset Owner Alliance (NZAOA [7]) which are also seeking to encourage oil and gas companies to align to net zero.

Exhibit 1: Summary of the actions oil and gas companies should take to meet a Net Zero Standard

CA100+ disclosure indicator and description		Supplemental O&G actions / disclosure (see Exhibit 13 for details)
1. Ambition	If the company has set an ambition to achieve net-zero GHG emissions by 2050 (or sooner)	A net zero ambition should be comprehensive, covering all energy related activities across all divisions, regions, equity stakes, and material emissions (it should include Scope 3 use of sold products and methane)
2-4. Targets	If clearly defined short-, medium- and long-term targets to reduce GHG are in place covering all material emission scopes and aligned to a goal of limiting global warming to 1.5°C	Companies can set targets based on absolute and/or intensity metrics but should indicate how an intensity target translates into absolute emissions and vice versa Companies should focus on reducing gross emissions; the total expected impact of measures to "net off" residual gross emissions should be reported Integrated oil and gas companies should set separate medium- and long-term emission targets for their upstream businesses
5. Decarbonisation Strategy	If a decarbonisation strategy to meet its long-, medium- and short-term GHG reduction targets is in place and if it includes a commitment to 'green revenues'	Companies should disclose the actions they intend to take to reach net zero and the contribution of each action to its medium- and long-term targets It may not be possible to identify and quantify all actions today but companies should ensure that the total of all quantified actions accounts for at least 75% of the medium-term reduction and at least 50% of the long-term reduction Oil and gas companies should reduce operational emissions to net zero Oil and gas companies should have the flexibility to use a range of available measures to reduce emissions, however they should state their production plans for both oil and gas in their targets. If a company does not commit to production declines in line with net zero it should justify this through additional cost and capex disclosure (see below) Companies intending to rely on offsets, CCUS or third-party actions to "net off" gross emissions should also state the individual contribution of these measures and provide additional disclosure on these actions Companies should disclose the total contribution of "green" energy sales towards their medium- and long-term targets and specify the "green" energy they intend to produce (where the definition of "green" references the relevant regional taxonomy)
6. Capital Allocation Alignment	If a company is working to decarbonise its future capital expenditures and discloses the methodology used to determine the Paris alignment of its future capital expenditures	Companies should confirm that their investment strategy is aligned with net zero and set out the assumptions (oil price, carbon tax, depletion rates etc) underpinning that conclusion Companies should disclose a forward-looking capex budget (at least three years), specifying upstream and exploration elements. Additional disclosure on breakeven costs for new projects should be provided if targeted production declines are inconsistent with net zero (see above). Investment in CCUS and other CDR measures should also be specified Companies opting to invest in green energy should specify "green" capex
7. Climate Policy Engagement	If a clear commitment and set of disclosures clarifying intent to support climate policy has been developed by the company together with a demonstration of how direct and indirect lobbying is consistent with this intent	No supplementary, sector specific, disclosure proposed
8. Climate Governance	If the company's board has clear oversight of climate change sufficient capabilities/ competencies to assess and manage the risks and if climate targets are included in the executive remuneration scheme	The link between executive remuneration and climate targets should be prominently disclosed with who it applies to, share of the pay linked to the target, and the impact of under/over performance explicitly stated. Any link between remuneration and fossil fuel production growth should be removed
9. Just Transition	If it considers the impacts from transitioning to a lower-carbon business model on its workers and communities	No supplementary, sector specific, disclosure proposed
10. TCFD Disclosure	If it has committed to implement the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD) and employs climate-scenario planning to test its strategic and operational resilience.	To enable investors to understand, track and compare decarbonisation strategies, companies need to improve and standardise their existing emissions and energy disclosure Companies should disclose the fossil fuel and price forecasts underpinning their accounts and the underlying assumptions If a company is not yet adopting assumptions consistent with a net zero scenario then it should show the impact of a net zero scenario on revenue and profits, the balance sheet and cashflow

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Background

7 The IPCC's special report on Global Warming of 1.5°C [8] states that if the rise in global temperature is to be limited to 1.5°C, global emissions must fall c.45% from 2010 levels by 2030 and to "net zero" by 2050. According to the UN [9] over 110 countries have now made some form of pledge to reach carbon neutrality (net zero on CO_2) by 2050 with China aiming for net zero by 2060. Eight countries including the UK have already enshrined a net zero objective into law and the EU's Climate Law is expected to pass during 2021. So far, countries representing more than 65% of global CO_2 emissions and 70% of GDP have made some form of net zero commitment.

8 The last 18 months have seen many, mostly European, oil and gas companies substantially enhance their climate ambitions. Most of these new ambitions include emissions released when oil and gas is burnt[1] and thus now envisage significant cuts to their overall emissions intensity by 2050. Some have used the phrase "net zero" to convey the extent of the decarbonisation planned and to suggest they are aligned with this wider societal and policy goal. Occidental recently became the first US oil and gas company to pledge to tackle emissions released when oil and gas is burnt [10].

9 In May 2020 TPI compared the ambitions of the European companies to each other and to sectoral emissions benchmarks derived from IEA data [11]. This analysis highlighted the many different ways these commitments were expressed and concluded that none of the targets were, in fact, aligned with net zero[2]. Analysis from Carbon Tracker similarly concluded that no company was planning emission reductions consistent with a net zero carbon budget [2].

10 One of TPI's core conclusions was that investors looking to evaluate company strategies, understand transition risk or align their portfolios to net zero, cannot rely on company definitions of net zero. A similar comment applies to absolute emissions; it was generally not possible to tell what the planned reductions in intensity meant for absolute emissions, either at a company level or for reducing emissions in the wider economy.

11 This paper identifies what investors should expect of oil and gas companies genuinely seeking to align their businesses to a 1.5°C climate scenario with limited or no overshoot. It sets out the principal actions companies should take and the disclosures they should provide to communicate this strategy to investors and allow external and independent verification. Taken together the combination of proposed actions and disclosure constitute a "Net Zero Standard".

12 The expectations developed for this Standard are designed to directly map onto the Disclosure Indicators developed by Climate Action 100+ (CA100+) for its recently launched Net-Zero Company Benchmark [3] [4]. CA100+ is an investor initiative backed by over 500 investors with a total of $54 trillion in assets under management. The expectations in this document have been developed by the Institutional Investors Group on Climate Change (IIGCC) with the support of the Transition Pathway Initiative (TPI) and in consultation with investors actively engaging through CA100+, NGOs with specific expertise in the oil and gas sector and oil and gas companies themselves. Many of them are derived from analysis published in TPI's briefing paper "Carbon Performance of European Integrated Oil and Gas Companies: Briefing paper" [1] as well as insights from the disclosure frameworks developed by the EU [12] [13] [14], CDP/SBT [15] [16], Carbon Tracker [17], and Oxford Martin [18], amongst others.

13 While the expectations were developed from analysis of, and feedback from, European oil and gas companies with ambitions to lead the transition, the Standard aims to be more broadly applicable. It aims to cover both integrated and E&P companies, all potential decarbonisation strategies and be applicable to companies based in all regions. Many of the recommended actions and disclosures should also be applicable to National Oil Companies (NOCs).

14 This broad coverage aims to give confidence to both companies and investors. Oil and gas companies have different asset bases and strategies. Consequently, while the ultimate destination (net zero emissions by 2050) may be the same, there are multiple paths they can take and the optimal strategy will vary by company. Assessing these multiple paths requires a rigorous, sector specific framework that draws on multiple metrics, not just a single emissions or emissions intensity figure. In this way, companies embarking on a fundamental transformation of their business, should be reassured that their substantial commitment will be properly recognised. At the same time, investors seeking to align their portfolios with net zero and minimise transition risk can allocate capital to these companies, confident that they are actually transitioning to net zero. In addition, this Standard will enable investors to determine which strategy a company is adopting.

15 There is a growing investor appetite for this analysis. Aside from CA100+, several investor initiatives now explicitly support the goal of net zero, including the Paris Aligned Investment Initiative (PAII [5]), Net Zero Asset Managers Initiative (NZAMI [6]) and Net-Zero Asset Owner Alliance (NZAOA [7]). This Standard aims to be useful to this broad audience.

16 Five principles underpin the design of this Standard:

17 1. **Strategic flexibility:** as set out in paragraph 14, this Standard recognises there are a number of potential ways to reach net zero. This Standard aims to cover the full breadth of potential strategic responses including integrated companies focusing on reducing upstream production, exploration & production (E&P) companies adopting a "wind-down" or "harvest" strategy, diversification (into petrochemicals for example), integrated companies reducing the emissions intensity of all sold products and strategies deploying Carbon Capture Utilisation and Storage (CCUS) or Direct Air Capture (DAC). Oil and gas companies should focus on reducing gross emissions and reaching net zero for their operational emissions but should be free to choose the most efficient technology and strategy otherwise.

18 2. **Transition risk and impact:** this Standard primarily assesses the reduction in company transition risk (demand shifts, regulation, legal and reputational) associated with the adoption of a comprehensive net zero strategy. Assessing impact (reductions in "real world" emissions) is more complicated. Some actions, such as reducing operational emissions or investing in low cost renewable generation that supplants fossil fuel powered energy, arguably can have a direct impact on emissions (see paragraph 92). However, in the context of the overall energy system comprised of hundreds (if not thousands) of different players, it is difficult to assert that actions by a single company to constrain its supply of fossil fuels will have a direct impact. By asking companies to disclose all the actions they intend to take to deliver net zero (including specifying disclosure on operational emissions and investment in renewable generation) investors can use this Standard to assess impact.

19 3. **Make use of existing frameworks where available:** this Standard recognises there is a growing burden of disclosure on companies and therefore aims to use existing disclosure frameworks where possible. The vast majority of the disclosure requested by this Standard is being requested by other frameworks and is already provided by at least one oil and gas company. In several key areas best practice is not yet fully established. Specifications in these areas may, therefore, evolve over time.

20 4. **Simplicity:** this Standard aims to require the minimal amount of disclosure needed to achieve its objective.

21 5. **Transparency:** the Standard is based on established, published principals where possible. Feedback from investors, NGOs and oil and gas companies that has prompted a modification in the Standard, will be published in a separate document.

Indicator 1: Ambition

22 The CA100+ Net-Zero Company Benchmark evaluates all target companies based on whether they have *"set an ambition to achieve net-zero GHG emissions by 2050 (or sooner)."* This includes:

"a qualitative net-zero GHG emissions ambition statement that explicitly includes at least 95% of scope 1 and 2 emissions" and an *"ambition [that] covers the most relevant scope 3 GHG emissions categories for the company's sector, where applicable."*

23 For an oil and gas company, which primarily sells fossil fuels, reaching net zero poses an enormous challenge. It requires a dramatic cut not only in its own emissions (Scope 1 & 2) but also those released when the products it sells are used (Scope 3 category 11 – use of sold products).

24 Therefore, reaching net zero demands a comprehensive strategic commitment from an oil and gas company to transform its business. Without such a commitment, substantial sources of emissions are unlikely to be addressed and emissions are unlikely to fall at the required pace. An oil and gas company committing to net zero should:

25 • **Set a comprehensive emissions target to reach net zero by 2050 which covers:**

26 • **All energy related activities.** The target should include all business divisions and activities (exploration, production, refining, transportation and marketing)[3]. The organisational boundary adopted should include all equity stakes and all geographies to prevent the "leakage" of emissions[4]. Emissions related to petrochemical production ("non-energy") are outside the scope of this Standard.

27 • **All material emissions.** It should at least include emissions from scopes 1, 2 and 3 (category 11 – use of sold products) and all greenhouse gases (CO_2, methane[5] and other gases if material).

28 Further details on the consolidation boundary companies should adopt to calculate their emissions footprint are given in Exhibit 12. Companies should aim to ensure emissions disclosure is consistent with its energy disclosure and that scope 1 and 2 emissions are stated on the same basis as scope 3.

Indicators 2-4: Long-term, Medium-term and Short-term targets

29 The CA100+ Net-Zero Company Benchmark evaluates target companies based on whether they have:

30 **Indicator 2:** *"set a target for reducing its GHG emissions by between 2036 and 2050 on a clearly defined scope of emissions".* This should cover: *"at least 95% of scope 1 & 2 emissions and the most relevant scope 3 emissions (where applicable)"* and be *"aligned with the goal of limiting global warming to 1.5°C"*

31 **Indicator 3:** *"set medium-term (2026 to 2035) targets for reducing its GHG emissions ... on a clearly defined scope of emissions"* This should cover: *"at least 95% of scope 1 & 2 emissions and the most relevant scope 3 emissions (where applicable)"* and be *"aligned with the goal of limiting global warming to 1.5°C"*

32 **Indicator 4:** *"set short-term (up to 2025) targets for reducing its GHG emissions ... on a clearly defined scope of emissions"* This should cover: *"at least 95% of scope 1 & 2 emissions and the most relevant scope 3 emissions (where applicable)"* and be *"aligned with the goal of limiting global warming to 1.5°C"*

33 Oil and gas companies should set all targets (long-, medium- and short-term) on a consistent and comprehensive basis (as set out in paragraphs 25-27). Emission targets can be set on an absolute or intensity basis. However, companies adopting intensity targets should state the expected impact of falling intensity on absolute emissions to provide investors with an alternative way to assess the reduction in transition risk and the contribution the company is making to the overall societal net zero goal. In addition to the CA100+ disclosure an oil and gas company should:

34 - **Disclose the expected impact of its medium- and long-term targets on absolute emissions.**

35 Some integrated oil and gas companies[6] have opted for climate strategies that focus on reducing downstream emission intensity. Others have focused on reducing upstream production, divesting and/or slowing capital investment to allow production levels to fall.

36 This "wind-down" or "harvest" strategy is a legitimate approach to reaching net zero for all oil and gas companies and may be particularly attractive to exploration and production (E&P) companies: absolute emissions (Scopes 1, 2 and 3) will fall towards zero as production slows. However, due to the limited impact on intensity, it is best tracked using an absolute emissions metric. A method to directly benchmark absolute emission reductions (without converting into intensity using a growth assumption) is currently being developed by TPI [1] and will be used to assess this strategy. Nevertheless emissions intensity is an important metric and, to enable investors to compare strategies, all oil and gas companies should:

37 - **Disclose the expected impact of its medium- and long-term targets on emission intensity.**

38 IPCC guidance ([8], pg 136) and the CA100+ Net-Zero Company Benchmark ([19], note 4), indicate that companies should focus on reducing gross emissions. Actions "netting off" (neutralising) gross emissions via the use of either CCUS, Bioenergy Carbon Capture and Storage (BECCS) or DACS, technologies, voluntary offsets or the actions of third parties in the supply chain, are all potentially legitimate ways to support reaching net zero. However there has been limited progress in reducing costs or adding new CCUS capacity over the last decade. The extent to which offsets can and should be used to net off emissions from the oil and gas sector is still a matter of debate and there is currently no way of accounting for supply chain actions to reduce emissions within external assessment frameworks. Recognising these deployment and measurement challenges and, consistent with the IPCC guidance and the CA100+ Net-Zero Company Benchmark, this Standard considers that gross emission reductions should be prioritised and neutralising measures should not be the primary way oil and gas companies decarbonise (i.e. total neutralising measures should account for less than 50% of total emissions reduction).

39 Further detail on the additional disclosure required on neutralising actions is given in the section *Indicator 5: Decarbonisation strategy*, but, to enable the targeted reduction in gross emissions in both medium- and long-term targets to be calculated, an oil and gas company should:

40 - **Disclose the total contribution (in $MtCO_2e$) of netting off measures to medium- and long-term targets.**

41 As set out in Endnote 2 (page 30) the emissions budget for primary energy, consistent with the economy wide target of net zero, has yet to be definitively established. Based on a review of IPCC 1.5°C scenarios with limited or no overshoot [8] the benchmark adopted may allow some positive CO_2 emissions in 2050 and is likely to allow some positive energy related CH_4 emissions. The long-term targets of oil and gas companies will be judged against this primary energy benchmark as the data becomes available.

42 In accordance with Principle 1, an oil and gas company should have some flexibility to determine its most efficient decarbonisation pathway. This Standard does not specify emissions/intensity reductions of a certain percentage by a certain date. However, net zero has a very tight emissions budget and, as recent TPI analysis highlighted, the shape of a transition pathway impacts absolute emissions [12]. Policy changes (particularly in Europe) may put further downward pressure on interim targets[7]. Given the scale of the challenge in the oil and gas sector, action is needed today if meaningful change is to be delivered and avoid the emissions budget associated with an increase in temperatures of 1.5°C being exceed by the early 2030s. Therefore, an oil and gas company should aim to reduce emissions as quickly as possible. Its transition pathway will be compared to a sectoral decarbonisation pathway based on a 1.5°C scenario when one becomes available (see Endnote 2, page 30) . All other things being equal, a company that relies more heavily on decarbonisation in later years will be considered to have a higher transition risk by investors.

43 In addition to the company-wide targets (Indicators 2 – 4) an integrated oil and gas company should set a separate emissions target for its upstream business. As established in paragraph 24, for oil and gas companies to meet the challenge of net zero all activities must be aligned with this strategic goal. Upstream activities should be part of the response. Again, according to Principle 1, companies are free to determine the pace of the decline in emissions. An integrated oil and gas company should:

44 • **Set a medium- (2026-35) and long-term emissions target for its upstream activities including all fossil fuel exploration and production activities and all emissions (Scopes 1, 2 and 3). The year of the medium-term target should be consistent with the year chosen for the company-wide target.**

Indicator 5: Decarbonisation strategy

45 The CA100+ Net-Zero Company Benchmark evaluates a target company based on whether it has *"a decarbonisation strategy to meet its long-, medium- and short-term GHG reduction targets"* and if it *"includes a commitment to 'green revenues' from low-carbon products and services"*

46 Oil and gas companies can take a range of actions to reach net zero. Exhibit 2 shows these actions grouped under four main headings or "measures": 1) reducing operational emissions, 2) decreasing sales of fossil fuel energy, 3) netting off residual gross emissions and 4) increasing sales of lower carbon energy (which does not reduce absolute emissions but does lower intensity and arguably contributes to accelerating the transition to a low-carbon society). Providing detail on the strategy a company intends to use to mitigate climate risks is consistent with a commitment to implement TCFD [20].

Exhibit 2: Principal actions oil and gas companies can take to reach net zero in 2050. Actions highlighted in orange should be taken. The contribution of actions in yellow should be disclosed (even if no contribution is expected)

Measure	Contribution to target		
Action	**% and**	**$MtCO_2e$ or tCO_2e/TJ**	**Required supplemental disclosure (if action is specified). See text for details**
1. Reduce operational emissions to net zero	X	X	• consumption of "green" energy • verified methane emissions, plan of action and target • zero routine flaring by 2030 • contribution of CCUS to operational emissions target
2. Reduce Scope 3 (cat.11) emissions /fossil fuel sales	X	X	
a) Decrease own production	X	X	• total annual oil and gas production in both medium- and long-term targets
i) Decrease oil/liquids production	X	X	• annual oil production in both medium- and long-term targets • if rate of decline is not aligned (at or below the level implied by the 1.5°C pathway) supplemental operational and capex disclosure is required (see paragraph 75)
ii) Decrease gas production	X	X	• annual gas production in both medium- and long-term targets • if rate of decline is not aligned supplemental operational and capex disclosure is required (see paragraph 75)
iii) Disposal of own production	X	X	
b) Decrease sales of third-party energy products	X	X	
3. Netting off ("neutralising") residual gross emissions	X	X	
a) CCUS, BECCS and DACS	X	X	• conduct and publish study setting out costs, timings and returns on investment
b) Offsets	X	X	• offset costs (in $ per tonne and total) • type, mix and provider of offsets
c) Actions by third party/supply chain	X	X	• describe the intended actions, supplier/customer mix
4. Increasing sales of lower carbon energy	X	X	
a) Increasing sales of third-party products	X	X	
b) Investing in adding "green" production	X	X	• annual energy production in both medium- and long-term targets (TJ) • split of self-built generation (capex) and PPAs (in TJ) • all "green" production should meet taxonomy criteria
i) Solar	X	X	
ii) Wind	X	X	
iii) Bioenergy	X	X	• should meet taxonomy criteria
iv) Hydrogen	X	X	• should meet taxonomy criteria
v) Other (nuclear, hydro, geothermal etc)	X	X	

47 The most cost-effective strategy to reach net zero will vary by company. In accordance with the principle of flexibility in general this Standard does not state which combination of actions a company should take or the extent to which they should be used. Instead it aims to cover the full range of potential responses (the list of sub-headings in Exhibit 2 should not be considered exhaustive) and set appropriate disclosure parameters for each. It recognises that not all actions are relevant for every company and that disclosure standards in some areas (offsets for example) are evolving.

48 This Standard recognises that it may not be possible for a company to completely identify today how it intends to achieve net zero. Technology and pricing are constantly changing and optimal strategies are likely to evolve over time. It also acknowledges that full disclosure may be commercially sensitive. Nevertheless, an oil and gas company looking to articulate a credible net zero strategy should expect to tell investors, at least in broad terms, how it intends to get there. An oil and gas company should:

49 • **Disclose the major actions it intends to take to reach its medium-term and 2050 targets**

50 • **Disclose the expected contribution of those actions to reaching both these targets. This expected contribution should be stated in consistent units across all actions in percentage terms and either tCO_2e per TJ (where a company is primarily targeting a reduction in emission intensity) or Million Tonnes of CO_2e (where a company is primarily targeting a reduction in absolute emissions). The expected contribution can be stated as a narrow (i.e. ≤10ppts) range**

51 A company does not have to state all the actions it intends to take to reach net zero or quantify the expected contribution of all stated actions today. However, it should aim to identify and quantify as much as possible now and increase the proportion of quantified actions over time. An oil and gas company should:

52 • **Disclose quantified actions which have a total expected contribution of at least 50% of the reduction needed to get to net zero in 2050**

• **Disclose quantified actions which have a total expected contribution of at least 75% of the reduction set by the medium-term target**

53 This Standard aims to utilise regional taxonomies to define green revenues and establish genuine "lower-carbon" sales in areas such as bioenergy and hydrogen where emission intensity varies widely by production method. Currently the most developed of these, the EU taxonomy, sets both maximum emissions thresholds and a "do no harm" criteria across five other environmental metrics to determine green revenue [12], [13]. The EU taxonomy is still evolving but this Standard encourages compliance with either the thresholds it establishes or those prescribed by the appropriate regional taxonomy as these become available. Alignment with the appropriate taxonomy is important: 1) to ensure the actions oil and gas companies take actually deliver the emissions reductions promised 2) to ensure these actions do not have other detrimental environmental impacts and 3) to minimise the burden of disclosure by having a separate additional definition.

1) Reduce operational emissions to net zero

54 The one measure that the Standard specifies an oil and gas company should take is reducing its operational emissions (scope 1 & 2) to net zero. While its operational emissions are typically relatively small compared to its Scope 3 emissions, they are large in any other context. The IEA estimates that annual Scope 1 and 2 emissions from the oil and gas sector (including methane) account for 5.3 $GtCO_2e$ [21], 40% more than the entire steel industry. An oil and gas company (in most cases) has control over these emissions and reducing them has a direct impact on real world emissions (see paragraph 92). A combination of switching to "green" energy sources, greater energy efficiency, focus on less energy intensive oil extraction and CCUS are examples of actions companies can take to reduce operational emissions. An oil and gas company seeking to reach net zero should:

55 • **Commit to reaching net zero operational (Scope 1 & 2) emissions (Measure 1, Exhibit 2)**

56 • **Disclose "green" energy consumed by its operations in TJ[8]**

57 Due to the lack of data it is not currently possible to separately benchmark operational emissions targets against a net zero scenario. However, this analysis may be feasible in due course. The IEA has published some information on an operational emissions pathway to 2040, based on its Sustainable Development Scenario (SDS), suggesting that such data may, in time, become available for net zero also ([21] pg 154).

58 A large share of operational emissions in the oil and gas sector are due to the release of methane, either through (deliberate) venting, fugitive releases or incomplete flaring. Based on satellite data the IEA estimates that the oil and gas sector emitted around 70 Mt of methane in 2020, equivalent to 2.1 $GtCO_2e$ [22], c.10% of lifecycle emissions associated with the oil and gas sector[9]. However, methane data at a company level is very patchy [23], [24]. Of the 53 largest publicly listed oil and gas companies assessed by TPI [25] less than half had published methane data, and the level of emissions reported were substantially below what would be expected by the IEA analysis.

59 The first step is tackling this data issue. Atmospheric methane measurement technologies such as on-site drones and satellites have advanced in recent years and can be combined to directly measure total methane, supplementing bottom-up component-level estimates [24]. An oil and gas company should:

60 • **Integrate direct measurement into its estimate of methane emissions, disclosing the methods used for the estimation (see [24]) and reconciling the results with bottom-up estimates (OGMP 2.0 level 5 [26])**

61 • **Conduct an independent and externally verified assessment of this methane emissions estimate and publish the results**

62 The IEA sees reducing methane emissions as "among the most cost-effective and impactful actions" the sector can take to reduce climate change and the UNEP estimated that 60-80% of methane emissions in the oil and gas sector could be abated at low or negative cost [27]. While the IEA does not yet forecast methane in a net zero (1.5°C) scenario, its less stringent SDS scenario suggests emissions need to drop 75% from 2020 levels by 2030 ([21], pg. 155). The UNEP estimates that methane emissions from the energy sector (including coal) should fall by 59% from 2020 levels [27] and SBT has proposed a 70% drop in blended upstream methane emission intensity [28]. Actions may need to evolve as the quality of data improves but within the commitment to net zero in operational emissions, oil and gas companies should:

63 • **Disclose their methane emissions, both on an absolute basis (in metric tonnes) and intensity basis (in $MtCO_2e$ per TJ of total upstream production i.e. oil *and* gas). An additional denominator can be used for mid-stream or distribution companies as appropriate**

64 • **Set a methane emissions reductions target of at least 70% (on an absolute or intensity basis) in their interim targets. Ideally the base year for this target should be consistent with that used in its overall targets but the absence of sufficiently high-quality data (see paragraph 58) may justify the use of a separate (i.e. later) base year**

65 • **Disclose the actions they intend to take to deliver on their targets**

66 Burning ("flaring") of excess or associated gas is often done on a routine basis in areas where capturing and transporting the gas to market is considered uneconomic. Substantial reductions are needed here over the next decade according to the IEA [21]. An oil and gas company should:

67 • **Commit to zero routine flaring by 2030 in line with World Bank and UN initiative [29] and minimise non-routine flaring**

68 The use of CCUS to offset operational emissions, particularly gas processing, is one of the few areas where CCUS deployment is relatively cost effective at present ([30], pg. 499). Within its commitment to net zero operational emissions, an oil and gas company should:

69 • **Disclose the expected contribution of CCUS to meeting its net zero operational emissions target**

2) Reduce Scope 3 (Category 11) emissions / sales of fossil fuels

70 This Standard acknowledges that the transition away from fossil fuels will require further policy and end user demand shifts in addition to supply-side actions. Publicly listed oil and gas companies do not supply the whole market and start from different positions, with different cost bases and production mixes. Investors imposing blanket constraints on supply just for listed companies could prove counterproductive.

71 Nevertheless, models from the IPCC, IEA and others are clear that very large declines in oil and gas consumption are needed by 2050 if global emissions are to remain within the budget needed to limit the temperature rise to 1.5°C. Staying within this emissions budget also requires early action, particularly for oil. The 2020 Production Gap report [31] estimates that with constrained reliance on carbon dioxide removal (CDR) deployment, oil consumption must fall by c.35-40% and gas by 25-30% between 2019 and 2030. The IEA estimates that oil consumption must fall c.28% by 2030 (Exhibit 3) while gas consumption should fall by c.7% (Exhibit 4) over the same time period.

Exhibit 3: Oil production/consumption trajectories consistent with a 1.5°C scenario with no or low overshoot according to the IEA [32], IPCC [8] and BP [33]

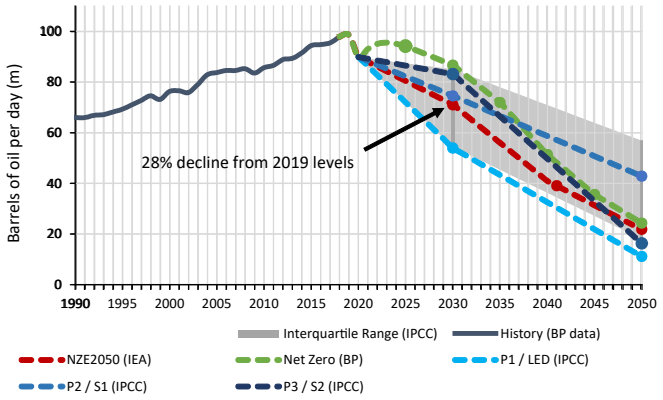
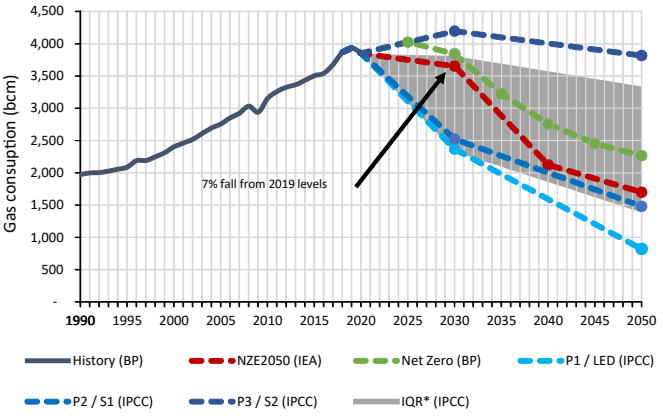


Exhibit 4: Gas production/consumption trajectories consistent with a 1.5°C scenario with no or low overshoot according to the IEA [32], IPCC [8] and BP [33]



* IQR = Interquartile range

2a) Decrease own production

72 Limiting the temperature increase to 1.5°C requires oil and gas companies to substantially reduce their production. Lowering production, particularly of oil, before 2030 will significantly reduce companies' transition risk (as measured by the distance above an intensity or absolute emissions benchmark). An oil and gas company seeking to align with net zero should:

73 • **Acknowledge the need for substantial reductions in the production of fossil fuels across the industry by 2050 and that those reductions need to begin before 2030, particularly for oil**

74 • **Disclose its planned total fossil fuel production in both its medium- and long-term targets, specifying both the oil and gas element. This should be expressed in units and either a % or absolute change from a stated base year value**

75 The pace of reduction is likely to vary by company. In accordance with Principle 1, companies should be able to respond flexibly and some, by virtue of a low cost base or high proportion of gas in the portfolio, may be better positioned to cope with the significant fall in demand. Equally others may be exposed to producing oil which is both expensive to extract and emission intensive when burnt, and therefore may have to move faster. Consistent with the tight emission budget of a 1.5°C scenario, early action should be prioritised. If a company's planned cuts to oil or gas production in its medium- and long-term targets are not as large as that required by the adopted 1.5°C scenario it should state why by highlighting that its production costs are substantially lower than the industry average and/or peers. In this case an oil or gas company should:

76 • **Disclose why it believes its production plans do not need to be consistent with the declines indicated in the adopted 1.5°C scenario**

77 • **Disclose its global average (mean) production cost by fuel.[10] If the targeted reduction in oil production is less than indicated by the adopted 1.5°C scenario, the average cost of existing (sanctioned) oil production should be disclosed (in $ per barrel). Similarly, if the targeted reduction of gas production is less than the rate implied by the adopted 1.5°C scenario, the average cost of existing (sanctioned) gas production should also be disclosed (in $ per BTU). Disclosure should be global but additional regional disclosure on gas can be provided if the company is focused on a specific market (i.e. North America)**

78 If an oil and gas company is not planning to reduce production in line with a 1.5°C scenario this also carries additional capex disclosure obligations. Further details on this disclosure are provided in paragraphs 115-117.

2b) Decrease sales of third-party fossil fuel energy products

79 Some (typically integrated) oil and gas companies also purchase fossil fuel products extracted by other oil and gas companies which they then sell to their customers. These products can be either sold directly ("traded") or refined by the company into ("final") energy products. In addition to reducing the production of fossil fuels and, consistent with the comprehensive strategic response needed to get to net zero, oil and gas companies will also need to dramatically decrease sales of fossil fuel energy products purchased from third parties by 2050.

80 A potential additional action available to companies refining crude oil is increasing the proportion of refinery output destined for non-energy uses (petrochemicals and plastics). Non-energy products often permanently store carbon [34] and are excluded from the energy benchmarks used by the TPI and SBT to assess overall emission intensity [1], [28]. These non-energy products are associated with other environmental issues, but this diversification strategy is a potentially legitimate decarbonisation strategy.

3) Netting off ("neutralising") residual gross emissions

81 An oil and gas company looking to align with net zero should primarily focus on reducing gross emissions (see paragraph 38). At this point the Standard does not propose direct limits on the individual use of neutralising measures such as CCUS, BECCS, DACS or offsets but total neutralising measures should not account for the majority of the medium- and long-term emission reduction targets. Net zero plans which rely heavily on measures to neutralise gross emissions are likely to be considered less credible by investors. Actions that rely on a company's own actions (3a and 3b) may be considered more reliable plans to reach net zero than actions relying on third-party customers/suppliers (3c). An oil and gas company should:

82 • **Disclose if it intends to use the following approaches in meeting its net zero ambition: a) CCUS, BECCS and DACS b) offsets c) actions by third-party suppliers or customers (Exhibit 2)**

83 • **Disclose the total expected contribution of these measures towards both the medium-term and long-term targets. The expected contribution should be stated in percentage and absolute emissions terms (Actions 3, Exhibit 2. This is also specified as part of Indicator 2)**

84 • **Disclose the expected individual contribution of these measures towards both the medium- and long-term targets. The expected contribution should also be stated in percentage and absolute emissions terms (Actions 3a – 3c, Exhibit 2)**

85 Actions to net off residual emissions require greater disclosure to convince investors that they are credible. In addition to stating the total and individual contribution to emissions targets, an oil and gas company should:

86 • **If it intends to deploy either CCUS, BECCS or DACS (3a), conduct and publish feasibility studies for its CCUS, BECCS and DACS strategies to establish: the locations where it intends to deploy CCUS, BECCS and DACS, the total cost of investment, the proposed technologies, the annual amount of CO_2e that it expects to be captured, the storage and transport mechanisms, the carbon price that would make that investment profitable and when the site is expected to open (further disclosure on CCUS, BECCS and DACS is also required under Indicator 6)**

87 The extent to which offsets can and should be used to net off emissions from the oil and gas sector is still a matter of debate [28], the effectiveness of offsets vary significantly by type and there is particular concern with about their permanence given recent changes in weather patterns and fire risks [18]. Therefore oil and gas companies should minimise their use and focus only on high quality offsets. An oil and gas company should:

88 • **Disclose the expected costs (in $ per tonne of CO_2e and total) of its offset strategy**

89 • **Disclose the type, mix and provider of offsets it intends to use (referencing length of storage, wider social and environmental impact, relation to offsetting standards and offset assumptions, as consistent with the Oxford Principles for Net Zero Carbon Offsetting [18])**

90 Currently there is no credible way to account for supply chain actions (3c) to reduce emissions within external assessment frameworks. An oil and gas company should:

91 • **Disclose how it intends to work with suppliers and customers to reduce emissions, the mix between customers and supplier actions and how it intends to work to develop a method by which these actions can be reliably accounted for**

4) Increasing sales of lower carbon energy

92 Investors also want to understand the contribution of oil and gas net zero strategies to the wider societal goal of reaching net zero. Measuring impact is complicated: in a scenario where fossil fuel demand remains high, the actions of a single company to reduce its supply of oil products may not directly reduce global emissions. Similarly, selling fossil fuel assets to a third party reduces its emissions but may not directly impact global emissions. It is also true that not all sales of low-carbon energy equate to impact. Decarbonisation strategies that reduce the emission intensity of sold energy by re-selling pre-existing low-carbon electricity produced by a third party may not directly reduce fossil fuel demand. These are all legitimate strategies to reduce transition risk but may not directly reduce global emissions.

93 Nevertheless some company actions can directly impact global emissions and these should be encouraged and measured. As already highlighted, switching to low-carbon sources for operational energy (cutting Scope 1 & 2 to zero) directly reduces fossil fuel demand and hence global emissions. Consequently the Standard specifies that all oil and gas companies seeking to align with net zero should include this action in their strategy. Investing in new "green" energy production, which displaces fossil fuels and alters the global primary energy mix, can also have an impact on global emissions. An oil and gas company does not need to invest in "green" energy to have a net zero strategy but should disclose the extent to which it intends to rely on sales of "green" energy to meet its targets. To aid investor understanding of impact an oil and gas company should:

94 • **Disclose the total annual "green" energy (in TJ) it expects to generate in both its medium- and long-term targets from investing in generation capacity, either by directly building its own generation infrastructure or as a result of signing long-term "off-takes" or power purchase agreements (PPAs) with third parties (Action 4c in Exhibit 2) where it is the buyer of the majority of the power produced**

95 • **Disclose the split of energy in TJ from capital investment in building self-owned new green energy (see paragraph 97) capacity and from long-term PPAs**

96 Adding the expected energy contribution from new "green" energy above with disclosure on "green" energy consumed by the company in its operations (see paragraph 56) will enable investors to estimate the total impact of the company's strategy on the primary energy mix.

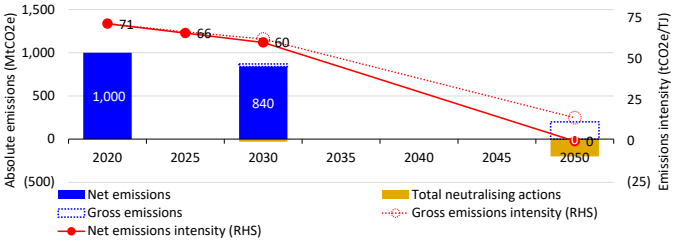
97 Some actions can deliver very different levels of emissions reduction and have wider negative environmental impacts depending on how they are implemented. For example, hydrogen can be made cheaply from fossil fuels and, considering large conversion losses, can be a very emissions intensive and inefficient energy carrier. Likewise, growing biofuels can be both very emissions intensive (Scope 1 & 2 emissions) and have wider negative social and biodiversity impacts. As set out in paragraph 53 this Standard aims to utilise appropriate regional taxonomies to attempt to address these complex issues. An oil and gas company should:

98 • **Aim to only invest in low-carbon projects that will generate "green" revenues consistent with the definitions from the appropriate regional taxonomy as they become available. Energy sold from hydrogen or biofuel projects for example, that do not qualify as "green revenues" according to the taxonomy definition, may not be assessed as low-carbon by third-party organisations like the SBTi and TPI**

External assessment of net zero using Indicators 1-5

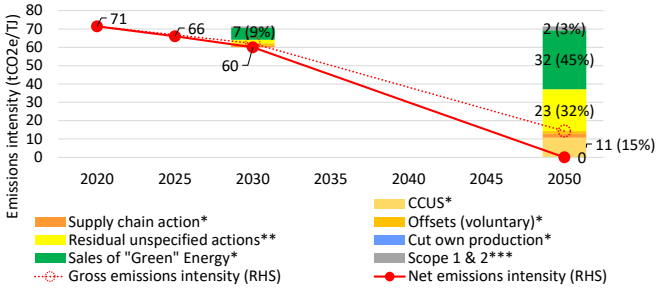
99 The overall aim of setting out in detail the disclosure a company should provide about its net zero strategy is so that it can be easily and reliably assessed by both investors and external and independent organisations like the TPI and SBTi. By combining disclosure from Indicators 1-5 (1: Ambition, 2-4: Long-, medium- and short-term targets, 5: Decarbonisation strategy), this Standard enables intensity and absolute emissions pathways to be plotted consistently on both a net and a gross basis (see Exhibit 5). This pathway can then be used to assess a company against its peers and against a sectoral emissions benchmark consistent with a net zero climate objective.

Exhibit 5: An example of a net zero transition pathway showing both absolute emissions and emission intensity metrics on both a gross and net basis across short-term, medium-term and 2050 targets based on disclosure from CA100+ Indicators 1-4



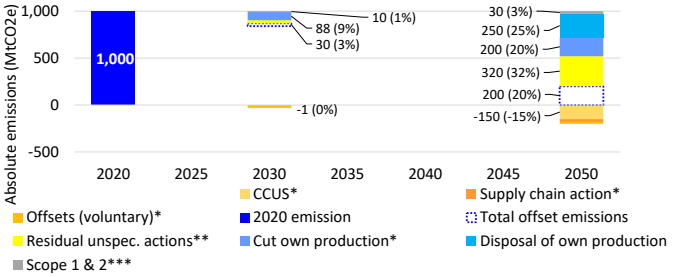
100 By utilising the disclosure from Indicator 5 (Decarbonisation Strategy), investors can additionally see how an oil and gas company intends to deliver on its strategy. Investors can look at the potential contribution of measures on either an intensity basis (Exhibit 6) or an absolute basis (Exhibit 7). This strategy can then be directly compared with its peers.

Exhibit 6: An example of how disclosure from Indicator 5 (Decarbonisation Strategy) can be used to assess the contributions of various actions towards meeting those 2030 and 2050 targets on an intensity basis



(As per Exhibit 2) * The contribution of these actions should be stated (even if they are zero) ** Residual unspecified actions should be < 25% and < 50% for the medium- and long-term targets respectively. *** Scope 1&2 should be zero by 2050.

Exhibit 7: Disclosure from Indicator 5 (Decarbonisation Strategy) can also be used to assess the contributions of various actions towards meeting 2030 and 2050 targets on an absolute emissions basis



(As per Exhibit 2) * The contribution of these actions should be stated (even if it is zero) ** Residual unspecified actions should be < 25% and < 50% for the medium- and long-term targets respectively. *** Scope 1&2 should be zero by 2050.

101 Disclosure on "green" energy consumed by an oil and gas company's operations (see paragraph 56) and the total annual "green" energy it expects to generate in both its medium- and long-term targets from investing in generation capacity (see Action 4c in Exhibit 2 and paragraph 94) will help investors to assess the impact of an oil and gas company's decarbonisation strategy on global emissions.

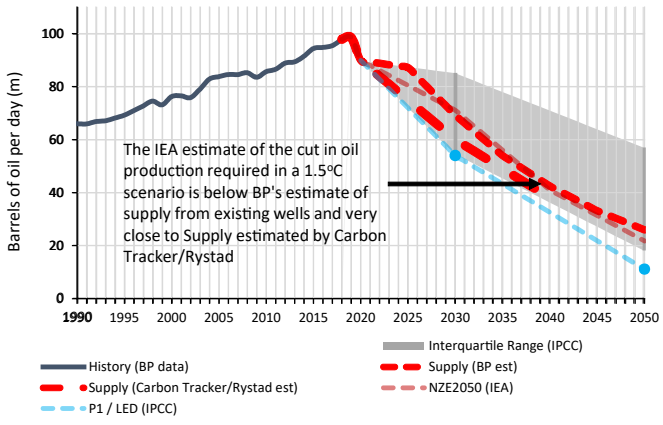
Indicator 6: Capex alignment

102 CA100+ evaluates target companies based on whether a *"company is working to decarbonise its future capital expenditures"* and it *"discloses the methodology used to determine the Paris alignment of its future capital expenditures."*

103 Reaching net zero requires a comprehensive strategic commitment from an oil and gas company and capital investment (capex) plans are an integral part of that commitment. How capital is allocated is a forward-looking indicator that clearly highlights management's priorities and long-term planning assumptions. It is also one of the best indicators investors can use to assess both the credibility of plans to reduce fossil fuel production and potentially diversify into green energy.

104 As highlighted in paragraph 72, in a net zero scenario global oil and gas production must fall significantly by 2050 and this decline must begin well before 2030, particularly for oil. Comparing the trajectory of the required fall in oil consumption with models of oil supply from existing production facilities by IEA [32] [35], BP [33] and Carbon Tracker [17] suggests that there is very little, if any, space for adding new oil supply in a net zero scenario (see Exhibit 8). The IEA's Roadmap for Net Zero [35] clearly states there should be no new oil and gas fields approved for development.

Exhibit 8: Oil production/consumption trajectories consistent with a 1.5°C scenario with no or low overshoot compared to estimates of supply from existing wells from BP [33] and Carbon Tracker / Rystad [2]



105 In this context oil and gas companies wishing to align with net zero should acknowledge the need to reduce supply globally (as previously stated in paragraph 73) and adjust their investment plans accordingly. To avoid the risk of sanctioning long lived investment that would contribute to global emissions exceeding the 1.5°C budget or result in stranded assets, they should decrease overall fossil fuel capex. Upstream investment, particularly exploration and new oil projects, should be significantly curtailed given the need for production to decrease before 2030. The capital saved can be returned to shareholders or re-invested in low-carbon energy assets to accelerate the transition.

106 The capex disclosures an oil and gas company should provide are summarised in Exhibit 9 but an oil and gas company seeking to align with net zero should:

107 • **Review its investment strategy to ensure it is aligned with net zero overall and consistent with the production targets given in paragraph 74**

108 • **Disclose this alignment and set out the material assumptions underpinning this assessment (e.g. projected levels of demand, oil and gas prices, carbon tax, depletion rates of existing production – see Indicator 10 paragraphs 142, 143, 146 respectively)**

109 • **Disclose total group capex in the last financial year and a forward-looking budget (minimum three years ahead) specifying the number of years included in the budget and the expected breakdown by year**

110 • **Disclose total capex in fossil fuel activities in the last financial year and a forward-looking budget (minimum three years ahead)**

111 • **Disclose total capex in upstream oil and gas activities in the last financial year and a forward-looking budget (minimum three years ahead)**

112 • **Disclose total capex in oil and gas exploration activities in the last financial year and a forward-looking budget (minimum three years ahead)**

Exhibit 9: Principal Capital Expenditure disclosures

Disclosure metric	Capex (million)			
	Historic Financial Year	Forward-looking budget (min. 3 years)	Breakdown of forward budget by year	Notes and additional disclosures
Group capex	**X**	**X**	**X**	Specify number of years in the budget (this should be consistent across all capex metrics)
• **Fossil fuel related**	**X**	**X**		**Total capex in all projects related to exploration, production, refining and transportation of fossil fuels**
• Total upstream	X	X		All capex related to the exploration, production and transportation of fossil fuels to refinery site, including maintenance
• Exploration	X	X		All exploration capex for both brownfield and greenfield fossil fuel locations
• Greenfield	(x)	(x)		Only disclosed if production targets are inconsistent with the IEA's net zero scenario
CCUS, BECCS* and DACCS	**X**	**X**		**Can include capitalised R&D**
• **"Green" energy**	**X**	**X**		**Definition of green determined by the appropriate taxonomy. Aside from wind and solar it can include hydrogen, biofuels, BECCS***
• Established technologies	X	X		Capex in wind and solar

* Investment in BECCS deployment can be included within "green" energy if consistent with taxonomy

113 This Standard does not specify that all fossil fuel investment should stop altogether. Investment will be needed to maintain production from existing assets and reduce operational emissions to net zero.

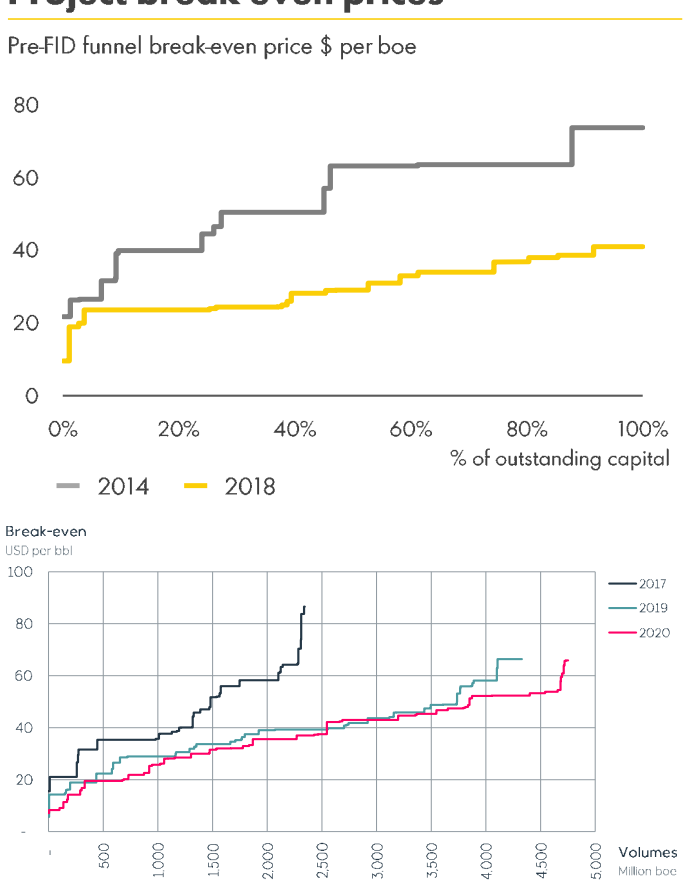
114 Nevertheless, a company's overall investment strategy should be consistent with the significant fall in both fossil fuel consumption required in a net zero scenario and the likely impact this will have on prices. An oil and gas company that is not planning to reduce oil or gas supply at a rate consistent with the IEA's 1.5°C scenario (see paragraph 72) should provide further disclosure to investors to support its assertion that its investment strategy is consistent with net zero. In this case an oil and gas company should:

115 • **Disclose greenfield[11] exploration capex in the last financial year and a forward-looking budget (minimum three years ahead)**

116 • **Disclose all investments in new fossil fuel production sanctioned in the last year and in the current pipeline ranked by expected production cost. Expected production cost metric should reflect anticipated operating costs, depreciation and interest charges. Exhibit 10 shows two examples of similar disclosure already provided, however oil and gas projects should be ranked separately. This disclosure is only needed for products (oil or gas) where the planned reduction in supply is insufficient to meet the decline required by the 1.5°C scenario**

117 • **Disclose that the assumptions underpinning sanctioned individual projects are consistent with the overall strategy (see paragraph 108)**

Exhibit 10: Examples of breakeven cost disclosure from Shell [36] and Equinor [37] (ConocoPhillips has provided similar analysis). Companies that are not intending to cut production at or below the level implied by 1.5° scenario should prove investments in new supply will be low cost.



118 As set out in paragraph 86, oil and gas companies intending to deploy CCUS, BECCS and DAC also need to set out their current and proposed investments in these technologies. An oil and gas company should:

119 • **Disclose total capitalised spending (i.e. capex plus any capitalised R&D) on CCUS, BECCS and DAC in the most recent financial year and a forward-looking budget (minimum three years ahead)**

120 Oil and gas companies can opt to redistribute the savings generated from cutting fossil fuel investment in the form of dividends or share buybacks. Alternatively they can re-invest these savings in low-carbon energy infrastructure. A substantial increase in spending on renewable generation and transmission infrastructure is needed to accelerate the transition and demand for low-carbon energy is expected to grow rapidly.

121 For oil and gas companies seeking to transition to become broader energy suppliers, to ensure this investment in "green" technologies does ultimately deliver low-carbon energy, it should be consistent with any specifications set out in the appropriate regional taxonomy. Capital investment in projects that do not qualify as "green capex" according to the taxonomy may not be assessed as low-carbon by third-party organisations like the SBTi and TPI. All oil and gas companies seeking to transition should:

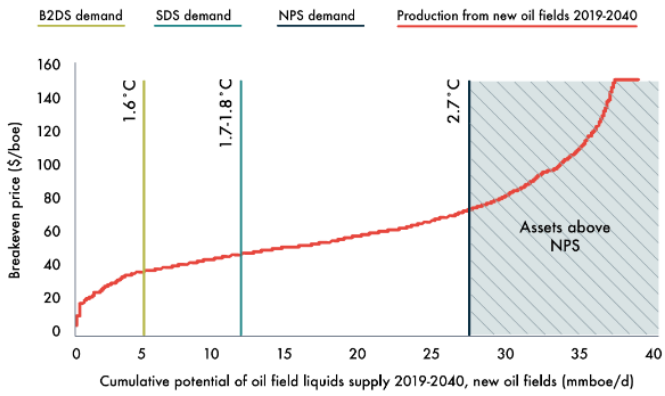
122 • **Disclose "green" energy capex in the last financial year and a forward-looking budget (minimum three years ahead) where "green" is defined by the appropriate taxonomy. Aside from wind and solar it can include green hydrogen, biofuels and BECCS**

123 • **Disclose capex on *established* "green" technologies such wind and solar in the last financial year and a forward-looking budget**

External assessment of net zero based on Indicator 6

124 Alignment of the capex budget, and external verification that it is aligned, is an important component of this Standard. Aside from the disclosure requested above, tools such as Carbon Tracker's least-cost methodology (LCM) can be used to evaluate the investment plans of oil and gas companies. LCM uses an absolute emissions budget determined by the climate target (see Exhibit 11). This absolute emissions budget is compared to the global supply of oil and gas which is ranked by cost to determine the maximum cost of production consistent with that budget. This maximum production cost can be used to assess the proportion of a company's investment projects that are consistent with that climate target. In addition, investors will be able to compare oil and gas companies' ranked expected production cost curves against each other.

Exhibit 11: Unsanctioned oil fields supply cost curve, 2019-2040* [17]



* Source: Rystad Energy, IEA and Carbon Tracker. Notes: Carbon Tracker data to support a 1.5°C scenario is not currently available but, consistent with the IEA's NZE analysis, is expected to show that very little or no additional supply is consistent with a 1.5°C scenario (see paragraph 104). Potential oil supply with a breakeven of > $150/boe has been aggregated at that level

Indicator 7: Climate policy engagement

125 CA100+ evaluates target companies based on whether they have *"a Paris-Agreement-aligned climate lobbying position and all of its direct lobbying activities are aligned with this", "Paris-Agreement-aligned lobbying expectations for its trade associations, and it discloses its trade association memberships"* and *"has a process to ensure its trade associations lobby in accordance with the Paris Agreement".*

126 No supplemental disclosure is proposed at this time.

Indicator 8: Climate Governance

127 CA100+ evaluates target companies based on whether *"the company's board has clear oversight of climate change",* its *"executive remuneration scheme incorporates climate change performance"* and *"the board has sufficient capabilities/competencies to assess and manage climate related risks and opportunities."*

128 To ensure current management teams are incentivised to reduce emissions, emission targets should be linked to executive pay. As a minimum an oil and gas company should:

129 • **Link its company-wide short-, medium-, and long-term emissions targets (which include Scope 3) to executive remuneration. The link should be prominently disclosed with who it applies to, the proportion of the renumeration linked to the target, with the impact of under/over performance explicitly stated**

130 • **Remove any link between management remuneration and fossil fuel production or reserve growth (see [38])**

Indicator 9: Just transition

131 CA100+ evaluates target companies based on whether *"it considers the impacts from transitioning to a lower-carbon business model on its workers and communities."*

132 No supplemental disclosure is proposed at this time.

Indicator 10: TCFD Disclosure

133 CA100+ evaluates target companies based on whether *"it has committed to implement the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD)"* and *"employs climate-scenario planning to test its strategic and operational resilience."*

134 TCFD established the principles underpinning both the need for climate-related disclosure and how that disclosure should be provided [20]. It also set out the need for supplemental sector-specific disclosure for the energy sector and the financial metrics (revenue, costs, assets, liabilities and capital allocation) that should be covered by such disclosure [39].

135 The way oil and gas companies currently express their climate ambitions and the metrics they disclose to investors varies widely. This variation is understandable as it reflects their different business mixes and strategic priorities. However, the multiple, competing, approaches also make it difficult for investors to evaluate their ambitions and ultimately undermines confidence in claims of alignment. These challenges will increase as oil and gas businesses start transitioning to net zero and are likely to be further compounded by divestment and acquisition activity. A consistent disclosure framework that captures the specific actions needed in the oil and gas sector and enables investors to understand, track and compare decarbonisation strategies, is needed. Such a framework is also in the interests of companies seeking to communicate genuine net zero commitments.

136 The fundamental components of this framework are consistent measures of both the energy and emissions output of the company (see Exhibit 4). In most cases the information needed to generate these metrics is already provided but the disclosure is partial or inconsistent; often emissions data (Scopes 1 – 3) is not disclosed on a consistent boundary or the boundary used for the emissions data is inconsistent with the energy data.

137 Reconciling these conflicting reporting boundaries is not straightforward. Of primary consideration is that oil and gas companies use a comprehensive boundary that covers all its energy related activities and is consistent with the one used to set targets (see Indicator 1: Ambition). Companies have the flexibility to set targets using equity or operational boundaries (whichever provides the most comprehensive view) but should aim to disclose emissions on both boundaries. Ideally the chosen boundary should also align with financial reporting. An oil and gas company should:

138 • **Disclose all externally sold energy. This should be a comprehensive metric covering all forms of energy sales on both an equity and operational boundary. Sales of "non-energy" products and any "financial trading" volumes should be excluded but with the adjustments stated. Energy will be counted on a primary basis with stated adjustments for any sold electricity or hydrogen. However, no adjustment will be made when converting renewables into primary energy (fossil fuel equivalent (FFE) or partial substitution). Partial substitution requires hypothetical and arbitrary conversions, overstating the primary energy sold by the company, they are not used by benchmark data providers and are not calculated consistently over time and between companies [40]. Oil and gas companies can state their intensity/targets on a partial substitution method but should state this clearly along with the assumptions they have used to make this calculation so these targets can be converted into a standard metric. Energy sales should be segmented by fuel. Upstream energy production, also segmented by fuel, should be stated.**

139 • **Disclose emissions from all externally sold energy. This should be disclosed on the same (comprehensive) footprint used for energy (see paragraph 138), covering all emission scopes and greenhouse gases (methane, as well as CO_2). Where neutralising measures such as CCUS or offsets are already being deployed, the difference between gross and net emissions should be explicitly stated. Separate emissions data (both operational and Scope 3) should also be provided for upstream activities. To enhance the credibility of emissions data, it should be verified by independent and external advisors.**

140 Presenting information in this way enables a company to clearly state both its absolute emissions and emission intensity on a consistent basis, enabling progress to be tracked and compared with its peers and the benchmark. This also facilitates the company ambitions being assessed by external, independent organisations such as the TPI and SBT and investors. A summary of the disclosure an oil and gas company should provide, as set out against the actions stipulated in the CA100+ framework, is shown in Exhibit 12.

141 Finally, consistent with the recommendations of the TCFD, oil and gas companies should understand the impact of climate scenarios on their accounts. A company should state the long-term forecasts (2030, 2040 and 2050) underpinning its accounts:

142 • **Energy price in $ per barrel for crude oil and $ per btu or MJ for gas**

143 • **Demand for oil (in barrels) and gas (in btu) stating % decreases from a 2019 base year**

144 • **The expected increase in global temperatures in the central scenario**

145 The assumptions underpinning these forecasts should also be disclosed:

146 • **Global average carbon tax paid ($ per tonne of CO_2e)**

147 • **Levelised cost of renewable electricity for both solar and wind (in $ per MWh and % reduction from stated base year value)**

148 • **Renewable electricity (in TWh) and as a percentage of total electricity and final energy demand**

149 • **Annual EV sales and share of global light vehicle sales (millions and % respectively)**

150 All capex plans, M&A, asset valuations and depreciation schedules, should be consistent with these assumptions. Where such analysis indicates a material risk of plant closure, provisions should be set aside to cover clean-up costs/liabilities [41].

151 If the demand forecasts underpinning the accounts are not aligned with a net zero scenario (as determined by paragraph 144), then the company should disclose the impact of a 1.5°C limited or no-overshoot scenario, such as the IEA's NZE 2050, on its headline financial metrics. An oil and gas company should disclose the impact on:

152 • **Revenue and profits: net zero is likely to lower both sales volumes and prices and result in higher depreciation rates and provisions**

153 • **Balance sheet: net zero is likely to result in write downs and lower asset valuations while also increasing liabilities**

154 • **Capital expenditure and cashflow: net zero is likely to lower operating cashflow but this could be potentially offset by lower capex**

Exhibit 12: Emissions and energy metrics should be disclosed consistently to assess net zero strategies

Measure	Attribute	Rationale
Energy		
Externally sold	Comprehensive and consistent	Total energy sold externally (Million TJ) should be disclosed. This should include energy from all divisions, fossil fuel and lower carbon energy sources, adjusted for internal sales, non-energy products and financial trading (see below). Equity or operational boundary can be used but should be consistent with emissions and financial disclosure
Consolidation boundary	Non-energy sales broken out	The impact of any adjustment to its externally sold energy figure for non-energy sales and the rationale for that adjustment should be disclosed
	Stated on a primary energy basis	Energy should be stated on a primary energy basis to ensure comparability (other metrics are potentially valid but to improve comparability the Standard focusses on a single metric)
	No fossil fuel equivalent (FFE) adjustment for renewables	Electricity generated through combustion should be grossed up using appropriate regional factors, however, renewable electricity should be stated without using a FFE calculation. If a company prefers to use a FFE approach it should be clearly stated and the impact of the adjustment clearly stated
	Exclude financial trading volumes	The impact of any adjustment for financial trading should be stated (the definition of this term has yet to be standardised however)
Segmentation	By fuel and energy source	Externally sold energy should be segmented by fuel and energy source, including biofuels, to enable assessment by external parties
	By own/third-party production	The energy generated from own production (upstream + lower carbon production, self-build plus long-term PPAs), as opposed that resold from third parties, should be disclosed
	By green sources	The energy generated by sources consistent with the EU or appropriate regional taxonomy
Emissions		
Consolidation boundary	Comprehensive	Emissions from all operations and activities including non-energy activities should be disclosed
	Consistent	Boundary should be consistent with a) current energy disclosure b) financial disclosure and c) targets to enable targets based on % changes to be calculated without adjustment
	Both equity and operational footprints	Emissions should be stated on both equity and operational boundaries. Operational boundary provides direct oversight for investors into managed operations. Equity disclosure reduces the ability to artificially lower reported emissions by reducing the ownership of emission intensive subsidiaries
	Non-energy activities split out	Emissions that relate to non-energy activities should be broken out (consistent with the definition of "assessed product" above and used by CDP/SBT and TPI)
Gases	Include methane	Non-CO_2 emissions including methane should be stated on a metric tonnes and GHG/CO_2e basis. Methane intensity should be expressed on a total upstream production (i.e. oil and gas) basis with an additional denominator for mid-stream companies as appropriate (see paragraphs 58-64)
Scopes	Include all emissions scopes	Emission Scopes 1, 2 and 3 (category 11) should be disclosed. Other Scope 3 categories should be disclosed in time but, consistent with the GHG protocol, the initial focus should be on the most material categories (1 - purchased goods/services, and 4 & 9 transportation)
	Lifecycle emissions	Lifecycle (well-to-wheel) emissions factors that include upstream emissions from energy supplied by third parties provide a potentially more comprehensive way to capture emissions footprint and could, in time, be adopted as the best assessment metric but these factors, and the way they are applied, should be externally and independently verified
Gross vs net	Difference between net and gross	Emissions should be stated on both a gross and net basis to enable the total contribution of offsets, credits and CCUS to be calculated
	Individual contribution of offsetting measures	The individual contribution of offsets, credits, third-party actions and CCUS should be specified as/ when they become material
Segmentation	By geography	Regional emissions should be disclosed to compare and contrast progress
	By division	Emissions should be segmented by division with "upstream" (production and exploration) emissions a minimum

Exhibit 13: A summary of actions and disclosure for the net zero Standard by indicator

	Action	Segment		Minimum disclosure
#1	Set comprehensive target to reach net zero by 2050			Confirm target is comprehensive (i.e. covers all emissions and energy related activities)
#2	Set short-term (up to 2025) emissions target			Expected reduction in overall intensity or absolute emissions from a base year
#3	Set medium-term 2025-35 emissions target			Expected reduction in intensity or absolute emissions from base year
				Expected impact of intensity target on absolute emissions or Expected impact of absolute emissions (i.e. wind-down) target on intensity
				The impact of total netting off measures on absolute gross emissions (in $mtCO_2e$)
		Set upstream emissions target*		Emissions/activities covered (should include scopes 1,2 and 3), base year value, % reduction
#4	Set long-term 2036-50 emissions target			Expected reduction in intensity or absolute emissions from base year
				Expected impact of intensity target on absolute emissions or Expected impact of absolute emissions (i.e. wind-down) target on intensity
				The impact of total netting off measures on absolute gross emissions (in $mtCO_2e$)
		Set upstream emissions target*		Emissions/activities covered (should include scopes 1,2 and 3), base year value, % reduction
#5	State strategy to deliver ambition	General		The major actions the company intends to take to reach medium- and long-term targets
				Quantify actions that account for at least 50% of the medium-term reduction Quantify actions that account for at least 75% of the long-term reduction
		1) Reduce operational emissions to net zero		Contribution to medium- and long-term target in percentage terms and either tCO_2e per TJ or million tCO_2e
				Consumption of "green" energy
				Verify methane emissions externally and disclose. Set plan of action and target
				Zero routine flaring by 2030 and minimise non-routine flaring
				Contribution of CCUS to the operational emissions target
		2) Reduce scope 3 emissions / fossil fuel sales	a) Decrease in own production	Contribution to medium- and long-term target in percentage terms and either tCO_2e per TJ or million tCO_2e
				Total annual oil and gas production in both medium- and long-term targets
			i) Decrease in oil/ liquids production	Contribution to medium- and long-term target in percentage terms and either tCO_2e per TJ or million tCO_2e
				Annual oil production in both medium- and long-term targets
				If targeted rate of decline in oil/liquids production (paragraph 72) is not aligned (at or below the level implied by the 1.5°C pathway) the reason why should be given and the mean current production cost should be given
			ii) Decrease in gas production	Contribution to medium- and long-term target in percentage terms and either tCO_2e per TJ or million tCO_2e
				Annual gas production in both medium- and long-term targets
				If targeted rate of decline in gas production (paragraph 72) is not aligned (at or below the level implied by the 1.5°C pathway) the reason why should be given and the mean current production cost should be given
		3) Netting off ("neutralising") residual gross emissions	General	Contribution to medium- and long-term target in percentage terms and either tCO_2e per TJ or million tCO_2e
			a) CCUS, BECCS, DACS	Conduct and publish feasibility study setting out costs, timings and returns on investment
			b) Offsets	Offset costs (in $ per tonne and total)
				Type, mix and provider of offsets
			c) 3rd party	Describe the intended actions, supplier/customer mix
		4) Increasing sales of lower carbon energy	General	Contribution to medium-term and long-term target in percentage terms and either tCO_2e per TJ or million tCO_2e
			b) Investing in adding "green" production	Contribution to medium-term and long-term target in percentage terms and either tCO_2e per TJ or million tCO_2e
				Annual energy production in both medium- and long-term targets
				Split of self-built generation (capex) and long-term PPAs (in TJ)
				All green production should meet EU or appropriate regional taxonomy criteria

#6	Align capital investment plans (capex) with net zero	General	Confirm alignment and set out the material assumptions (e.g. energy prices, carbon tax, depletion rates of existing production) underpinning that assumption
			Total group capex in the last financial year and a forward-looking budget (min. 3 yrs ahead) specifying the number of years included and the expected breakdown by year
		Fossil fuel related	Total fossil fuel capex in the last financial year and a forward-looking budget
			Total upstream capex in the last financial year and a forward-looking budget
			Total exploration capex in the last financial year and a forward-looking budget
			If the decline of either oil and gas production is less than specified in the adopted 1.5°C scenario the following should be additionally disclosed**:
			• Total greenfield capex in the last financial year and a forward-looking budget
			• The assumptions underpinning these individual project investment decisions (e.g. oil and gas prices) are consistent with the overall strategy
			• (if expected growth in oil is greater than anticipated by the 1.5°C scenario) The breakeven cost and annual production assumptions of oil-focused investments sanctioned in the last year and in the current pipeline
			• if expected growth in gas is greater than anticipated by the 1.5°C scenario) The breakeven cost and annual production assumptions of gas-focused investments sanctioned in the last year and in the current pipeline
		Investment in carbon removal	Total capitalised spending on CCUS, BECCS and DACS in the most recent financial year and a forward-looking budget (minimum three years ahead)
		Investment in "green" energy	Total current "green" capitalised investment (plant property and equipment plus any capitalised R&D in emerging technologies such as CCUS and hydrogen) and a forward-looking budget
			Current capex on *established* "green" technologies such wind and solar and a forward-looking budget
#7	No supplemental disclosure proposed		
#8	Link emissions targets to executive remuneration		The link should be prominently disclosed with who it applies to, the proportion of the renumeration linked to the target, and the impact of under/over performance explicitly stated
	Remove any link between remuneration and fossil fuel production and reserve growth		
#9	No supplemental disclosure proposed		
#10	TCFD Disclosure	General disclosure	Externally sold energy on a consistent boundary segmented by product, with non-energy and trading adjustments disclosed (see Exhibit 12)
			Emissions, all scopes (1, 2 and 3), all gases, on a consistent boundary between scopes and with externally sold energy activities on gross and net basis. Upstream emissions should be specified* (see Exhibit 12)
		Forecasts underpinning its accounts (2030, 2040, 2050)	Energy price in $ per barrel for crude oil and $ per btu or MJ for gas
			Demand for oil (in barrels) and gas (in btu) stating % decreases from a 2019 base year
			The expected increase in global temperatures in the central scenario
		The assumptions underpinning the forecasts	Global average carbon tax paid ($ per tonne of CO_2e)
			Levelised cost of renewable electricity for both solar and wind (in $ per MWh and % reduction from stated base year value)
			Renewable electricity (in TWh) and as a percentage of total electricity and final energy demand
		The impact of aligning to a 1.5°C scenario	EVs sold and share of annual global light vehicle sales (millions and % respectively)
			Revenue and profits: likely lower volumes and lower prices combined with higher depreciation and liabilities
			Balance sheet: write downs and lower asset valuations plus increased likelihood of liabilities
			Capital expenditure and cashflow: lower operating cashflow potentially offset by lower capex

* Additional upstream target only applicable to integrated oil and gas companies. ** Light grey shading shows disclosure which is required if the rate of expected decline in either oil and gas production is less than specified in the adopted 1.5°C scenario

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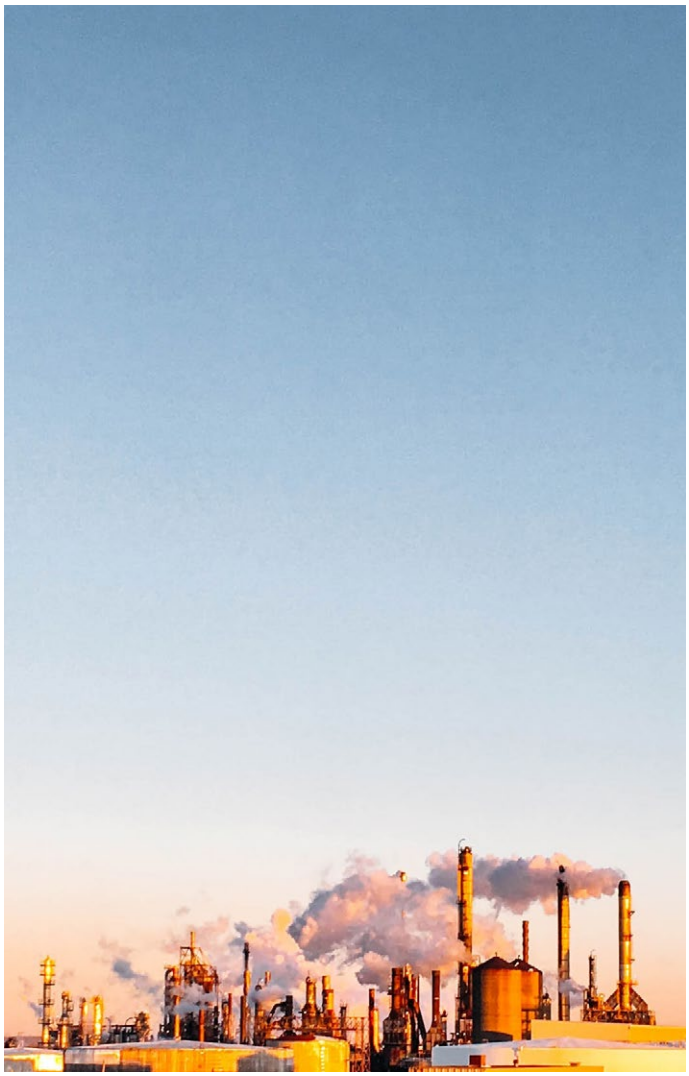


Endnotes

1 Scope 3 category 11 (use of sold products) emissions. See [39].

2 At the time the IEA had not published a 1.5oC scenario enabling oil and gas companies to be compared to a primary energy net zero benchmark. Hence the strategies were compared to less ambitious climate targets and none were aligned to a 2oC benchmark. This Standard intends to use the recently published Net Zero scenario from the IEA [45] to benchmark these strategies. Further work is needed to fully assess this scenario and this will be incorporated in the Standard in due course. Ahead of the completion of this work, this report considers that all emissions in primary energy sector must fall to net zero by 2050 to be consistent with 1.5oC. However while emissions across the whole economy must fall to net zero to be consistent with a 1.5oC scenario, some positive emissions in the primary energy sector may be consistent. Also net zero typically refers to CO2 only – some energy-related methane emissions may be consistent.

3 Non-energy related petrochemical activities should also aim to reach net zero but are typically excluded from oil and gas assessment frameworks like TPI and SBT to the extent disclosure allows. Downstream (marketing) activities are included in the assessments to enable the full transition risk of integrated oil and gas suppliers to be captured.

4 TPI's recent analysis of the energy sector revealed a growing number of partial targets. Companies should report emissions on both operational and equity boundaries (See Exhibit 4).

5 TPI's recent analysis of the energy sector revealed that most methane targets are currently expressed in a way that cannot be assessed [12]. Typically they are linked to a % of an energy carrier (natural gas) which is not forecast. See paragraphs 62-64 for more details.

6 The definition of integrated applied here is an oil and gas company that sells more energy downstream than it produces upstream. This reflects which part of the business TPI assesses to calculate emission intensity and may not correlate with classifications used by indexes.

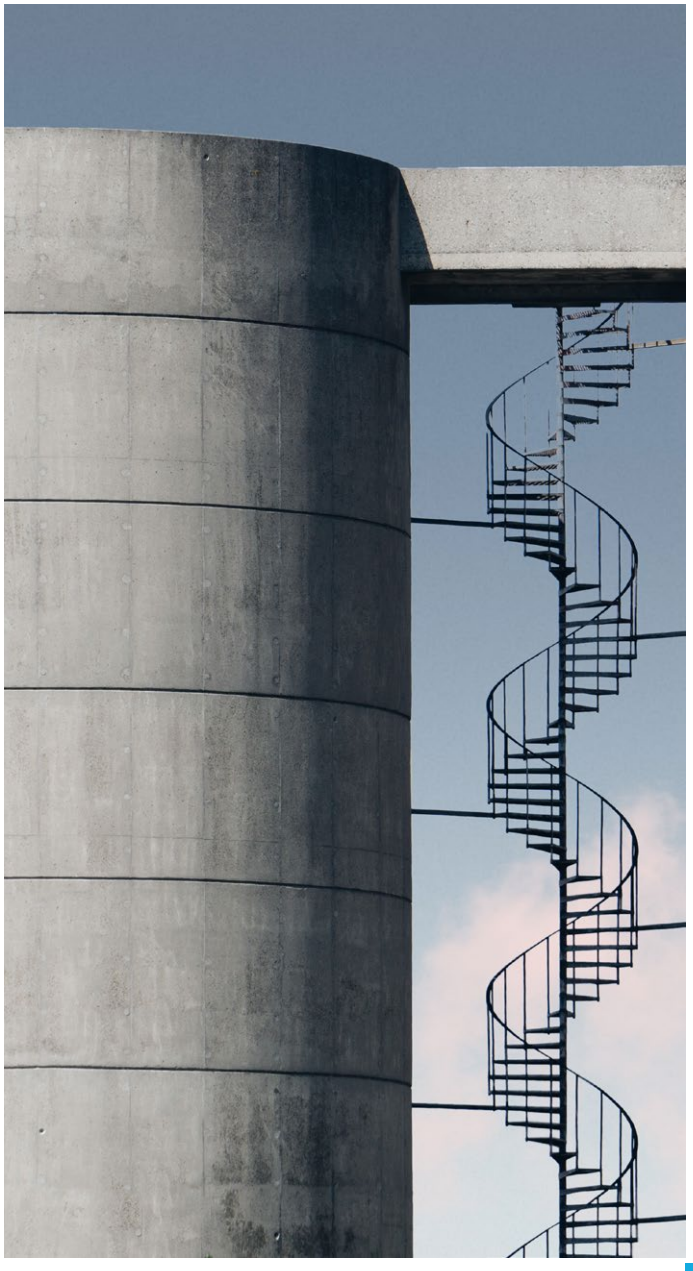
7 The current EU Climate Law proposes an absolute emissions reduction of at least 55% from 1990 levels by 2030. EU non-financial disclosure is currently being reviewed [13].

8 Throughout this document "green" is used in quotation marks to reflect the fact the definition is not yet firmly established. For technologies such as hydrogen and biofuels, which can have both very different level of emissions reduction according to how they are implemented and wider environmental impacts, this Standard aims to utilise appropriate regional taxonomies to establish this definition. See paragraph 95 for further discussion.

9 A recent UN report, which estimated methane emissions from the oil and gas sector were 84 Mt in 2017, suggests this figure could be even higher [23].

10 Production cost disclosure should be on an underlying (i.e. pre-exceptional) basis derived from two metrics: EBIT and EBIT pre-depreciation (EBITDA) which are typically disclosed in segmental financial statements of oil and gas companies. The boundary used for cost disclosure (numerator) must align with production disclosure (denominator).

11 The distinction between greenfield and brownfield oil and gas projects is not always clear cut. In general greenfield projects are started from scratch in completely new areas, require supporting ancillary infrastructure (pipelines, roads etc) and sometimes new licences.



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